

The National Maternity Hospital
ANNUAL REPORT 2020



The National
Maternity
Hospital
Holles Street

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This Annual Report should be read in conjunction with the Annual Financial Statements which provide certain additional information required under the Code of Practice for the Governance of State Bodies Business and Financial Reporting Requirements purposes.

The NMH Mission and Vision Statements

Mission

As the leading Maternity Hospital in Ireland and a national referral centre for complicated pregnancies, premature and sick babies, our mission is to ensure our patients receive high quality, safe, evidence based care whilst respecting their dignity and rights. This will be achieved through fostering excellence and innovation in patient care, training, education and research, in a culture of quality and safety where each person is valued, respected and facilitated for personal and professional growth.

Vision

To be renowned as a world class hospital for the care of women and babies.



Births:
7,263



Babies:
7,400



Outpatient
Attendances:
90,621



Patient Satisfaction:
95%



Ultrasound Scans:
33,420



Emergency Room
Attendances:
11,115



Radiology exams:
6,513



Specimens received:
183,209



Staff:
916



Beds:
200



Breastfeeding Rate:
72%



Medications
dispensed:
24,498

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Deputy Chairman's Report



I have great pleasure in presenting the Annual Report of the Hospital for the twelve months ended 31st December 2020.

The report outlines the main activities of the Hospital during the year in which activity, in terms of mothers delivered, has decreased. During the year 7,263 women gave birth to 7,402 infants; a decrease of 7.7% on 2019.

The Hospital's financial performance is set out in detail in the report of the Finance Committee.

Similar to many organisations and individuals both in Ireland and worldwide, 2020 was a very challenging year for the NMH and our staff. As has been the case in the past, the staff in the NMH not only rose to the challenges but continued to show their spirit and dedication in developing work practices so that clinical care could be delivered to our patients in a safe environment for all concerned.

In late February concerns began to be raised about the potential for COVID-19 spread, by early March the NMH COVID-19 Task Force was meeting seven days per week and by the end of March, with both innovation and hard work from the facilities team with the support of the midwifery staff, the NMH had constructed a "hospital within a hospital" which enabled us to cohort COVID-19 suspected and COVID-19 positive patients and manage them in an appropriate manner.

During the year we managed to acquire onsite testing and with the support of all staff, the COVID-19 pandemic has been well managed despite the site constraints. At year end we had 100 patients and 100 staff who had been diagnosed as COVID-19 positive.

Despite the COVID-19 crisis the SVUH project continued to progress with a significant milestone being reached with the preparation and finalisation of the Business Case early in the year which was then submitted to the HSE in June. In addition, the first phase of the Operation Readiness Programme continued throughout the year and was signed-off at year-end. The initial phase of enabling works including the new Pharmacy and the extension of the car parks of the SVUH campus were nearing completion with handover by the end of year. In parallel with these workstreams, the discussions continued with the legal teams from both Hospitals and the HSE in relation to various legal documents such as the Lease and Operating License and by the year-end significant progress had been made and there only remained a few clauses for finalisation.

The Board continues to have concerns in relation to certain provisions in the SA (Service Arrangement) with the HSE/IEHG. In the interim the Board continues to rely on the HSE letter recognising the independence of the Hospital and our right to independent operations outside of the HSE/IEHG SA. A number of these concerns and the need for a more collaborative and partnership approach were reflected in the report of the Independent Review Group and we look forward to this approach for future SA's which is to be initiated through the Voluntary Hospital Forum. As a Voluntary Hospital, the Hospital's Board fully recognise our obligations in relation to the provision of patient care. Funding of circa €60M is provided by the State whereby they contract with us to provide public services to patients and this is supplemented by the private income generated by the Hospital. The Hospital's Board is also very aware of the voluntary and independent nature of our role and the obligations in relation to the funds and incomes that are not provided by the State. The Board is fully committed to the provision of the highest level of care to all our patients and to ensuring that this is provided in an appropriate environment, both from a physical and a governance perspective, for both patients and staff.

At the AGM in June a detailed update on the Project and particularly the legal arrangements was provided to the Governors with the support of Mason Hayes and Curran (MHC). The Executive Committee and MHC

clarified a number of questions and misconceptions that had been raised in the media.

As usual the Executive continued to evolve and enhance our governance and review and refine the work of the various sub-committees. At Finance, work continued on the collection of sums due from debtors which by year-end had led to further reductions in debtor balances. Finances and cashflow continued to be concerns particularly in the light of the additional COVID-19 costs and also the capital outlay on the Labour and Delivery Unit project and the Theatre project. It was again disappointing that by the year-end the HSE had not confirmed capital funding for the urgent projects.

In the next few years many thousands of women will deliver babies in the current facilities at Holles Street. Providing these services onsite, especially in the context of quality, dignity and safety, will present many challenges in the context of both infrastructure, facilities and space. The main buildings were constructed in the 1930's and hence suffer from many inadequacies compared to modern buildings. In addition, the continuing evolution of services (ie perinatal mental health) and the need for additional services (ie regional perinatal autopsy, assisted human reproduction) all require physical space. This continues to be a major concern for the EMT and the Board. As previously highlighted the existing site needs some investment over the short to medium term to maintain operations even at existing levels. Infrastructural risks on the current site have been clearly identified and highlighted in reports both to and from various state agencies.

Work continued on some urgent on-site projects and the additional Labour and Delivery Unit opened later in the year with the Theatre project expected to complete early in 2021. New temporary testing facilities, a temporary swabbing facility and a pre-assessment clinic were also provided as a direct result of COVID-19. The short to medium term impact of COVID-19 urgently requires more space to be provided onsite.

Once again many of our Departments excelled during the year. The Catering Team were again building on previous success and again achieved 100% in the Food Safety Professionals Association Food Safety Awards as we did in 2019. We became the first non-private Hospital to be awarded ISO 22000 2018 in Food Safety

Management Systems. In addition, both the Laboratory and the Environmental Department retained their accreditations. Congratulations to everyone involved on these teams, a credit to the NMH.

The many sub-committees of the Board continued their work throughout the year as can be evidenced from the various reports. I would like to thank all the sub-committees and their Chairs and indeed all the members of the Executive Committee for their input and support throughout the year.

Ms Eugénée Mulhern stepped down from the Executive Committee in June 2020 and I would like to thank her for the time she committed to the Hospital over many years.

The Linen Guild met remotely during the year due to COVID-19 and continued to provide invaluable support to many of our vulnerable patients. The benefit of their work cannot be over emphasised and I would like to thank all the members of the Linen Guild for their continued dedication and commitment to the Hospital and its patients. During the year a number of staff retired and I thank them all for the many years that they have given to the Hospital and to our patients. I would also like to extend condolences to the family, friends and colleagues of Mr Ronan Power, Porter who died unexpectedly in April 2020. A number of our retired staff also passed away during the year and condolences are sent to their families and friends.

I would like to thank the EMT, Prof. Shane Higgins, Master, Dr Roger McMorrow, Clinical Director, Mr Ronan Gavin, Secretary/General Manager, Ms Mary Brosnan, Director of Midwifery & Nursing and Mr Alistair Holland, Financial Controller for their hard work and leadership during what has been a very difficult year, due in no small part to the COVID-19 pandemic. On behalf of myself and the Executive I thank them and offer them our continued support. I also want to express my gratitude to my fellow Executive Committee members for their time, commitment and expertise that is an invaluable support to the Hospital.

And finally, a special thanks to all of the staff in the Hospital. They have again in 2020 demonstrated their extraordinary dedication and commitment to the Hospital, patients and to each other.

Nicholas Kearns
Deputy Chairman

Master's Report

It is my great privilege as Master of The National Maternity Hospital to introduce this year's combined Corporate and Clinical Reports. This year marks the first time in the history of the Hospital that we have combined the two reports with the goal of achieving one complete report that showcases The National Maternity Hospital and all we do; we hope to build on this in the coming years

My sincere thanks to Mr Nicholas Kearns, Deputy Chair, Ms Michele Connolly, Honorary Treasurer, Mr William Johnston, Honorary Secretary and all members of the Executive Committee and other Board Sub-Committees for giving so freely of their time, expertise, knowledge and advice during the year.

I owe an enormous debt of gratitude to the Executive Management Team of Ms Mary Brosnan, Director of Midwifery and Nursing, Mr Ronan Gavin, Secretary General Manager, Dr Roger McMorrow, Clinical Director and Mr Alistair Holland, Financial Controller for their unwavering support and commitment to the Hospital during an extraordinary year. I would also like to thank Ms Bernadine O'Driscoll and Ms Tracy O'Dea, Master's Secretaries, for their hard work during the year. However, in the year that was, it was the 1,100 staff, all of whom worked tirelessly to provide safe and effective

care to all our patients, that I have nothing but growing admiration and praise for and they make me proud to be Master of The National Maternity Hospital.

The National Maternity Hospital has been in operation at Holles Street since 1894. It remains an independent voluntary organisation operating under a Charter with a Board of Governors and the Master responsible for clinical and operational management. The Royal Charter granted to the hospital by Edward the VII in 1903 formally lays down the structure of the hospital and remains to this day the legal basis of the hospital's existence. In addition, the NMH is governed by a set of Bye Laws which help to ensure that the operational activity of the hospital is consistent with the Hospital Charter. Since opening our doors we have understood that there is nothing more important than the safe care of our mothers and the safe delivery of our children. As a leading provider of maternity, gynaecology and neonatal care, our team is dedicated to creating an environment where women, babies and their families receive the highest standard of care.

The National Maternity Hospital was founded with two objectives: firstly, to cater for the women of the tenements of Dublin that were among the worst slums in Europe at a time in which one-third of families lived

Prof Shane Higgins, Master with his Daughter, Dr Tess Higgins, Senior House Officer, Obstetrics & Gynaecology (from July).



in a single room. These women were given, without charge, good medical attention, rest, a supply of food, and clean clothes for themselves and their children. This was a direct attempt to address the physical challenge imposed by childbirth on malnourished, anaemic but otherwise healthy mothers.

The second objective was to use all the experience and knowledge accumulated by caring for these women for teaching the young Doctors and Midwives who were to look after other women in childbirth. The hospitals teaching function has been a vital part of its foundation from the beginning and as result, the standard of maternal care was at its highest and maternal mortality at its lowest and this still remains the case today.

The National Maternity Hospital is now one of Europe's largest maternity hospitals with 200 beds. The hospital provides maternity, gynaecology, neonatology, fetal medicine, anaesthetics, pathology, radiology, maternal medicine, perinatal mental health, urogynaecology, National Neonatal Transfer Service and community midwifery services. The hospital's Neonatal Intensive Care Unit is recognised as a national referral centre for complicated pregnancies, premature babies and sick infants. Our gynaecology and colposcopy clinics treat almost 15,000 outpatients annually. One of the hospital's main sub-specialities is the treatment of gynaecological cancer; our colposcopy service is funded by the National Cancer Screening Service and is one of the largest units in Europe. We delivered 7,402 babies to 7,263 mothers and there were 1,240 admissions, of whom 117 were born weighing less than 1,500g, to our neonatal intensive care unit during the year.

The NMH established a community midwifery service in 1998 including homebirth, domino birth and early transfer home programmes. This service covers Dublin and North Wicklow and continues to be the busiest community midwifery service in Ireland especially during the COVID-19 pandemic when more women preferred to continue their care in their own home.

The NMH has built up a reputation for undergraduate and postgraduate training and holds international courses on the Active Management of Labour each year. The hospital also educates undergraduate and postgraduate midwives with an extensive professional development programme for midwives and nurses within the hospital. An annual higher diploma programme in Neonatal Nursing Studies is facilitated

in conjunction with the two other Dublin maternity hospitals and the Royal College of Surgeons Ireland (RCSI).

The NMH is part of the Ireland East Hospital Group (IEHG) which comprises 11 hospitals in total. The IEHG is Ireland's largest hospital group serving 1.1 million people with University College Dublin (UCD) as its main academic partner. There are 3 other maternity units within the IEHG; Midland Regional Hospital Mullingar, St. Luke's General Hospital Kilkenny and Wexford General Hospital. There is significant inter-linking of services between the NMH and other hospitals including St. Vincent's University Hospital, Temple Street Children's University Hospital, Our Lady's Hospital for Sick Children, Crumlin, and Mater University Hospital.

...in the year that was, it was the 1,100 staff, all of whom worked tirelessly to provide safe and effective care to all our patients, that I have nothing but growing admiration and praise for...

As we embark on the main build of the new National Maternity Hospital at its proposed co-location with St Vincent's University Hospital on the Elm Park campus, we continue to seek critical capital investment in the current campus with most of the buildings nearly 90 years old. While the current campus will never be fit for purpose, we are continuously expanding necessary clinical services with additional appropriately sized and fitted infrastructure needed. Our new Labour and Birthing Unit (LBU) extension was completed affording five modern delivery rooms including a hydrotherapy pool for labouring patients. We will complete a refurbishment programme on the older part of the LBU by mid-2021 and this will also include a bereavement suite for couples experiencing a pregnancy loss. A new theatre development is ongoing with an expected completion date of mid-2021; this will give three functional theatres allowing a greater focus on benign gynaecology in the coming years.

The first Declan Meagher Symposium took place over a weekend in early January at the Hospital with an exceptional panel of experts including Prof Mark Kilby from the UK, Dr Ron Wapner from the USA and Dr Simon Meagher from Australia. Organised by NMH staff, Dr Siobhan Corcoran, Consultant Obstetrician and

Gynaecologist and Heather Hughes, Clinical Midwife Specialist, the event maintained a strong clinical focus on first trimester issues addressing the multi-disciplinary approach to counselling and management of a wide variety of fetal malformation sequences across all organ systems. The availability and role of new technologies in 2020 including: cell free fetal DNA analysis, molecular karyotyping, expanded carrier screening and the future role of exome sequencing in day-to-day clinical practice was also addressed in the context of the Irish setting.

The Hospital had a Research and Innovations Day in October, organised by Prof Fionnuala McAuliffe at which we presented the inaugural Declan Meagher Medal for research and Professor Colm O'Herlihy Medal for innovation.

The year however was dominated by the COVID-19 pandemic. By early February, 2020 we became increasingly focussed on events in Northern Italy where colleagues and friends reported on the impact of the illness with hospitals overwhelmed and people dying on corridors and in emergency departments due to a lack of basic life support equipment. On the 10th of February we held the first meeting of our multidisciplinary COVID-19 Task Force Team. Maternity is a unique speciality and babies wait for nobody. At the time of writing, more than 10,000 babies have been born safely at The National Maternity Hospital since the onset of the pandemic and there was no

case of COVID-19 among them. Our task force team met daily for three months ensuring all aspects of care were managed appropriately including testing of patients and staff, isolating of suspected or confirmed cases, provision of appropriate personal protective equipment, distillation of evidence and guidance in real time and the expansion of our testing platforms to meet demands. In the initial weeks of the pandemic the internal building team, led by Facilities Engineering Manager Neil Farrington, created a 'hospital within a hospital' allowing us to care for suspected or confirmed cases with the capacity to safely ventilate up to four patients, while also continuing to care for well patients and their babies. In recognition of their vital work during the Coronavirus Pandemic, all staff who worked at The National Maternity Hospital through 2020 were presented with an exclusively designed Commemorative Medal. The medal is a symbol of gratitude for all staff who have helped keep the hospital's patients and each other safe through COVID-19.

The tsunami of disease and death thankfully never arrived in The NMH. We have had over one hundred patients and one hundred staff infected with COVID-19. The number of staff who were sick or self-isolating in the first weeks of the pandemic created significant challenges for us in terms of maintaining a safe environment. At one point we had 107 staff absent (10% of the workforce) due to sickness or the requirement to self-isolate as a close contact. During the first wave of the pandemic this continued to be a major concern. In the early phase of the pandemic we established a drive through swabbing service in the hospital car park, operated by the midwifery and medical staff allowing staff and patients to be tested without having to enter the hospital.

As I write this report, I see a clear light at the end of the tunnel: reducing numbers of infections among patients and staff, most staff and increasing numbers of patients vaccinated, progress on the proposed co-location to the Elm Park Campus accelerating with funding for the operational readiness team and consultancy services available.

I would like to take this opportunity to thank all the staff for their selfless dedication to their patients over the past twelve months.

Prof Shane Higgins
Master



Honorary Treasurer's Report

Twenty twenty was a challenging year for everyone yet at the same time was also a true measure of what can actually be delivered when a team pulls together against immeasurable difficulties. The operations of The National Maternity Hospital (NMH) truly reflected this as has already been noted elsewhere in this report.

Managing the significant volume of activity that goes through the hospital in a cost effective manner always requires tight control and not a small amount of juggling. This was brought to a whole new level in 2020 with significant increases in costs, significant staffing challenges as well as undertaking emergency COVID-19 capital works in an aging building.

The overall outturn for 2020 reflected a surplus of €1.5m based on HSE funding of €72.8m. The hospital continued to generate income from private and semi-private patients. In 2020 this was €12.02m which was down €2.4m (17%) on prior year figures reflecting a decrease in the average length of stay for patients from the onset of COVID-19.

The allocation for the year (which was only confirmed in January 2021) included specific additional funding for COVID-19 related costs of €4.4m. The additional impact of COVID-19 on the finances of the hospital has been segregated out since March of last year and continues to be so to date. This impact includes additional PPE, equipment, lost income, increased staffing costs and increased use of agency staff (which we had very successfully reduced in previous years). This was unavoidable when you consider the number of staff absent due to COVID-19 related concerns at different times during the year.

What is frustrating however, is that despite assurances funding would be provided to cover these costs incurred throughout the year, the hospital ended the year in cash flow deficit as it still awaited actual receipt of the money. It has also had to instigate discussions on funding for 2021 seeking confirmation that COVID-19 related spend would again be included.

On the cost side, the situation remains similar to previous years. Total costs incurred were €80.6m. Of this €66.4m related to Pay and €14.2m in Non Pay. When COVID-19 related costs were excluded, this came in almost exactly in line with budget, similar to 2019. Excluding COVID-19, Pay costs increased by 5% over the prior year and Non Pay actually decreased by 3%.

Pay levels are driven by head count numbers and any agreed changes in national pay scales. Head count level increases reflect certain approved posts that have now been filled. The key items in non-pay expenditure relate to medicines, surgical supplies, laboratory costs and maintenance of the hospital.

Given the age of the building and the fact that a move to the new purpose built facility at Elm Park is still some time away, the hospital has to continue to spend money to keep an aging facility as fit for purpose as is possible. That is reflected in maintenance expenditure of €0.3m and €7.8m in additions / improvements to hospital equipment and facilities. Work continues on the new Labour Delivery Unit as well as the provision of new Theatre capacity. This was delayed during 2020 as a result of COVID-19 related stoppages. Despite much correspondence on the matter and repeated assurances that the funding was approved, the hospital continues to have to pre-fund this capital expenditure out of its own cash reserves which are now much depleted.

Decisions have to be taken all the time by the Executive Management Team and the Finance Committee on areas of spend to be prioritized to preserve patient safety. However, the consistent theme of ongoing delays in receipt of agreed areas of spend from the HSE, leaves the hospital with very limited financial buffers. Those buffers in the past have allowed the hospital to be very innovative and responsive to patient need with the introduction of new service developments on a timely basis and it is disappointing that this flexibility may be constrained into the future.

Other areas of focus by the Finance Committee during 2020 included governance, policies and procedures, management of debtors and monitoring compliance with the Charities Act.

I would like to extend my appreciation to all the NMH finance team and my fellow members of the Finance Committee. The finance team have successfully exercised strong financial control whilst concentrating on essential spend to ensure we can continue to deliver excellent care in the midst of a pandemic. The NMH has had an amazing year in the context of such a major health care crisis and it is an organization we are all proud to be a part of.

Michele Connolly
Honorary Treasurer

Executive Committee Report



Prof Shane Higgins, Master and Mary Brosnan, Director of Midwifery & Nursing with Councillor Hazel Chu, Lord Mayor of Dublin (centre, from June 2020) who visited the hospital to thank all staff for their hard work and dedication during the COVID-19 pandemic.

Executive Committee (the Board)

Mr Nicholas Kearns was re-elected as Deputy Chair at the first Board meeting following the 2020 AGM.

At the AGM, Ms Denise Cole and Ms Gráinne Hennessy were elected to the Board: the outgoing members of the Board were re-elected save for Ms Eugénée Mulhern who did not go forward for re-election.

Ms Eugénée Mulhern was a member of the Board for nine years and assisted in the work on corporate governance: we thank her for her time and commitment to the Board of the Hospital.

Cllr. Catherine Stocker who was appointed by Dublin City Council in June 2019 resigned from the Board and we thank her for her time.

Corporate Governance

Members of the Board and the EMT had discussions with the Department of Health regarding corporate governance with a view to restructuring the statutory

requirements concerning the Board of the Hospital. The Department put a hold on these discussions following the onset of COVID 19. Nevertheless, within the constraints of the Charter and its amending Act, ongoing work has been undertaken in not only aligning the Hospital's Corporate Governance Codes and their implementation with that of the Code of Governance for Semi-State Bodies, but in ensuring terms of reference for Committees are reviewed regularly and on-going education from external advisers to the Board on corporate governance.

Board Work

At each monthly meeting of the Board, reports from members of the Executive Management Team (the EMT) are discussed and where considered appropriate, further direction is given by the Board to the EMT. Clinical aspects of these reports are covered elsewhere in the Annual Report.

Aside from the normal business which includes corporate governance compliance and consideration

of reports from the Chairs of the Sub Committees referred to below and elsewhere in the Annual Report, the Board devoted time to the impact of COVID-19 and measures necessary to avoid the spread of the virus including infrastructural changes, supplies of PPE equipment, resource issues and timely testing.

The Board met on thirteen occasions in 2020: All but the first two meetings were held remotely through zoom, the Bye-Laws having been amended to facilitate meetings remotely.

Attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr Nicholas Kearns, Deputy Chairman	13	13
Mr William Johnston, Hon. Secretary	13	13
Ms Michele Connolly, Hon. Treasurer	13	13
Prof. Shane Higgins, Master	13	13
Mr Justice David Barniville	10	13
Dr Ingrid Browne	12	13
Ms Mairéad Butler	12	13
Ms Denise Cole	6	7
Fr. Enda Cunningham	10	13
Mr Aidan Devlin	12	13
Mr Frank Downey	13	13
Cllr James Geoghegan	11	13
Ms Gráinne Hennessy	7	7
Prof. Declan Keane	10	13
The Lord Mayor, Cllr. Hazel Chu (from 29/6/2020)	4	7
The Lord Mayor, Cllr. Tom Brabazon (from 24/2/20 to 28/6/20)	0	5
The Lord Mayor, Cllr. Paul McAuliffe (to 10/2/2020)	0	1
Ms Christine Moran	11	13
Ms Eugénée Mulhern	3	6
Dr John Murphy	9	13

Prof. Fionnuala McAuliffe	11	13
Ms Jane McCluskey	12	13
Dr Roger McMorrow	9	13
Prof. Peter McParland	13	13
Prof. Colm O'Herlihy	8	13
Cllr. Naoise Ó Muirí	9	13
Ms Patricia O'Shea	12	13
Dr Michael Robson	12	13
Cllr. Catherine Stocker	1	6
Mr Stephen Vernon	12	13

In Attendance

Mr Ronan Gavin	13	13
Ms Mary Brosnan	13	13
Mr Alistair Holland	12	13
Dr Susan Knowles	1	1
Mr Francis Rogers	1	1

His Grace the Catholic Archbishop of Dublin does not attend the meetings.

Governors

At the AGM, six Governors whose 7 year term expired in 2020 or whose terms expire prior to the next AGM, were re-elected as Governors namely, Ms Jane McCluskey, Prof. Fionnuala McAuliffe, Ms Isabel Foley, Cllr. Naoise Ó Muirí, Ms Elizabeth Nolan and Dr Ingrid Browne. (Rule 3).

In addition, the election of Ms Denise Cole and Ms Gráinne Hennessy as Governors by the Executive Committee in December 2019 was ratified.

There were no new Governors appointed in 2020.

We extend our sincere condolences to the family of Mrs Monica Owens who died during the year. Monica was a Governor for many years and served on the Executive Committee, the House Committee and the Linen Guild: she was a great contributor to the work of the Hospital.

SUB COMMITTEES OF THE BOARD

Finance Committee

As can be seen from the Financial Report summarised on page 11 the Hospital closed the year with a surplus



Mary Brosnan, Director of Midwifery & Nursing, presenting Sophie Bukarica, Midwifery Student, with a COVID-19 commemorative medal given to all staff in recognition of their work during the COVID-19 pandemic.

of €1.5m. This was a very satisfactory result in light of rising costs and the on-going challenges to income. Further detailed commentary on the finances are provided in the Honorary Treasurer’s Report, page 11.

The Committee met on eleven occasions during the year. Attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr Nicholas Kearns, Deputy Chairman	11	11
Ms Michele Connolly, Hon. Treasurer	10	11
Mr William Johnston, Hon. Secretary	11	11
Prof. Shane Higgins, Master	11	11
Ms Christine Moran	10	11
Ms Denise Cole	10	11
In Attendance		
Mr Ronan Gavin	11	11
Ms Mary Brosnan	10	11
Mr Alistair Holland	10	11
Mr Francis Rogers	1	1

Audit Committee

The Audit Committee continued its work throughout the year and a separate report on the work of the Committee is provided on page 24.

The Committee met six times during 2020 and attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr Frank Downey, (Chair)	6	6
Ms Michele Connolly, Hon. Treasurer	6	6
Ms Mairéad Butler	5	6
Mr Aidan Devlin	5	6
Prof. Peter McParland	2	6
In Attendance		
Mr Ronan Gavin	5	6
Mr Alistair Holland	6	6
Mr Con Grimes (IT Manager)	1	1
Ms Gwen Montague (Tendering Manager)	1	1
External Attendees		
Mr Brian Gartland, BDO	2	2

Mr Qaiser Ali Shah, BDO	3	3
Mr Vijay Velu, BDO	1	1
Mr Arun Gobind, BDO	1	1
Mr Jessie de Guzman, PWC	1	1
Mr Richard Sammon, PWC	2	2
Mr Andrew Hall, PWC	1	1

QRPS Committee

The QRPS (Quality Risk & Patient Safety) Committee continued its work throughout the year and a separate report on the work of the Committee is provided on page 25.

The QRPS Committee met on seven occasions in 2020. Attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr Aidan Devlin, Chair (to Sept.)	7	7
Ms Patricia O'Shea, Chair (from Sept.)	7	7
Ms Mairéad Butler, Vice Chair (from Sept.)	7	7
Dr Ingrid Browne	7	7
Mr Frank Downey	4	7
Prof. Declan Keane	5	7
Ms Jane McCluskey	6	7
Dr Roger McMorrow	7	7
Prof. Colm O'Herlihy	4	7
Cllr. Naoise Ó Muirí	4	7
In Attendance:		
Ms Mary Connolly, AON	3	7
Mr Ray Kenny, AON	1	1
Mr Ronan Gavin	6	7
Dr Luke Feeney	7	7
Mr Alistair Holland	1	1
Prof. Shane Higgins	1	1
Ms Mary Brosnan	1	1

Co-Location Committee

The Co-location Committee continued its work throughout the year and a separate report on the work of the Committee is provided on page 26.

The Committee met on eight occasions during 2020. Attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr Stephen Vernon, Chair	7	8
Ms Michele Connolly, Hon. Secretary	8	8
Ms Gráinne Hennessy	8	8
Dr Roger McMorrow	4	4
In Attendance:		
Prof. Shane Higgins	7	8
Dr Orla Sheil	8	8
Ms Pauline Treanor	4	8
Mr Ronan Gavin	8	8
Mr Nicholas Kearns, Deputy Chairman	3	3

Nominations Committee

The Nominations Committee met twice during 2020. Attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr Nicholas Kearns, Deputy Chair	2	2
Mr William Johnston, Hon. Secretary	2	2
Ms Michele Connolly, Hon. Treasurer	2	2
Prof. Shane Higgins, Master	2	2
Dr Peter Boylan	0	2
Prof. Declan Keane	1	2
Ms Eugénée Mulhern	1	2
Dr John Murphy	1	2
Ms Paula Reid	1	2
In Attendance		
Mr Ronan Gavin	2	2
Ms Christine Moran	1	1
Ms Denise Cole	1	1

House Committee

The Committee, which is one of the longest serving, assists in ensuring that the Hospital's infection control strategies are effective. The work of the Committee involves carrying out on-site inspections of the various areas in the Hospital. For the safety of patients, staff and Committee members it was deemed inappropriate to visit the Hospital during the pandemic.

Thus due to COVID-19, there was only one meeting of the House Committee held in February 2020. The Committee expect to resume their work as soon as the COVID-19 restrictions are lifted. The Members of the Committee are Ms Catherine Altman, Chair, Ms Sara Appleby, Ms Mary Brosnan, Ms Sheena Carton, Ms Jane Collins, Ms Fiona Davy, Ms Elaine Doyle, Ms Lydia Ensor, Ms Kate Higgins, Ms Judith Meagher, Ms Margaret McCourt, Ms Anne Murphy, Ms Teresa Murphy, Ms Kathleen O’Grady, Ms Aoife O’Shea and Ms Bernie Spillane.

Medical Fund Committee

This Committee, which receives funds from the semi-private clinic, provides funding principally for education and research relating to the medical services provided by the Hospital. A separate report on the work of the Committee is provided on page 27.

The Medical Fund Committee met on seven occasions during 2020. Attendances were as follows:

Member	Meetings Attended	Meetings Appointed to Attend
Mr William Johnston, Hon. Secretary	7	7
Prof. Shane Higgins, Master	6	7
Prof. Peter McParland	7	7
Mr Frank Downey	7	7
In Attendance		
Ms Michele Connolly, Hon. Treasurer	7	7
Prof. Declan Keane	7	7
Mr Ronan Gavin	7	7
Mr Alistair Holland	6	7
Mr Francis Rogers	1	1
Ms Audrey Lydon (KPMG)	1	1
Ms Olivia Lynch (KPMG)	1	1
Ms Una Burke (MHC)	1	1
Mr Richard Salmon (PWC)	1	1
Mr Andrew Horne, (PWC)	1	1
Mr Jessie Guizman, (PWC)	1	1

Executive Ethics Committee

The Executive Ethics Committee did not meet during the year.

Maternity Hospitals Joint Standing Committee

The Committee of the three Dublin Maternity Hospitals meets monthly to discuss issues of common interest and concern. During 2020 the Committee, under the chairmanship of Dr Don Thornhill, met weekly via teleconference from March to June 2020 to discuss the implications of the COVID-19 pandemic and to share experiences and the related challenges it imposed.

CHARTER DAY

We had a very good attendance at Charter Day which was held on the 23rd January 2020 and was hosted by the Master, Prof. Shane Higgins and his wife, Mrs Kate Higgins to whom we are most grateful. The Master delivered an informative and inspiring address to the Governors, staff, prize-winners and their families.

The 63rd Annual Charter Day Lecture entitled “There is no Health without Perinatal Mental Health” was delivered by Dr. Roch Cantwell, Consultant Perinatal Psychiatrist Perinatal Mental Health Service & West of Scotland Mother & Baby Unit, Leverndale Hospital, Glasgow & Lead Clinician, Perinatal Mental Health Network, Scotland.

A Symposium entitled “No Health without Perinatal Mental Health” was held on Friday, 24th January 2020 as part of the Charter Day celebrations and took place in the Lecture Theatre at 65/66 Lower Mount Street. The symposium was chaired by the Master, Prof. Shane Higgins and the following lectures were delivered:

“The National Perinatal Mental Health Strategy: Current Developments and Future Plans including Ireland’s First Mother and Baby Inpatient Unit”.

Dr Margo Wrigley, Clinical Lead, National Perinatal Implementation Group

“Fetal Loss: Working with Parents with Difficult Choices, Impossible Questions and Grief”.

Dr Claire Flahavan, Therapist, Fetal Medicine Team

“Infant Mental Health: Attachment in a Neonatal Intensive Care Unit”.

Dr Aoife Twohey

"Obstetric Trauma: The Subjective Experience of the Mother versus Objective Outcomes. How to Address the Psychological Impact"

Dr Anthony McCarthy, Consultant Psychiatrist.

HOSPITAL AWARDS & CERTIFICATES

The awards to medical and midwifery students who excelled in their final examinations in 2020 would normally have been presented at Charter Day celebrations in January 2021. However, due to the coronavirus pandemic there was no reception held in January 2021. We hope to be able to formally present the medals to the worthy participants at a later stage. The recipients of the various medals are:

Medical Students

John F. Cunningham Medal

Dr David O'Driscoll

RCSI / NMH Medal

Ryan Leon

Kieran O'Driscoll Prize

Ross Walsh

A. Edward Smith Medal

Not awarded in 2020.

Student Midwives

Hospital Gold Medal

Aisling Kenny (BSc in Midwifery)

Ella Connaughton (Higher Diploma in Midwifery)

Elizabeth O'Farrell Medal

Demi-Leigh Messett (BSc in Midwifery)

Roisin Moran (Higher Diploma in Midwifery)

Neonatal Medal

Sharon Maher

(established by Dr Niall O'Brien)

We congratulate them all and wish them every success in their future careers.

In March 2021, one year after the onset of the Coronavirus pandemic in Ireland, a commemorative medal was presented to staff in recognition of their dedicated work during the Pandemic.

The medal is a symbol of gratitude for all staff who worked tirelessly to keep the Hospital's patients and each other safe through COVID-19.

NMH Research and Innovation Symposium

The inaugural NMH Research and Innovation Symposium was held on Friday, 4th December 2020. There were 55 abstracts from Departments all around the Hospital - Pharmacy, Engineering, laboratory, Bereavement, Fertility, Psychiatry, Maternal-Fetal Medicine to name a few. Twenty oral presenters were short-listed and prizes were awarded to oral and poster presenters in both the Research and Innovation categories.

Two inaugural medals were also awarded:

The Declan Meagher Innovation Medal was awarded to Mr Neil Farrington, Facilities & Engineering Manager for his project entitled: "Project Aeolus, A Hospital Within A Hospital". Aeolus is the Greek God of Air and Wind which are the core to safe ventilation. The project details the COVID-19 responses at the NMH and the solutions implemented to create urgent negative pressure isolation facilities across the Hospital in response to the pandemic.

*Majella Flanagan,
Salaries Supervisor who
retired this year.*



The Colm O’Herlihy Research Medal was awarded to Dr Emma Dunne, Neonatal Research Fellow for her research project entitled *“APOLLO: A Prospective Study Of Heat Loss in LOw Birth Weight Infants.”*

APPOINTMENTS, PROMOTIONS, RETIREMENTS AND DEATHS

New appointments during 2020 included:

Aoife Cullen, Clinical Specialist Physiotherapy
 Megan O’Malley, CNS in Perinatal Mental Health
 David Mahon, Senior Medical Scientist
 Erica Maughan, Sonographer in Fetal Assessment
 James Byrne, Tendering Officer
 Gearoid O’Toole, Project Supervisor, Internal Build Team
 James McGovern, Maintenance Supervisor
 Louise Comerford, CNM 2 in Gynae Oncology
 Jennie Cotter, Communications Officer

Internal Promotions 2020 included:

Eimir Guinan, Assistant Director of Midwifery & Nursing, Night Duty
 Ciara Coveney, Advanced Midwife Practitioner in Diabetes
 Annabel Murphy, CMM 2, Antenatal OPD
 Clodagh Craven, CMM 2, Fetal Assessment Unit
 Miriam Griffin, CMM 2, Postnatal Services
 Niamh Carney, CMM 2, Pre Assessment Clinic
 Catherine Cooke, CMM 2, Urogynaecology
 Orla Bowe, CMM 2, Smoking Cessation
 Georgina Mulligan, CMM 2, Perinatal Mental Health
 Bincymol Cyriac, Infection Control
 Anne Lopez, CNM 2, Gynaecology Inpatient

Staff Retirements

The following staff members retired during the year after many years of service:-

Mr Shay Higginbotham, Maintenance	35 years
Margaret Hanahoe, ADOM	34 years
Regina Melvin, Snr Staff Nurse	28 years
Majella Flanagan, GVI, Salaries	25 years
Fionnuala McQuinn, Snr Staff Nurse	24 years
Bernie O’Callaghan, CNM 2	22 years
Marian Donohue, GIV, Finance	22 years
Noreen McElwee, HCA	20 years
Usha Daniel, AMP	19 years
Geraldine Hayes, GIV, Colp, Admin	17 years
Dr Ola Petter Roseag, Consultant	16 years
Helen Conlon, Staff Midwife	16 years
Natalie Malinina, Catering	14 years
Chacko Hillariose, GIV, Medical Records	12 years
Christine Darcy, Household	11 years

We thank each of them for their enormous contribution during their many years of service and wish them a very happy retirement.

Deaths

We send our sincere condolences to the family, friends and colleagues of Mr Ronan Power, Porter, who died suddenly and in service during the year.

During the year a number of our retired staff died and we send our sincere condolences to their families. They include: Mr Austin Bourke, Senior Biochemist, Ms Mary Nolan, Household Supervisor, Ms Francis (Peggy) Carberry, Telephonist and Ms Sylvia Ward, Catering.

CONCLUSION

The Board are grateful to the Executive Management Team for their unrelenting work during the year of exceptional challenges brought about through COVID-19. The Master, Professor Shane Higgins, the Director of Midwifery and Nursing, Ms Mary Brosnan, the Secretary/General Manager, Mr Ronan Gavin, the Clinical Director, Dr Roger McMorrow and their teams, and indeed all persons who have devoted their time during the year in the Hospital, deserve our special appreciation for their unstinting and selfless dedicated work in their care of mothers and babies.

William Johnston
Honorary Secretary

Secretary/General Manager's Report



Twenty twenty was a very unusual year and will be remembered worldwide for the COVID-19 pandemic. The potential issues regarding the pandemic were first discussed in the Hospital in early February and by the end of February we were having regular meetings regarding the issue. These meetings took place daily for a number of months and apart from NMH COVID-19 task force meetings there were daily meetings with the IEHG group. In the early weeks of the pandemic we were faced with potential PPE and equipment issues, concerns with testing capacity and turnaround times and at the same time we had significant staff numbers offsite due to the requirements to self-isolate if deemed a close contact. Immense gratitude to all of the NMH staff who persevered throughout the past months during often very difficult and stressful times.

I am extremely grateful to all of those who participated in the COVID-19 response and to all of

the members of the COVID-19 taskforce. I would especially like to thank the facilities engineering team for their innovative and rapid response with our "hospital within a hospital", our tendering and purchasing team for their very successful efforts in securing PPE from sources worldwide, the contact tracing team and also Dr Susan Knowles and our microbiology team for their work in supporting all of our staff and patients.

In the midst of the pandemic the work on the move to the Elm Park campus continued. There was significant work on finalising the Business Case in the early months with some major reviews in relation to the proposed phasing of the building works. The final Business Case was approved by the Project Board in May and was submitted to the HSE in July for review and hopefully approval by the various departments including the Department of Health and DEPR. The Operational Readiness (OR) team onsite continued to work with Accenture up to the

Architectural design of The National Maternity Hospital at its proposed co-location with St Vincent's University Hospital on the Elm Park Campus.

I would especially like to thank the facilities engineering team for their innovative and rapid response with our “hospital within a hospital”, our tendering and purchasing team, contact tracing team and our microbiology team

year-end finalising the initial phase of the OR project. We await approval for the next stages of OR to recommence hopefully in mid-2021. At year end the initial phases of enabling works including pharmacy and car park neared completion on the Elm Park Campus with handovers of these areas expected in early 2021.

Whilst the co-location to the Elm Park Campus remains our priority it is still many years from completion and we must continue to deliver safe and appropriate care on the current site. We are all acutely aware of the limitations of the current infrastructure and this has again been highlighted during the COVID-19 crisis. Women’s healthcare cannot wait until we co-locate and thus with the assistance of NWIHP we continue to strive to enhance services for our patients and to introduce group and national services for women. However, it is once again evident that we cannot, even in the short term, continue on the existing site without provision of some additional space and it is certain that we cannot continue to provide new and enhanced services with some short term investment.

As already noted COVID-19 was the primary focus for everyone during 2020. From the perspective of the Hospital’s Finances there were significant impacts from COVID-19. These included costs of PPE including masks, visors, gloves and gowns where both costs and quantities in use increased very significantly. Costs of additional staff to deal with COVID-19 issues such as COVID-19 swabbing and testing, additional infection control procedures and also COVID-19 related absenteeism. There were also costs incurred in providing infrastructural changes some of which were funded by way of additional COVID-19 grants from the HSE. Another direct financial impact of COVID-19 was overall reduced LOS which impacted our bed incomes which are a major source of our overall Funding. The HSE has

also agreed to fund this shortfall. At year end due to the continuing focus on processes and collections of debtors there was a write-back of debtors provisions and with some other funding this lead to an overall surplus at the year end. This should be

treated with caution as it is entirely dependent upon HSE Capital funding in excess of €6M being received for the Labour and Birthing Unit (LBU) & Theatre development projects which continued during the year and were close to completion at year end. The ongoing impact of COVID-19 on finances will be assessed and appraised over the coming months but 2021 is likely to be challenging from the perspective of budgets and finances.

All hospital Departments and staff continued to show their commitment to patient care despite the challenges during 2020. Once again a number of the Hospital Departments’ excellence were externally recognised by various awards and accreditations being granted or renewed. This included our Catering Department who were awarded the ISO 22,000 2018, Food Safety Management System making the NMH the first maternity and non-private hospital to achieve this international standard. The Catering Department also achieved 100% in the FSPA Food Safety Awards as they did in 2019. Our Department of Pathology & Laboratory Medicine successfully retained the accreditation to ISO 15 189 and our Environmental Department maintained environmental accreditation ISO 14001:2015.

I would like to thank the Master, Prof. Shane Higgins, the Director of Midwifery & Nursing, Ms Mary Brosnan, the Financial Controller, Mr Alistair Holland and the Clinical Director, Dr Roger McMorro and members of the Executive Committee and other Board Sub-Committees. I would especially like to thank Ms Clare Gray and Ms Pamela Robinson without whose support the work of the Secretary/ General Manager would never be completed. It has been a challenging year but with the advice, support and assistance of everyone involved we begin anew.

Ronan Gavin
Secretary/General Manager



Director of Midwifery and Nursing Report

*Mary Brasnan, Director of
Midwifery & Nursing.*

At the beginning of the year, we couldn't possibly have envisaged how significant an impact COVID-19 would have on our world, at a personal and professional level. In early March as part of the NMH COVID-19 taskforce we had to adopt a very proactive approach to ensure the safety of all our patients, women and babies from infection and to ensure the safe delivery of our services. Designated care pathways were essential for women and babies who had been exposed to the virus and also required maternity, gynaecology or neonatal care. We also had and continue to have a duty of care to our staff, to provide a safe working environment and to reduce any unnecessary exposure to COVID-19. Reams of newly updated guidelines on infection control measures were being sent from HSE weekly and treatment algorithms were updated almost daily in the first weeks of the pandemic.

The imposition of visitor restrictions in maternity hospitals added to anxiety levels for most women but was crucial in order to limit footfall and reduce any potential spread of infection amongst staff, patients or visitors. However, at all times discretion was exercised when there were particular circumstances for individual cases such as bereavement or fetal anomalies. These limitations were relaxed in June and have been under constant weekly review.

Gynaecology services resumed in July, with a multidisciplinary gynae services group reviewing best practice in relation to managing waiting lists and clinic restructuring, setting up a Pre- Assessment Clinic, improving the Operating Theatre infrastructure and ambulatory gynaecology services, with many of these changes being led and implemented by my nursing manager colleagues.

Overall levels of infection amongst patients and staff have been very small, relative to the large numbers of women attending for care each week. However there is a huge workload in managing to conduct Covid-19 testing, swabbing, management of results, communication and contact tracing. The level of input from the ADOMs and Occupational Health and Infection control teams have been very intensive on a daily basis. The challenge of managing staff absenteeism due to cocooning or self-isolation due to potential exposure, has been an ongoing burden for the midwifery and nursing managers. They have supported their staff, managing rosters and ensuring patient safety throughout the year. The ADOMs, Occupational health team and other staff who were redeployed, created pathways for COVID-19 related and non-COVID-19 related Occupational Health needs.

We have continued to develop resources to help increase bonding and emotional support. Webinars, Breastfeeding classes, virtual clinics, utilizing 'Attend Anywhere' technology have all supported our patients in this new climate of social distancing.

They provided excellent support for staff who were concerned about work related exposure to Covid-19. Staff across the hospital demonstrated tremendous resilience and compassion for patients and each other, coming to work despite all of the concerns for personal safety in the early days of the pandemic, when so much about transmission was unclear and supplies of PPE were scarce. Thankfully due to the really hard work of Ronan Gavin and his procurement team, these issues were addressed within the first weeks and supplies of PPE since then have been secure and of high quality.

There were so many initiatives during the year which demonstrated the hospital teams' ability to adapt services to maintain safe, high quality services and to support staff but it is worth outlining some of the main developments. The concept of a 'Hospital within a Hospital' involved modifying the 'Iveagh' gynaecology ward and operating theatres and single rooms with negative pressure ventilation. This initiative has been very instrumental in giving staff and patients an assurance that everything possible is being done to maintain a safe clinical environment for all. A key element maintaining staff morale during the year was enhanced communication and the staff newsletter

enabled timely and relevant communication within the organization.

The NMH website was upgraded to improve communications with patients and staff with Patient Education resources becoming digital and freely available on the website as a virtual classroom. Recognition of the stress on new parents in the NICU resulted in a new initiative called 'CommuniNICU' incorporating 'AngelEye' a secure camera system for parents to see their baby securely from their home. We have continued to develop resources to help increase bonding and emotional support. Webinars, Breastfeeding classes, virtual clinics, utilizing 'Attend Anywhere' technology have all supported our patients in this new climate of social distancing.

A COVID-19 Helpline was established through lockdown and COVID-19 Swabbing and Testing was organized as a 'drive through' swabbing service in the hospital car park, which operates each day by the midwifery and medical team, allowing staff and patients to be tested without having to enter the hospital.

The Community Midwifery Service has been even busier, with the demands for early transfer home and home birth growing during the lockdowns. These valuable services were never halted, even though most other primary care services were suspended. The community midwives continue to share their expertise with other units who are establishing their community teams and Sinead Thompson is working hard with the National Women and Infants Health Programme to share her 'Labour Hopscotch' across the 19 maternity units.

During the year, we were delighted that two new nursing colleagues were appointed to exciting roles, Megan O'Malley, CNS in Perinatal Mental Health and Louise Comerford, CNM 2, Gynae Oncology which is a joint appointment with MMUH and SVUH.

It was an extremely busy year for Promotions too and we congratulated many colleagues taking up new roles across the midwifery and nursing services. Eimir Guinan, ADOMN, Ciara Coveney, AMP Diabetes, Annabel Murphy, CMM 2, OPD, Clodagh Craven, CMM 2, Fetal Assessment, Miriam Griffin, CMM 2, Holles Wing, Niamh Carney, CMM 2, Pre-Assessment Unit, Georgina Mulligan, CMM 2, Perinatal Mental Health, Orla Bowe, CMM 2, Smoking Cessation, Catherine Cooke, CMM 2, Urogynaecology, Bincymol Cyriac, CMM 2, Infection Control, Anne Lopez, CMM 2, Unit 4. In 2020 many senior staff members, Fionnuala McGuinn, Bernadette O'Callaghan, Margaret Hanahoe,



There were so many initiatives during the year which demonstrated the hospital teams' ability to adapt services to maintain safe, high quality services and to support staff...

Regina Melvin, Helen Conlon, Usha Daniels and Noreen McElwee retired from our team after many long years of service to the hospital which was greatly appreciated by ourselves and by patients throughout their careers. We wish each of them many years of good health and happiness in the future.

This year in particular, I want to extend my gratitude to all the midwifery and nursing and health care assistant staff for all of their efforts to support maternity, neonatal and gynaecology care within the hospital in the height of the COVID-19 crisis. I want to pay particular tribute to my Assistant Directors of Midwifery and Nursing on day and night duty who are personally supportive to me in my role. The CMM 3's carry a huge responsibility for the management of all of the units and each of them continue to make a great contribution to our team in the last year. My PA Siobhan Flanagan and my HR colleague Lisa Murray and all the HR team carry a large workload, often unseen and I am really grateful for all of their support and professionalism.

As health care professionals, we have continued to provide an excellent service in an extraordinary time, providing an essential service to thousands of families during a time of crisis. Each day, staff go above and beyond their duties to support women in what everyone knows is a very stressful time during pregnancy and childbirth or for women having a gynaecological procedure. Infrastructural deficits, especially inadequate inpatient wards, cramped small waiting areas and generally insufficient space within the hospital creates additional challenges for the staff at work in the hospital. The need for the new NMH at Elm Park has never been more urgent. In the meantime on our current site, we continue to provide excellent maternity, neonatal and gynaecology care and it is a privilege to work with my midwifery and nursing colleagues and all the other members of the NMH team.

Mary Brosnan
Director of Midwifery and Nursing

Mary Brosnan, Director of Midwifery and Nursing (centre), with (from L-R) Clinical Practice Development Midwives Saira Kuriakose, Orla Gavigan, Lavanya Lakshmanan and Lucille Sheeby, Asst. Director of Midwifery and Nursing at the COVID-19 vaccination clinic for staff.

Audit Committee



Mary Brosnan, Director of Midwifery and Nursing, Prof Shane Higgins, Master with Lord Mayor of Dublin Tom Brabazon (Feb-June 2020) who was visiting the hospital to present a certificate to front line workers for their response to the COVID-19 pandemic on behalf of Dublin City Council.

The Audit Committee continued its work throughout the year monitoring and reviewing the Hospital's internal financial controls.

During the year the Committee met with the Hospital's external auditors, PwC, to agree their terms of engagement for the annual financial audit. The Committee approved the Financial Statements, the Annual Report and the Annual Compliance Statement.

The Committee reviewed reports prepared by the Hospital's Internal Auditors on Board & Governance Effectiveness and a System Penetration Testing and Vulnerability Assessment. After entering into a tendering process on the OGP Framework for the provision of Internal Audit services the Committee

appointed Crowe as the Internal Auditor from February 2021.

The Committee has also considered the implications of the adoption of the Charities' SORP (Statement of Recommended Practice) for the Hospital's accounts.

The members of the Audit Committee are Mr Frank Downey (Chair), Ms Michele Connolly, Dr Peter McParland, Ms Mairéad Butler and Mr Aidan Devlin. Mr Ronan Gavin (Secretary/General Manager) and Mr Alistair Holland (Financial Controller) also normally attend Committee meetings.

Frank Downey
Chair

Quality Risk and Patient Safety Committee

The Quality Risk and Patient Safety (QRPS) Committee of the Board operates under the mandate (terms of reference) approved by the Executive Committee (Board) which are reviewed and amended where necessary on an annual basis. The TOR were considered/reviewed by the Committee in October 2020 and no changes were proposed.

The aim of the QRPS Committee is to:

- (i) drive quality, risk and patient safety strategy, management and improvement within the National Maternity Hospital; and,
- (ii) provide a level of assurance to the Board that there is adequate and suitable governance of quality, risk and patient safety in place.

To this end the QRPS Committee met seven times during the year (mandated to meet at least 4 times per year) to consider reports, both internally and externally generated, and key performance indicators evidencing the application of the hospital's clinical risk management and governance framework.

Other matters considered during the year included:

- The on-going management by the Hospital of impact of COVID-19 pandemic on its operations
- Monitoring of the incident reporting system in the hospital
- The continued evolution of the Performance and Patient Safety dashboard for Board reporting purposes.
- Review of patient engagement points at all levels within the hospital
- Oversight of the management of specific risks related to the implementation of the National Maternal and Newborn Clinical Management System (MN-CMS).
- Monitoring of the implementation and on-going management of GDPR related matters

The 2020 members of the QRPS Committee were: Mr Aidan Devlin, (Chair until September); Ms Patricia O'Shea (Vice Chair until September, Chair since Sept.), Ms Mairéad Butler (Vice Chair since Sept.), Dr Ingrid Browne, Ms Jane McCluskey, Mr Frank Downey, Prof. Declan Keane, Dr Roger McMorro, Prof Colm O'Herlihy and Cllr Naoise Ó Muiri. In accordance with Clause 8.1 of the QRPS Committee mandate, Ms Mary



Connolly (External Advisor, AON), Dr Luke Feeney (Director of Quality Risk and Patient Safety) and Mr. Ronan Gavin (Secretary/Manager of NMH) also attend QRPS meetings.

*Zhanna Milyashko,
Catering Assistant.*

The Committee wishes to thank the Master, Prof Shane Higgins, Mr Ronan Gavin, Dr Luke Feeney and Ms Mary Connolly for their support and assistance during the year.

Patricia O'Shea
Chair

Co-Location Committee



Design view of the proposed co-location of the NMH on the St Vincent's University Hospital Campus at Elm Park.

The Committee had three primary areas of focus during 2020. While the COVID-19 pandemic caused a slight pause/interruption in the work and a temporary re-allocation of some of the Operation Readiness Team, the overall work continued and a number of milestones were reached.

The first of these was the completion of the Business Case. This was prepared with the assistance of Accenture and HSE Estates and during the initial months of the year the Co-location Committee reviewed a number of drafts of individual chapters of the Final Business Case (FBC). The final version was reviewed and approved by the Co-location Committee in May and was then approved by the Project Board in June and submitted to the HSE. This was a significant milestone for the project. Unfortunately the FBC is still going through the HSE and Government review and approval processes but we anticipate that these processes will be completed by mid-2021.

The next area was the Operational Readiness (OR) program which continued through the year despite a slight pause and by year-end the phase 1 of the OR was completed on target. This is another significant

achievement and I would like to thank all members of the OR Team for all their hard work over the year. I would like to extend a special thanks to Ms Pauline Treanor who lead the OR for NMH and who retired in December 2020 having delivered the OR phase 1. We wish her all the best for her second retirement.

Finally, the other work that continued was around the legal structures and primarily the documents relevant to the property and buildings. By year-end these documents had been substantially completed and agreed and we anticipate that now these documents are in a form agreed by NMH, SVUH and DOH that the next phase of the Project will commence with issuing of SAQs for enabling works and the main contract and also the assembly of the OR Phase 2 Team during 2021. We look forward to this new and exciting phase of the Project.

I would like to thank all of the Committee members for their time, commitment and invaluable input over the course of the year.

Stephen Vernon
Chair

The Medical Fund



The Medical Fund, as set out in the Hospital Charter and Byelaws, provides funding for education and research related to women's health care.

The terms of reference of the Fund were formally reviewed and adopted during the year. The Medical Fund Committee meets on a regular basis and reports to the NMH Executive Committee.

The Fund generates income from the semi-private clinic and the main operational costs relate to the staffing and operation of the clinic.

The activities of the clinic and the Fund involves a total of approximately 8 personnel which excludes consultants who provide a sessional commitment and also excludes those engaged in funded research.

During 2020 total expenditure was €1.345m, including €0.265m on clinic salaries. Included in this total expenditure is €0.830m that was spent on education

and €0.461m spent on research and a charge of €0.250K in relation to depreciation. The Fund made a loss of €11k during the year. The Fund is engaging with the NMH Foundation in relation to establishing a scheme of grants to provide ongoing funding for research projects in the coming years. The initial tranche of this arrangement, amounting to €0.400M, was transferred post year end.

The Medical Fund Committee comprises the Master, Prof Shane Higgins, Prof Peter McParland who is a representative, elected from the Obstetrics & Gynaecology consultants of the NMH, and Mr William Johnston and Mr Frank Downey who are nominated by the NMH Executive Committee.

**William Johnston, Honorary Secretary
Chair**

Keely Callaghan, Catering Staff was photographed by Jeanette Lowe as part of her lockdown project "The Invisible Front Line" for the RTE Illuminations online gallery which explored shades of lockdown. Keely had to postpone her wedding due to the COVID-19 pandemic.



Masters of The National Maternity Hospital

2019 –	Shane Higgins
2012 – 2018	Rhona Mahony
2005 – 2011	Michael Robson
1998 – 2004	Declan Keane
1991 – 1997	Peter Boylan
1984 – 1990	John M. Stronge
1977 – 1983	Dermot W. MacDonald

1970 – 1976	Declan J.Meagher
1963 – 1969	Kieran O'Driscoll
1956 – 1962	Charles F.V. Coyle
1949 – 1955	Arthur P. Barry
1942 – 1948	Alex W. Spain
1932 – 1941	John F. Cunningham
1924 – 1931	Patrick T. McArdle

1923	Sir Andrew J. Horne Patrick T. McArdle
1909 – 1922	Sir Andrew J. Horne Reginald J. White
1894 – 1908	Patrick J. Barry Sir Andrew Horne
1885 – 1893	William Roe

Charter Day Lectures

2020	Dr. Roch Cantwell	"There is no Health without Perinatal Mental Health"	2004	Prof. Thomas F. Baskett	"The Evolution of Operative Vaginal Delivery"
2019	Professor Alan D. Cameron	"Each Baby Counts - a Five Year Quality Improvement Programme"	2003	Prof Heman V. Van Geijn	"Is Cardiotocography to Blame?"
2018	Professor Lesley Regan	"Current challenges for the President, Royal College of Obstetrics & Gynaecology, UK"	2002	Joseph J. Volpe	"Brain Injury in the premature infant – is it preventable?"
2017	Dr David Hugh Richmond	"When will we ever learn?"	2001	Professor Frank A. Manning	"Echoes from the Past: the Alpha-Omega Theory."
2016	Dr Jeanne A. Conry	"The Ostrich And The Obstetrician Gynaecologist: How The Environment Can Impact Reproductive Health"	2000	Raymond J. Reilly	"Surgical Gynaecology, the Past, the Present and the Future."
2015	Dr John O. L. DeLancey	"Birth, Pelvic Floor Injury and Prolapse: Who Cares?"	1999	Paul Hilton	"Vesicovaginal Fistula – Of Historical Interest?"
2014	Professor Mark Kilby	"Fetal Medicine & Therapy: A Fantastic Step Forward But Are We Delivering A Good Service?"	1998	Sir Naren Patel	"Chronogenetics – Role of Obstetricians."
2013	Professor Michael Raymond Foley	"Discovering Fulfilment as a Medical Professional – Ancient Wisdom for Modern Medicine"	1997	Dr. Fredric D. Frigoletto Jr.	"Is Obstetric Practice Evidence based?"
2012	Professor Michael de Swiet	"Saving Mothers' Lives: Lessons to be learned from the Confidential Enquiry into Maternal Mortality"	1996	Carol J. Baker	"Group B Streptococcal Disease: Pilgrims' Progress."
2011	Professor Dian Donnai	"Genetic Medicine – Possibilities and Promises"	1995	Prof. Fiona Stanley	"Cerebral Palsy – Contribution from the Antipodes."
2010	Professor James Eisenach	"Pain Pregnancy & Depression."	1994	R. W. Beard	"Medicine in the New Europe – The Impact on Obstetrics and Gynaecology"
2009	Dr Kenneth J. Leveno	"Caesarean Memories"	1993	Knox Ritchie	"Sad – but can anything be done? ..."
2008	Dr. Terry Inder	"The Pathway to Improving Neurodevelopment in at-risk Infants – Nurturing Fetal and Neonatal Neurons"	1992	John Monaghan	"A Century of Subspecialization in Gynaecological Oncology – are we progressing?"
2007	Prof Wolfgang Holzgreve	"Fetal Cells and DNA in maternal circulation- clinical importance for non-invasive prenatal diagnosis and maternal diseases"	1991	Charles Whitfield	"The Rh Story"
2006	Dr. José Belizán	"Calcium Intake During Pregnancy- Maternal and Fetal Outcome"	1990	Roy M. Pitkin	"Anatomy and Physiology of a Peer Review Journal"
2005	Dr. Robert C. Pattinson	"Getting the Right Thing Done"			

1989	Claude Sureau	"Decision making in reproductive medicine."
1988	Geoffrey Chamberlain	"One up on Dactylonomy"
1987	Hugh Philpott	"Obstetrics of Poverty."
1986	Charles R. Scriver	"Medelian Disease – What can it do to us? Can it be treated?"
1985	Alexander C. Turnbull	"Learning Obstetrics in Scotland, Wales, England and Ireland."
1984	Sir Rustam Feroze	"What alternative to what Medicine?"
1983	William Dignam	"Post Graduate Education in Obstetrics and Gynaecology in the U.S.A.: At the Crossroads."
1982	Richard Mattingly	"New Horizons in Cervical Cancer Detection."
1981	Robert H. Usher	"The Very Low Birth-weight Infant – Immediate and Long Term Prospects."
1980	Shirley Driscoll	"Placentas I Have Known."
1979	John S. Tomkinson	"Ultimate Tragedy."
1978	Otto Kaser	"Post-operative Complications."
1977	Denis Cavanagh	"Eclamtogenic Toxaemia – The Science and the Art."
1976	John H. Pinkerton	"The Tell Tale Heart."
1975	Marcel Renaer	"Transplacental Haemorrhage as a Cause of Perinatal Mortality and Morbidity."
1974	James Scott	"Counting the Cost"

1973	Mogens Ingerslev	"Modern Democracy in the National Health Service"
1972	Ian Donald	"Naught for Your Comfort"
1971	Raymond Illsley	"Social Limitations on Obstetric Management."
1970	Christopher J. Dewhurst	"The Place of Modern Technical Advances in Obstetrics."
1969	Dunanc Reid	"The Right and Responsibility."
1968	G. J. Kloosterman	"The Practice of Obstetrics in the Netherlands."
1967	Sir John Peel	"Pre-Diabetes in Obstetrics and Gynaecology."
1966	Hugh McLaren	"The Conservative Treatment of Cervical Pre-Cancer."
1965	John McClure Browne	"Placental Insufficiency."
1964	Sir Hector MacLennan	"Version."
1962	Harold Malkin	"The Art of Obstetrics."
1961	Charles Scott Russell	"The Fetus and its Placenta."
1960	Sir Norman Jeffcoate	"Prolonged Labour."
1959	John Stallworthy	"The Debt We Owe."
1958	George Gibbard	"Changes in the Manifestations of Puerperal Sepsis."
1957	Sir Arthur Gemmell	"Some thoughts on the Adrenal in pregnancy."

Executive Committee (The Board)



Nicholas Kearns, Deputy Chairman

Nicholas Kearns served as a judge of the Supreme Court from 2004 – 2009 and was President of the High Court from 2009 to 2015 and a Judge of the High Court from 1998 to 2015. He retired as President of the High Court in December 2015. He was elected Deputy Chairman of the National Maternity Hospital in May 2016.



David Barniville

David Barniville is the Judge in charge of the Commercial Division of the High Court and is also the designated arbitration judge. He previously practised as a Senior Counsel at the Irish Bar. David was previously chairman of the Council of the Bar of Ireland and of Irish Rule of Law International and was a member of the Legal Services Regulatory Authority and of the Legal Aid Board.



William Johnston, Honorary Secretary

William Johnston is an economics graduate of Trinity College Dublin, a solicitor, the external examiner in Banking Law for the Law Society, a member of the Banking Law Senior Advisory Board of the International Bar Association, and a Director of the Housing Finance Agency and the Port of Waterford.



Dr Ingrid Browne

A graduate of RCSI medical school, Ingrid Browne has been a Consultant Anaesthesiologist for the past 16 years to National Maternity Hospital and St Vincent's University Hospital. She is a fellow of the College of Anaesthesiologists and holds a Masters in medical science. She completed post graduate fellowship training in obstetric anaesthesia at Columbia University NYC.



Michele Connolly, Honorary Treasurer

Michele Connolly is a Chartered Accountant with over 25 years commercial experience. She is currently a partner in professional practice. She specialises in supporting State, Semi State, not for profit and commercial companies in fund raising, development of new infrastructure and general financial matters.



Mairéad Butler

Mairéad Butler is a Chartered Accountant and has spent most of her career in financial services in Dublin and Sydney, working in risk, compliance and communications roles. She is also a Director of An Cosán, a charity focused on education as a pathway out of poverty.



Prof Shane Higgins, Master

Shane Higgins, is a Consultant Obstetrician/ Gynaecologist and the current Master of The National Maternity Hospital. He is an Associate Professor at UCD, Department of Obstetrics & Gynaecology and has a special interest in Maternal-Fetal Medicine. Shane has a broad range of clinical and management experience gained within Ireland, Scotland and Melbourne, Australia.



Fr Enda Cunningham

Son of a NMH nurse, Fr Enda serves as Administrator of Westland Row parish and chaplain to the National Maternity Hospital.



Denise Cole

Denise Cole has 25 years of experience working in Human Resources and combines a wealth of strategic and operational HR and organisation development experience in both the private and public sectors. Her career includes seven years in KPMG in London and Dublin, thirteen years in acute hospitals; eleven years in Beacon Hospital as Head of HR and two years in St James Hospital as Head of HR Strategy. Denise is currently Head of HR for the Courts Service where she leads a People & Organisation Transformation programme.



Gráinne Hennessey

Gráinne Hennessey is a senior partner at Arthur Cox with over 28 years' experience in advising lenders and borrowers on syndicate finance, real estate finance, including some of the largest construction finance projects in the country, leveraged acquisition finance and debt restructurings. Gráinne was Head of the Arthur Cox Finance Department and a member of its management committee for 6 years. Gráinne is also one of two partners who are responsible for Arthur Cox's diversity and inclusion strategy.



Aidan Devlin

Aidan Devlin is a Chartered Accountant and a UCC Commerce graduate. He is a member of the Institute of Directors in Ireland and the Mediators Institute of Ireland. Aidan has over 35 years' experience in Corporate Banking and Project Finance both in Ireland and the Middle East and is a Senior Manager with National Asset Management Agency. Aidan was a founding board member of the NMH Foundation.



Prof Declan Keane

Declan Keane has been a Consultant Obstetrician since 1985 and is a former Master of the Hospital. He has worked in the UK and the USA and was recently appointed as a Professor to the RCSI. He has considerable administrative experience and was a former member of the National Women's Council and was the obstetrician advising the Citizen's Assembly on the 8th Amendment.



Frank Downey

Frank Downey has over 30 years' experience as an Actuarial and Employee Benefits Consultant. Frank is an economics graduate of Trinity College, Dublin, a Director of Invesco Limited and an actuary and advisor for corporate clients. Frank also acts as a trustee for a number of large pension schemes.



Prof Fionnuala McAuliffe

Fionnuala McAuliffe is Chair and Professor of Obstetrics & Gynaecology, UCD, Director UCD Perinatal Research Centre, Head, Women's and Children's Health, UCD, Consultant Obstetrician & Gynaecologist at The National Maternity Hospital. Her subspecialty area is maternal and fetal medicine and she is Programme Director of the RCOG maternal and fetal medicine subspecialisation fellowship at NMH. She has received significant grant funding both nationally and internationally. Fionnuala has developed guidelines for pregnancy both in Ireland, UK and internationally.



Cllr James Geoghegan

James Geoghegan is an elected member of Dublin City Council, practising Barrister at Law in Ireland with a mixed civil practice with a focus on Banking Law, Administrative Law, European Union Law and civil proceedings related to crime.



Jane McCluskey

Jane McCluskey is a lawyer with a large multinational technology company and has over ten years' experience practising corporate, commercial and intellectual property law. She is also a registered trade mark agent. Jane is Mum to three children, all of whom were born at the National Maternity Hospital.



Dr Roger McMorrow

Roger McMorrow is a graduate of The Queens University of Belfast and he has been a consultant anaesthetist at the National Maternity Hospital and St Vincent's University Hospital since 2009. He has served as Clinical Director of the NMH since January 2018. He has a specialist interest in high risk obstetrics, clinical risk and high altitude mountaineering. In 2007 he was part of an expedition that reached the summit of Mt Everest.



Prof Peter McParland

Peter McParland is a Consultant Obstetrician/Gynaecologist in the National Maternity Hospital with a special interest in Maternal Fetal Medicine.



Christine Moran

Christine Moran is a commerce graduate of UCD, a Chartered Accountant, a Chartered Director and a Certified Investment Fund Director. She previously held senior leadership roles in the corporate and institutional markets and has extensive experience in the areas of governance, finance and risk management. She is a non-executive director of several commercial and not-for-profit organisations.



Dr John Murphy

John Murphy is a Consultant Paediatrician in the National Maternity Hospital and Paediatric & Neonatal Clinical Lead with the HSE in Clinical Strategy & Programmes Directorate. He is also editor of the Irish Medical Journal.



Cllr Naoise Ó'Muirí

Naoise Ó'Muirí has served as a Dublin City Councillor since June 2004 and is a former Lord Mayor of Dublin. Naoise studied Engineering at the National University of Ireland, Galway and runs a technology company.



Prof Colm O'Herlihy

Colm O'Herlihy is a medical graduate of University College Dublin and an Obstetrician Gynaecologist. He served as Assistant Master in the National Maternity Hospital and subsequently as Professor of Obstetrics & Gynaecology in UCD and the NMH for over 30 years. He has been a member of the Irish Medical Council and is currently a member of the Board of the Nurses & Midwives Board of Ireland.



Patricia O'Shea

Patricia O'Shea is a law graduate of University College Cork and is Group Head of Legal Affairs & Secretariat for a semi-state company. She was formerly General Counsel of a US multinational company serving as Company Secretary and a Director of a group company.



Dr Michael Robson

Michael Robson is a Consultant Obstetrician/Gynaecologist and former Master of the NMH. Dr Robson is Joint National Clinical Lead for the development of the Maternal and New-born Clinical Management System (electronic patient record). He also developed the methodology for the classification of caesarean sections, known world-wide as the Robson 10.



Stephen Vernon

Stephen Vernon is one of the founders of Green Property Group and has extensive experience in property and property development in Ireland and the UK. A Bristolian, educated in London, Mr Vernon has been based in Ireland for several years.

Committee Members



Executive Committee (The Board)

Dr Diarmuid Martin, Archbishop of Dublin, *Chairman*
 Lord Mayor of Dublin. Cllr. Tom Brabazon, *Vice Chairman (Feb. to June)*
 Lord Mayor of Dublin. Cllr. Hazel Chu, *Vice Chair (from June)*
 Mr Nicholas Kearns, *Deputy Chairman*
 Mr William Johnston, *Honorary Secretary*
 Ms Michele Connolly, *Honorary Treasurer*
 Prof. Shane Higgins, *Master*
 Mr Justice David Barniville
 Dr Ingrid Browne
 Ms Mairéad Butler
 Ms Denise Cole *(from June)*
 Very Rev. Fr Enda Cunningham
 Mr Aidan Devlin
 Mr Frank Downey
 Cllr. James Geoghegan
 Ms Gráinne Hennessy *(from June)*
 Prof. Declan Keane
 Ms Christine Moran
 Ms Eugénée Mulhern *(to June)*
 Dr John Murphy
 Prof. Fionnuala McAuliffe
 Ms Jane McCluskey
 Prof. Peter McParland
 Dr Roger McMorrow

Prof. Colm O'Herlihy
 Cllr. Naoise Ó Muiri
 Ms Patricia O'Shea
 Dr Michael Robson
 Cllr. Catherine Stocker *(to June)*
 Mr Stephen Vernon

In Attendance

Mr Ronan Gavin, *Secretary/General Manager*
 Ms Mary Brosnan, *Director of Midwifery & Nursing*
 Mr Alistair Holland, *Financial Controller*

Finance Committee

Mr Nicholas Kearns, *Deputy Chairman*
 Mr William Johnston, *Honorary Secretary*
 Ms Michele Connolly, *Honorary Treasurer*
 Prof. Shane Higgins, *Master*
 Ms Denise Cole
 Ms Christine Moran

In Attendance

Mr Ronan Gavin, *Secretary/General Manager*
 Ms Mary Brosnan, *Director of Midwifery & Nursing*
 Mr Alistair Holland, *Financial Controller*

The National Maternity Hospital was one of 51 Awardees announced as part of €3 million Fund for COVID-19 Community Response Projects by Rethink Ireland Innovate Together Fund. The money will be used to fund a neonatal unit virtual tour and classroom.

Pictured are Anthony Brennan, CEO, Zurich Ireland, Deirdre Mortell, CEO, Rethink Ireland, Dr Fiona O'Reilly, General Manager, Safetynet Primary Care, Emma Coughlan, Clinical Nurse Manager of the COVID-19 Mobile Health and Screening Unit, Safetynet Primary Care, Ian Power, CEO, SpunOut and Marie Slevin, Clinical Developmental Psychologist at the Department of Neonatology, NMH. Pic: Marc O'Sullivan.

Audit Committee

Mr Frank Downey, *Chair*
 Ms Michele Connolly, *Honorary Treasurer*
 Ms Mairéad Butler
 Mr Aidan Devlin
 Prof. Peter McParland

In Attendance

Mr Ronan Gavin, *Secretary/General Manager*
 Mr Alistair Holland, *Financial Controller*

QRPS Committee

Mr Aidan Devlin, *Chair (to Sept.)*
 Ms Patricia O'Shea, *Vice Chair (to Sept.), Chair (from Sept.)*
 Ms Mairéad Butler, *Vice Chair (from Sept.)*
 Dr Ingrid Browne
 Mr Frank Downey
 Prof. Declan Keane
 Ms Jane McCluskey
 Dr Roger McMorrow
 Prof. Colm O'Herlihy
 Cllr. Naoise Ó Muiri

In Attendance

Ms Mary Connolly, *AON*
 Dr Luke Feeney, *Director of Quality, Risk & Patient Safety*
 Mr Ronan Gavin, *Secretary/General Manager*

Co-Location Committee

Mr Stephen Vernon, *Chair*
 Ms Michele Connolly, *Honorary Treasurer*
 Ms Gráinne Hennessy
 Dr Roger McMorrow

In Attendance

Prof. Shane Higgins, *Master*
 Dr Orla Sheil
 Ms Pauline Treanor
 Mr Ronan Gavin, *Secretary/General Manager*

Nominations Committee

Mr Nicholas Kearns, *Chair*
 Mr William Johnston, *Honorary Secretary*
 Ms Michele Connolly, *Honorary Treasurer*
 Prof. Shane Higgins, *Master*
 Dr Peter Boylan
 Prof. Declan Keane
 Ms Eugénée Mulhern
 Dr John Murphy
 Ms Paula Reid

In Attendance

Mr Ronan Gavin, *Secretary/General Manager*

House Committee

Ms Catherine Altman, *Chair*
 Ms Mary Brosnan, *Director of Midwifery & Nursing*
 Ms Sara Appleby
 Ms Sheena Carton
 Ms Jane Collins
 Ms Fiona Davy
 Ms Elaine Doyle
 Ms Lydia Ensor
 Mrs Kate Higgins
 Ms Judith Meagher
 Ms Margaret McCourt
 Ms Anne Murphy
 Ms Teresa Murphy
 Ms Kathleen O'Grady
 Ms Aoife O'Shea
 Ms Bernie Spillane

In Attendance

Mr Mark Anderson, *Hygiene Services Manager*

Medical Fund Committee

Mr William Johnston, *Honorary Secretary, Chair*
 Prof. Shane Higgins, *Master*
 Mr Frank Downey
 Prof. Peter McParland

In Attendance

Ms Michele Connolly, *Honorary Treasurer*
 Prof. Declan Keane
 Mr Ronan Gavin, *Secretary/General Manager*
 Mr Alistair Holland, *Financial Controller*
 Mr Francis Rogers, *Management Accountant*

NMH Executive Ethics Committee

Dr John Murphy, *Consultant Paediatrician, Chair*
 Mr William Johnston, *Honorary Secretary*
 Prof. Shane Higgins, *Master*
 Ms Catherine Altman
 Dr Peter Boylan
 Dr Ingrid Browne
 Mr Frank Downey
 Dr Paul Downey

In Attendance

Mr Ronan Gavin, *Secretary/General Manager*

Board of Governors



Glenn Kynes, Laundry Manager, Orla Crowe, Healthcare Assistant, Lord Mayor of Dublin Councillor Tom Brabazon, (Feb-June 2020) Molly Vinu, CMM2 MN-CMS.

Governors Ex-Officio

- Dr Diarmuid Martin
(Archbishop of Dublin – Chairman)
- Councillor Tom Brabazon
(Lord Mayor - Vice Chairman) *(Feb. to June)*
- Councillor Hazel Chu
(Lord Mayor - Vice Chairman) *(from June)*
- Prof. Shane Higgins (Master)
- Very Rev. Fachtna McCarthy,
Administrator, Parish of Haddington Road
- Very Rev. John McDonagh,
Parish Priest of the Parish of Sandymount
- Very Rev. Enda Cunningham,
Administrator, Parish of St. Andrew, Westland Row

Nominated by the Minister for Health

- Ms Patricia O'Shea
- Vacant

Nominated by Dublin City Council

- Councillor James Geoghegan
- Councillor Catherine Stocker *(to June)*

Governors Elected

- | | | | |
|---|-------------------------------|---------------------------|--|
| Dr Alan O'Grady | Mr Anthony Garry | Ms Catherine Ghose | Ms Lisa Taggart |
| Dr John R McCarthy | Dr Freda Gorman | Mr Barry Dixon | Ms Helen Caulfield |
| Dr Niall O'Brien | Mrs Jane Collins | Ms Paula Reid | Mr Padraig McManus |
| Mr J. Brian Davy | Ms Alexandra Spain | Ms Suzanne O'Brien | Ms Marie Daly Hutton |
| Mrs Judith Meagher | Mrs Margo McParland | Ms Margaret McCourt | Mr Nicholas Kearns
<i>(Deputy Chairman)</i> |
| Dr Jack T. Gallagher | Mrs Catherine Altman | Ms Bernie Spillane | Ms Michele Connolly
<i>(Honorary Treasurer)</i> |
| Mr Gabriel Hogan | Dr John Murphy, Paeds. | Ms Teresa Murphy | Ms Aoife O'Connor |
| Mrs Anne Davy | Mr Niall Doyle | Ms Eugénée Mulhern | Ms Mairéad Butler |
| Mrs Margaret Anderson | Ms Lydia Ensor | Ms Fiona Davy | Ms Christine Moran |
| Mrs Kathleen O'Grady | Ms Sara Appleby | Dr Michael Robson | Mr Justice David
Barnville |
| Dr John F. Murphy | Ms Caroline Hayes
(Simons) | Dr Deirdre MacDonald | Dr Roger McMorro |
| Dr Frances Meagher | Dr Peter Lenehan | Prof. Fionnuala McAuliffe | Dr Rhona Mahony |
| Mr Kevin Mays | Dr Orla Sheil | Ms Jane McCluskey | Dr Paul Downey |
| Dr Declan O'Keefe | Prof. Peter McParland | Ms Isabel Foley | Mrs Kate Higgins |
| Professor Colm O'Herlihy | Ms Sheena Carton | Clr. Naoise Ó Muirí | Ms Aoife O'Shea |
| Mr William Johnston,
<i>(Honorary Secretary)</i> | Ms Elaine Doyle | Ms Elizabeth Nolan | Ms Caroline Devlin |
| Dr Peter Boylan | Prof. Declan Keane | Dr Ingrid Browne | Ms Denise Cole |
| Mrs Joanne Keane | Ms Maeve Dwyer | Mr Stephen Vernon | Ms Gráinne Hennessy |
| Mrs Anne Murphy | Dr Kevin McKeating | Ms Rachel Hussey | |
| Mr Frank Downey | Mrs Mary Donohoe | Ms Niamh Callaghan | |
| | | Mr Aidan Devlin | |

Professional Advisors

Law Advisors

Mason, Hayes & Curran, South Bank House, Barrow Street, Grand Canal Dock, Dublin 4.
Arthur Cox, Ten Earlsfort Terrace, Dublin 2.

Bankers

The Bank of Ireland, 2 College Green, Dublin 2.

Auditors

External

Price Waterhouse Coopers, Chartered Accountants,
One Spencer Dock, North Wall Quay, Dublin 1.

Internal

BDO, Beaux Lane House, Mercer Street Lower,
Dublin 2.



Neonatal & Infant Mortality

Perinatal Mortality: Congenital Anomalies – Livebirths (11)

Case No.	EGA	BW (g)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	22+2	910	Male	SVD	Not recorded	1	Delivery Ward	No	No	SUA. Lymphocytic deciduitis.	Congenital high airway obstruction syndrome (CHAOS), renal agenesis.	No
2	34+2	2650	Male	LSCS	1, 2, 2	3	Paediatric hospital	Yes	No	High grade FVM. Hypercoiled cord.	Right sided congenital diaphragmatic hernia with hydrops, multi organ failure, deep white matter brain injury.	No
3	34+3	3350	Male	LSCS	8, 7	1	Theatre	Yes	No	Normal.	Severe congenital brain abnormalities; hydrocephalus and lissencephaly and associated arthrogryphosis caused by mutation in L1CAM gene – 'MASA syndrome'.	Yes
4	34+5	2725	Male	LSCS	2, 3, 3	1	NICU	Yes	No	Low grade FVM	Hydrops fetalis, congenital chylothorax, no genetic cause identified on whole exome sequence.	No
5	35+2	2020	Female	SVD	6, 6	1	Delivery Ward	No	No	Gross only.	Multiple congenital anomalies, Smith Lemli Opitz syndrome (DHCR7 gene mutation).	No
6	36+1	2855	Male	LSCS	2, 2	1	Theatre	Yes	No	Low grade FVM.	Pulmonary hypoplasia, anhydramnios, megacystis and renal dysplasia.	No
7	37+2	3685	Male	LSCS	6, 9	3	NICU	No	No	Gross only.	Severe tricuspid valve dysplasia, tricuspid regurgitation and pulmonary atresia.	No
8	37+6	3025	Male	LSCS	Not recorded	1	Theatre	No	No	Gross only.	Left congenital diaphragmatic hernia, 8p23 deletion.	No
9	38+5	2410	Female	LSCS	4, 6, 6	1	Theatre	Yes	No	Normal.	Hypoplastic left heart syndrome, intact atrial septum, aortic stenosis, mitral atresia, hypoplastic aortic arch.	No
10	39+1	3995	Male	LSCS	3, 1, 1	1	Theatre	No	No	High grade FVM. Delayed villous maturation.	Complex congenital heart disease – tricuspid valves dysplasia, severe tricuspid regurgitation, trisomy 21, hydrops fetalis.	No
11	41+4	2370	Male	SVD	1, 0	1	Delivery Ward	No	Suspected antenatally	Gross only.	Trisomy 18.	No

Perinatal Mortality: Congenital Anomalies – Stillbirths (8)

Case No.	EGA	BW (g)	Gender	Delivery method	External Referral	IUGR	Placental Histology	Cause of death	PM
1	24+1	480	Female	SVD Breech	No	Suspected antenatally	Not examined.	Trisomy 18.	No
2	24+3	660	Male	SVD	Yes	No	No abnormal histology reported.	Thanatophoric dysplasia.	No
3	25+5	880	Male	SVD	No	No	Gross only.	Trisomy 21.	No
4	26+5	590	Female	SVD	No	Suspected antenatally	SUA. Gross only.	Trisomy 13.	Yes
5	29+5	970	Female	SVD	No	Suspected antenatally	Severe MVM.	Trisomy 18.	No
6	35+2	2520	Female	SVD	No	No	No abnormal histology reported.	Thanatophoric dysplasia.	No
7	38+5	3500	Female	SVD	No	No	SUA. Gross only.	Cardiac anomalies.	No
8	38+6	3445	Male	LSCS	Yes	No	High grade FVM.	Cardiomyopathy and hydrops.	Yes

Perinatal Mortality: Antepartum Stillbirths (35)

Case No.	EGA	BW (g)	Gender	Delivery method	External Referral	IUGR	Placental Histology	Cause of death	PM
1	22+6	600	Male	SVD	No	No	Severe MVM with abruption.	Abruption.	No
2	24+0	480	Male	SVD	No	Suspected antenatally	High grade FVM and MVM.	Placental disease.	No
3	24+2	570	Male	SVD	No	No	Low grade FVM.	Cord accident.	No
4	24+3	510	Male	SVD	No	No	Hypercoiled cord with abnormal maturation.	Placental disease.	Yes
5	24+4	460	Female	SVD	No	Observed at delivery	Hypercoiled cord with high grade FVM.	Placental disease.	No
6	25+4	190	Female	SVD	No	Suspected antenatally	MCDA. Low grade FVM.	TTTS.	No
7	25+4	620	Female	LSCS	No	No	MCDA. Low grade FVM.	TTTS.	No
8	26+2	278	Female	SVD	No	Observed at PM	Increased perivillous fibrin, mild.	Unexplained.	No
9	26+2	620	Female	SVD	No	Suspected at delivery	High grade FVM.	Placental disease.	No
10	26+2	620	Female	SVD	No	Suspected at delivery	High grade FVM.	Placental disease.	No
11	26+4	640	Female	SVD	Yes	Suspected at delivery	Severe MVM.	Abruption.	No
12	26+5	670	Male	SVD	No	No	MVM.	Placental disease.	Yes
13	26+6	580	Female	SVD	No	No	Gross only.	Anencephaly.	No
14	27+4	280	Male	SVD	No	Observed at delivery	MCDA. No abnormal histology reported.	TTTS.	No
15	28+2	530	Female	SVD	No	Suspected antenatally	Severe MVM and FVM.	Placental disease.	No
16	28+2	1340	Male	LSCS	No	No	Hypercoiled cord with stricture.	Placental disease.	No
17	28+5	1320	Female	SVD	No	No	MVM with hydrops.	Hydrops.	No
18	29+0	1070	Female	SVD	No	No	Hypercoiled cord with high grade FVM.	Placental disease.	No
19	31+6	1600	Male	LSCS	No	No	Retroplacental haemorrhage. High grade villitis with stem vessel obliteration.	Placental disease.	No
20	32+3	940	Male	SVD	No	Observed at delivery	Severe MVM and FVM.	Placental disease.	No
21	35+0	3135	Female	LSCS	No	No	Delayed villous maturation.	Placental disease.	Yes – Coroner's PM
22	35+5	2345	Female	SVD	No	No	High grade FVM.	Cord accident.	Yes
23	36+3	2250	Female	SVD	No	No	Hypercoiled cord with strictures and high grade FVM.	Placental disease.	Yes
24	36+4	2460	Female	SVD	No	No	High grade FVM.	Placental disease.	No
25	36+5	800	Male	SVD	No	n/a	MCDA. Low grade villitis.	Twin 2 IUD at 20 wks. TTTS.	No
26	36+5	2970	Male	SVD	No	No	Long cord. High grade FVM with delayed villous maturation.	Placental disease.	Yes

Case No.	EGA	BW (g)	Gender	Delivery method	External Referral	IUGR	Placental Histology	Cause of death	PM
27	38+0	3560	Female	SVD	No	No	Hypercoiled cord with high grade FVM.	Placental disease.	Yes
28	38+1	2950	Female	SVD	No	No	High grade FVM with delayed maturation.	Placental disease.	Yes – Coroner's PM
29	38+2	3500	Male	SVD	No	No	High grade FVM with meconium associated vascular necrosis.	Placental disease.	Yes
30	38+4	3195	Male	SVD	No	No	Retroplacental haemorrhage.	Abruption.	No
31	38+4	3550	Male	SVD	No	No	Chorioamnionitis and high grade FVM.	PM results awaited.	Yes – Coroner's PM
32	38+6	4015	Male	LSCS	No	No	Delayed villous maturation.	Placental disease.	Yes – Coroner's PM
33	39+3	3680	Female	SVD	No	No	True knots and cord entanglement. High grade FVM.	Cord accident.	No
34	39+4	2700	Male	SVD	No	No	Long hypercoiled cord with stricture.	Cord accident.	Yes
35	40+3	4380	Male	SVD	No	No	True knots with high grade FVM.	Cord accident.	No

Perinatal Mortality: Early Neonatal Deaths (12)

Case No.	EGA	BW (g)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	23+2	505	Female	SVD	0. 4. 6	1	NICU	Yes	No	Maternal and fetal inflammatory response, high grade FVM.	Severe respiratory distress syndrome, suspected pulmonary hypoplasia, prolonged preterm rupture of membranes since at least 21 weeks, extreme prematurity secondary to ascending infection.	No
2	23+2	615	Female	SVD	0. 0. 1	1	NICU	Yes	No	Placenta not sent.	Severe respiratory distress syndrome, pulmonary hypoplasia, bilateral pneumothoraces, extreme prematurity.	No
3	23+3	520	Female	LSCS	5. 7	3	NICU	No	No	DCDA.	Hyoxic respiratory failure, refractory hypotension, extreme prematurity, extremely low birth weight, DCDA twin.	No
4	24+2	490	Female	LSCS	2. 8	7	NICU	No	Diagnosed at Delivery	Severe MVM.	Klebsiella sepsis, extreme prematurity, extremely low birth weight.	No
5	25+0	945	Male	LSCS	1. 1. 1	1	NICU	No	No	Maternal and fetal inflammatory response. Severe acute chorioamnionitis.	Severe pulmonary hypoplasia, prolonged preterm rupture of membranes since 21 weeks, extreme prematurity, extremely low birth weight, chorioamnionitis.	Yes
6	25+4	575	Male	LSCS	4. 8	7	NICU	No	Suspected antenatally	Hypercoiled cord.	E.Coli sepsis and multi-organ failure, extreme prematurity, extremely low birth weight.	No
7	26+2	500	Female	LSCS	7. 8	2	NICU	Yes	Suspected antenatally	Severe MVM. Low grade villitis.	Severe respiratory failure, respiratory distress syndrome, extreme prematurity secondary to PET, extremely low birth weight.	No
8	27+2	1175	Female	SVD	3. 4. 6	2	NICU	Yes	No	Maternal and fetal inflammatory response. Severe acute chorioamnionitis.	Pulmonary hypoplasia, prolonged preterm rupture of membranes from 19 weeks. Prematurity secondary to ascending infection.	No
9	32+4	1880	Female	LSCS	3. 5. 8	3	NICU	No	No	Maternal and fetal inflammatory response. Severe acute chorioamnionitis.	Pulmonary hypoplasia, prolonged preterm rupture of membranes from 18 weeks, prematurity secondary to PPROM.	No
10	39+2	3380	Male	SVD	9. 9	1	NICU	No	No	High grade FVM.	Group B strep sepsis.	No
11	40+1	3480	Female	LSCS	0. 0. 4	1	NICU	No	No	Delayed villous maturation with high grade FVM.	Neonatal encephalopathy, multi organ failure, placental abruption.	No
12	41+1	4295	Female	LSCS	3. 4. 6	7	NICU	No	No	No abnormal histology.	PM results awaited.	Yes – Coroner's PM

Late Neonatal Deaths and Early Infant Deaths (14)

Case No.	EGA	BW (g)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	23+3	620	Male	LSCS	5, 7	8	NICU	Yes	No	No abnormal histology reported	Hypoxic respiratory failure, renal failure, extreme prematurity, extremely low birth weight, dichorionic twin pregnancy.	No
2	25+2	770	Female	LSCS	2, 5, 8	28	Paediatric hospital	No	No	Severe acute choriomnionitis.	Necrotising enterocolitis, extreme prematurity, extremely low birth weight.	No
3	25+5	580	Female	LSCS	1, 5, 8	11	NICU	Yes	Suspected antenatally	Severe MVM.	E.Coli pneumonia, extreme prematurity, intrauterine growth restriction secondary to severe placental maternal vascular malperfusion.	Yes
4	26+0	535	Female	LSCS	7, 8	53	NICU	Yes	Suspected antenatally	MCDA, MVM.	Necrotising enterocolitis, extreme prematurity, extremely low birth weight (535g), monochorionic twin pregnancy.	Yes
5	28+3	550	Male	LSCS	6, 7	39	NICU	No	Suspected antenatally	Severe MVM and FVM.	Klebsiella sepsis, trisomy 21, transient abnormal myelopoiesis, necrotising enterocolitis, hypothyroidism, extreme prematurity, extremely low birth weight, growth failure, bone marrow failure, bilateral cystic kidneys.	No
6	28+4	635	Female	SVD	3, 6, 8	12 months	Paediatric hospital	Yes	Suspected antenatally	Hypercoiled cord. Diffuse chorioamnionic haemosiderosis. Moderate MVM with high grade FVM.	Complications of Trisomy 21, congenital heart disease and prematurity and extremely low birth weight.	No
7	29+2	1390	Male	LSCS	3, 5, 8	7	NICU	No	No	No abnormal histology reported	Congenital anomaly, grossly abnormal neurological examination; genetic and metabolic investigations ongoing.	No
8	30+0	1040	Female	LSCS	1, 4, 8	8	Paediatric hospital	Yes	Suspected antenatally	Mild MVM.	Necrotising enterocolitis, prematurity, extremely low birth weight, dichorionic twin pregnancy.	No
9	30+2	1830	Male	LSCS	4, 5, 5	3 months	Paediatric hospital	No	No	Normal.	Cardiopulmonary arrest secondary to cardiac failure, congenital heart block.	No
10	31+6	545	Female	LSCS	4, 7	6 months	Paediatric hospital	Yes	Suspected antenatally	DCDA, Moderate MVM and high grade FVM.	Severe chronic lung disease, persistent pulmonary arterial hypertension, pulmonary vein stenosis, severe intra uterine growth restriction, dichorionic twin pregnancy.	No
11	38+0	3220	Male	LSCS	6, 7	6 months	Paediatric hospital	Yes	No	Gross only.	Multiple congenital anomalies: right sided congenital diaphragmatic hernia, tetralogy of fallot, functional asplenia, dysplastic left kidney.	No
12	38+6	2285	Female	LSCS	3, 7	7 weeks	Paediatric hospital	Yes	Suspected antenatally	High grade FVM.	Multiple congenital anomalies, Trisomy 9.	No

Case No.	EGA	BW (g)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
13	39+3	3630	Female	LSCS	9, 10	15	Home under care of palliative care team, following assessment at paediatric hospital.	No	No	Gross only.	Hypoplastic left heart syndrome, Di George syndrome.	No
14	39+4	2790	Female	SVD	9, 9	3 months	Home	No	No	Low grade FVM.	PM results awaited.	Yes – Coroner's PM

Liveborn Babies <500g and <24 wks gestation (8)

Case No.	EGA	BW (g)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	14+0	36	Indeterminate	SVD	Not recorded	1	Delivery Ward	No	No	No abnormal histology reported.	Anencephaly.	No
2	14+0	37	Female	SVD	Not recorded	1	Delivery Ward	No	n/a	No abnormal histology reported	Mid trimester loss.	No
3	15+3	68	Male	SVD	Not recorded	1	Delivery Ward	No	n/a	Gross only	Anencephaly.	No
4	19+0	219	Female	SVD	1, 0	1	Delivery Ward	No	No	Severe acute chorioamnionitis. Maternal vascular malperfusion.	Chorioamnionitis, extreme prematurity, prolonged preterm rupture of membranes.	No
5	19+5	280	Male	SVD	Not recorded	1	Delivery Ward	No	No	No abnormal histology reported	Mid trimester loss.	No
6	20+6	212	Female	SVD	2, 2	1	Delivery Ward	No	No	Severe acute chorioamnionitis	Mid trimester loss, extreme prematurity.	No
7	21+2	350	Female	SVD	Not recorded	1	Delivery Ward	No	No	Severe acute chorioamnionitis with fetal response.	Extreme prematurity, twin pregnancy, chorioamnionitis.	No
8	21+5	246	Male	SVD	Not recorded	1	Delivery Ward	No	Suspected antenatally	Gross only.	Trisomy 18.	No

Outborn Deaths (7)

Case No.	EGA	BW (g)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	Placental Histology	Cause of death	PM
1	26+2	1070	Male	LSCS	9, 9	6	NICU	Not available	Tension pneumothoraces, respiratory distress syndrome, extreme prematurity, Grade IV intraventricular haemorrhage	No
2	30+5	1500	Male	LSCS	1, 1, 1	2	NICU	Not available	Severe neonatal encephalopathy secondary to antepartum haemorrhage, prematurity	No
3	33+3	2580	Male	SVD	6, 4, 7	34	Paediatric hospital	Not available	Renal failure secondary to multi-cystic kidney disease, prematurity, persistent pulmonary hypertension	No
4	36+1	2540	Female	LSCS	2, 3, 6	2	NICU	MCDA, Acute perimortem transfusion.	Neonatal encephalopathy, complications of monochorionic twin pregnancy, twin IUD	Yes - Coroner's PM
5	36+1	2940	Male	LSCS	4, 8, 8	4	NICU	Not available	PM results awaited	Yes - Coroner's PM
6	39+0	2600	Female	SVD	5, 6, 9	55 months	Paediatric hospital	Not available	PM results awaited	Yes - Coroner's PM
7	39+3	2600	Male	SVD	7, 7, 10	2	NICU	High grade FVM	Severe neonatal encephalopathy - diffuse brain injury on MRI, secondary to a placental cause of death	Yes - Coroner's PM

Neonatal Encephalopathy

Since 2013, NMH now reports on all infants ≥ 35 weeks gestation who during the first week of life have:

- Either seizures alone
- or
- Signs of Neonatal Encephalopathy which is defined as clinical findings in 3 or more of the following domains:
 - Level of consciousness
 - Spontaneous activity when awake or aroused
 - Posture
 - Tone
 - Primitive reflexes
 - Autonomic system

For a more detailed description of the findings in each domain, please refer to appendix 5. To be included in our annual figures, the signs of neonatal encephalopathy (whether mild, moderate or severe) must be present for at least 24 hrs.

Cases reported are reviewed and some are subsequently reclassified as Hypoxic-Ischaemic Encephalopathy if there is clinical evidence of encephalopathy (as defined above) associated with one or more of the following physiological criteria:

- Apgar score ≤ 5 at 10 mins of age
- Continued need for resuscitation (endotracheal intubation or PPV) at 10 mins after birth.
- Acidosis within 60 mins of birth (defined as a pH < 7.0 in an umbilical cord or any neonatal arterial, venous or capillary blood sample)
- Base deficit ≥ 16 mmol/L in an umbilical cord or any neonatal blood sample (arterial, venous or capillary) within 60 mins of birth

Reference is also made to which cases undergo therapeutic hypothermia. Please note that the physiological criteria which are now used to reclassify a case as HIE are broader than the criteria applied in previous years. If pertinent obstetric details surrounding the delivery are not available to us (as in the case of outborn infants) to allow a case to be categorised as HIE according to the above definition, then, the case, by default, is reported as a case of Neonatal Encephalopathy. In all reported cases, it is assumed that there is no evidence of an infectious cause, a congenital malformation of the brain or an inborn error of metabolism that could explain the encephalopathy.

All cases (both neonatal encephalopathy cases and hypoxic-ischaemic encephalopathy cases) are further categorised according to severity of presentation. The most severe stage observed during the first 7 days following birth is recorded based on the infant's level of consciousness and response to arousal manoeuvres such as persistent gentle shaking, shining a light or ringing of a bell. Infants are considered to fall into the 'mild' category if they are alert or hyperalert with either a normal or exaggerated response to arousal, infants fall into the 'moderate' category if they are arousable but are lethargic and have a diminished response to arousal manoeuvres and infants fall into the 'severe' category if they are stuporous or comatosed and are difficult to arouse or are not arousable. If further clarification regarding any of these clinical terms or definitions is required, please refer to appendix 5.

Since 2017, infants who have seizures but who are not clinically encephalopathic are no longer included in the neonatal encephalopathy figures as before; they will now be listed separately.

No. of Cases 2020

	Inborns	Outborns
Neonatal Encephalopathy - with HIE	8	4
• Mild HIE (Grade 1)	0	0
• Moderate HIE (Grade 2)	4	2
• Severe HIE (Grade 3)	4	2
Neonatal Encephalopathy	0	2
Seizures – No Encephalopathy	4	0
Therapeutic Hypothermia	8	5

Infants undergoing Therapeutic Hypothermia in NMH

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Inborn										
HIE cases reported	14	10	12	9	19	9	9	9	5	8
<i>Number cooled</i>	12	10	11	9	18	9	9	9	5	8
NE cases reported	13	19	7	4	2	5	2	4	0	0
<i>Number cooled</i>	0	7	3	0	2	2	2	4	0	0
Total	27 (12 cooled)	29 (17 cooled)	19 (14 cooled)	13 (9 cooled)	21 (20 cooled)	14 (11 cooled)	11 (11 cooled)	13 (13 cooled)	5 (5 cooled)	8 (8 cooled)
Outborn										
HIE cases reported	5	8	8	13	8	6	10	2	6	4
<i>Number cooled</i>	5	7	7	12	8	5	9	2	6	4
NE cases reported	0	2	4	1	1	1	1	0	2	2
<i>Number cooled</i>	0	1	2	0	1	1	1	0	1	1
Total	5 (5 cooled)	10 (8 cooled)	12 (9 cooled)	14 (12 cooled)	9 (9 cooled)	7 (6 cooled)	11 (10 cooled)	2 (2 cooled)	8 (7 cooled)	6 (5 cooled)
Total Inborn and Outborn Cases	32	39	31	27	30	21	22	15	13	14

Total receiving Therapeutic Hypothermia

Inborn infants cooled	12	17	14	9	20	11	11	13	5	8
Outborn infants cooled	5	8	9	12	9	6~	10	2	7	5
Total	17	25	23	21*	29^	17~	21~	15	12[∞]	13

* 2 other inborn infants were cooled in 2014 but are excluded from the above table as both of these infants were diagnosed with early onset neonatal sepsis.

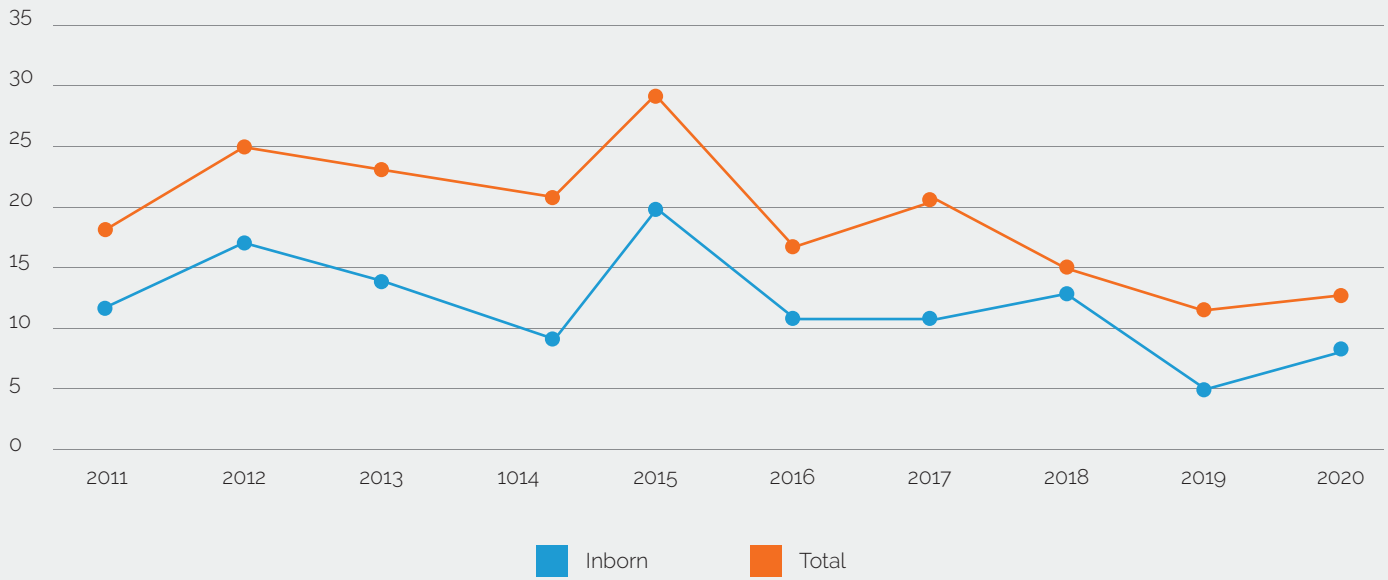
^one outborn infant was cooled in 2015 but is excluded from the above table as the infant was diagnosed with a congenitally acquired condition postnatally.

~ one infant is not included in the hypothermia figures as although the infant was initially commenced on cooling, it was discontinued as it was not tolerated.

∞One inborn infant was cooled in 2019 but is excluded from the above table as the infant was diagnosed with early onset neonatal sepsis.

Please note as of 2017, infants who have seizures but who are not clinically encephalopathic are excluded from the above table.

Infants Undergoing Therapeutic Hypothermia in the NMH 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Inborn	12	17	14	9	20	11	11	13	5	8
Total	17	25	23	21	29	17	21	15	12	13

Hypoxic Ischaemic Encephalopathy: Inborn (8)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	36+5	2645	Emergency C-Section (not in labour)	Reduced fetal movements and NRCTG	3.4.6	No	6.98	-12.1	Yes	Yes	2	Abnormal - global pattern of ischaemia/infarction	Ventilated, Coagulopathy, Thrombocytopenia, SIADH, AKI, Elevated LFTs	Discharged home D8	High grade FVM.	3
2	37+6	2655	Emergency C-Section (not in labour)	APH and fetal bradycardia	1.5.5.5	Yes	6.8	incalculable	Yes	Yes	2	Abnormal - basal ganglia pattern of ischaemia/infarction	Ventilated, Inotropes, Thrombocytopenia, SIADH, AKI, Elevated LFTs	Discharged home D27	MVM with low grade FVM.	1.2.3.4
3	38+4	3005	Emergency C-Section (not in labour)	Reduced fetal movements and NRCTG	0.4.6	Yes	7.03	-15.8	Yes	Yes	3	Abnormal - global pattern of ischaemia/infarction	Ventilated, Inotropes, Hyperglycaemia, SIADH, AKI, Elevated LFTs	Discharged home D10	High grade FVM and moderate MVM.	2
4	39+3	3275	Operative vaginal (Ventouse/forceps)	IOL for maternal PIH Instrumental delivery for NRCTG. Meconium III at delivery	1.3.3.3	Yes	6.96	-14.1	Yes	Yes	2	Normal	Ventilated, Coagulopathy, SIADH, Elevated LFTs	Discharged home D5	High grade FVM.	1.2.3
5	40+1	3480	Emergency C-Section (not in labour)	Reduced fetal movements reported. Fetal bradycardia. abruptio.	0.0.4.6.6	Yes	6.83	-19.4	Yes	Yes	3	Not performed	Ventilated, inhaled Nitric Oxide, Inotropes, Coagulopathy, Thrombocytopenia, SIADH, AKI, Elevated LFTs	Died D1	Delayed villous maturation with high grade FVM.	1.2.3.4
6	41+1	4295	Emergency C-Section (in labour)	IOL for maternal PET/Hypertension. EmLSCS for IUA - inability to treat fetal intolerance (NRCTG and maternal pyrexia). Fetal bradycardia	3.4.6.6.9	No	6.73	-23.7	Yes	Yes	3	Abnormal - global pattern of ischaemia/infarction	Ventilated, Inotropes, Thrombocytopenia, Hyperglycaemia, Hypocalcaemia, SIADH, AKI, Elevated LFTs	Patient Died (D7). Coroner's case	No abnormal histology.	3.4
7	41+2	3765	Operative vaginal (Ventouse)	IOL for post dates. Ventouse delivery for NRCTG	1.2.4	No	7.16	-6.6	No	Yes	2	Normal	Ventilated, SIADH	Discharged home D6	DVM with low grade FVM.	1
8	41+5	4030	Spontaneous vaginal	IOL for post dates. ROM x 22 hours. Maternal intrapartum pyrexia	3.4.5.7	Yes	6.92	-15.7	Yes	Yes	3	Abnormal - basal ganglia pattern of ischaemia/infarction	Ventilated, SIADH	Discharged home D12	Delayed villous maturation. Severe MIR and Severe FIR.	1.2.3

Hypoxic Ischaemic Encephalopathy: Outborn (4)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	36+1	2540	Emergency C-Section (not in labour)	Em LSCS for fetal bradycardia in this twin and twin 2 demise	2,3,6,7,7	Yes	6.83	-20	Yes	Yes	3	Not performed (Point-of-care CRUSS - bilateral thalamic increased echogenicity suggestive of ischaemic injury)	Ventilated, Intotropes, Coagulopathy, Thrombocytopenia, AKI, elevated LFTs	Died D2. (Coroner's case)	MCDA. Acute perimortem transfusion.	1,2,3,4
2	36+1	2940	Emergency C-Section (not in labour)	Em LSCS for reduced fetal movements and fetal bradycardia	4,8,8	Yes	6.88	Incalculable	Yes	Yes	2	Not performed (CRUSS - subtle increased echogenicity throughout the cerebral parenchyma, and effacement of the lateral ventricles, suggesting a degree of cerebral swelling)	Ventilated, iNO, Intotropes, Coagulopathy, Thrombocytopenia, SIADH, AKI, Elevated LFTs	Died D4 (Coroner's case)	No placenta in NMH.	2,3,4 (postnatal diagnosis of T21)
3	36+4	2500	Spontaneous vaginal	PPROM for 4 days. Rapid onset of preterm labour. Foul smelling liquor. Clinical suspicion for chorioamnionitis.	6,8,9	No	7.02	-17/6	Yes	Yes	2	Not performed (CRUSS normal)	Ventilated, inhaled Nitric Oxide, Intotropes, Thrombocytopenia, Neutropenia (WCC 3.5), Lymphopenia (1.09), Raised CRP (39). No growth on blood cultures but sepsis strongly suspected	Transferred to Paediatric Hospital consideration of ECMO for PPHN. Survived. Follow-up at referring hospital	No placenta in NMH.	4 (PPHN)
4	38+4	3840	Operative vaginal (Ventouse)	Failure To Progress	6,8,8	No	6.98	-13	No	Yes	2	Normal	No	Transferred to referring hospital D5 and referring hospital follow-up	No placenta in NMH.	3

Neonatal Encephalopathy: Outborn (2)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Ap-gars 1, 5, 10, 20 mins	PPV at 10 mins	Min pH within 60 mins	Max BE within 60 mins	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	39+0	2590	Spontaneous vaginal	ARM and Mec I noted. Baby delivered while Mother was standing	5,6,6	No	7.12	-9.9	Yes	Yes	3	Abnormal - global pattern of ischaemia/infarction. CT documented several skull fractures	Ventilated, Thrombocytopenia, SIADH, Elevated LFTs	Retro-transfer to referring hospital D5. Died at 5.5 months of life. Coroner's Case	No placenta in NMH.	No indicators of HIE so classified as NE with seizures
2	39+3	2600	Operative vaginal (Forceps)	IOL for maternal age and asymmetrical IUGR. PROM x 18 hours. Forceps delivery for NRCTG. Nuchal cord x 1 noted at delivery	7,7,10	No	7.2	-8.1	No	No*	3	Abnormal - significant extra-axial (likely subarachnoid) and intraventricular haemorrhage. Also global pattern of ischaemia/infarction.	Ventilated, Inotropes, Coagulopathy, Thrombocytopenia, SIADH, Elevated LFTs	Died D2 (Coroner's case)	Umbilical artery thrombosis with high grade FVM.	NE Outborn

*commenced in peripheral centre but discontinued by 2 hrs after discussion with Neonatal Transport Team

Seizures – No Encephalopathy: Inborn (4)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Histology	Classification
1	35+6	3035	C-Section (Emergency)	Em LSCS for breech, previous LSCS and suspected arthrogyria	6.9	No	7.35	-11	Yes (On D5)	No	0	Extensive predominantly perisylvian polymicrogyria cortical malformation as described which in the clinical context is suggestive of arthrogyria multiplex congenita. The brain biometry measurements are also outside 2 standard deviations below the mean.	No	Transferred to Crumlin D6	Gross only.	Seizures secondary to underlying brain malformation - No HIE/NE
2	38+5	3605	Emergency C-Section (In labour)	LSCS for maternal medical reason/ pains and previous LSCS.	9.9	No	7.23	-3.2	Yes (suspected from around 6 hours of age)	No	0	Agensis of the corpus callosum. Temporoparietal pachygyria and malformation involving the basal ganglia and frontal horns of the lateral ventricles	No	Transferred to TSH D6. Died at < 1 year of life	DVM and low grade FVM.	Seizures secondary to genetic disorder (XLAG - x-linked lissencephaly and abnormal genitalia)
3	39+1	4510	Operative vaginal (Ventouse)	IOL for fetal macrosomia. Ventouse delivery for FTA.	9.9	No	7.26	-2	Yes (from 22 hours of age)	No	0	Right sided haemorrhagic stroke	Nil	Discharged Home D7	Low grade FVM.	Seizures - No HIE/NE
4	41+5	3400	SVD	IOL for PET/ hypertension and post-dates.	5.8	No	7.18	-7.3	Yes (from 7 hours of age)	No	0	Punctate foci of ischaemia/ infarction in deep white matter of left frontal lobe and periventricular white matter of occipital lobes and splenium of corpus callosum	Hypoglycaemia, Hyponatraemia	Discharged Home D7	Small placenta. Severe MIR and severe FIR. DVM.	Seizures - No HIE/NE

Classification:

- 1) Apgar score ≤ 5 at 10 mins of age
- 2) Continued need for resus at 10 mins after birth
- 3) pH < 7.0 within 60 mins of birth
- 4) Base excess ≥ 16.0 within 60 mins of birth



Neonatal Unit



In 2020 we welcomed 1,240 babies into the Neonatal Unit 8. We cared for 117 babies born <1.5kg and continued to contribute their clinical data to the Vermont Oxford Network. Tertiary-level NICU care was provided for babies from all over Ireland. Therapeutic hypothermia was provided in NMH for 13 babies (8 inborn and 5 outborn infants). Lower admission numbers for the year reflect our efforts to minimise risk of transmission of infection during the COVID-19 pandemic. While continuing to ensure the most vulnerable babies received the necessary care and to avoid separation of mother and baby we aimed to reduce footfall into the Unit and to achieve timely discharge.

Faced with the global pandemic, the courage and resilience of our staff was second to none. Despite depleted staff numbers, we adapted to new processes and infection control precautions. Hallmarks of the year included: changes in infrastructure and work practices; introduction of virtual clinics, meetings and teaching platforms; and improved communication strategies. We succeeded in altering and optimising air-flow in the Unit

to provide a negative-pressure environment for 16 cot spaces. A multidisciplinary group was established to improve communication between patients and staff and to bridge gaps caused by restricted visitation to the Unit. Coined 'CommuNICU' by Dr Emma Dunne, strategies included use of Angel-eye cameras, daily pictures and journals of progress sent to parents, as well as regular scheduled phone calls from doctors and dietitians. Notwithstanding high levels of COVID-19 transmission in the community and significant levels of infection amongst our staff these precautions protected our babies. We are immensely proud that no babies tested positive for COVID-19 in our hospital in 2020. In this respect, on behalf of the staff, I wish to acknowledge the expert advice and support provided to the Unit by our Clinical Microbiologist, Dr Susan Knowles.

In addition to our clinical activity and despite constraints imposed by the pandemic, teaching and research activity continued within the Unit. Dr Emma Dunne continues as UCD tutor in Neonatology. In 2020, Emma won the inaugural Holles St. Colm O'Herlihy Medal for Research. Emma's PhD research

examining temperature regulation in preterm infants - the APOLLO study - has commenced recruitment. This year we welcomed back Dr Carmel Moore who is undertaking a HSE National Doctor's Training and Planning Unit Post / Certificate of Satisfactory Completion of Specialist Training Aspire Fellowship and has started a PhD in Neonatal Transfusion and haemovigilance with the School of Medicine in UCD. Of course, research activities in the Unit would not be possible without the participation of our patients and the consent of their parents to whom we are most grateful. Thank you. Dr Madeline Murphy left our staff to take up a Neonatal Fellowship in Toronto, Canada. We thank Madeline for her contribution to the Unit and wish her continued success in her career.

Thank you also to our staff and families that donated to Unit 8 through the NMH Foundation. In 2020 we purchased much needed equipment that included: A Life Start Trolley; a C-Mac video laryngoscope; an X-Ray viewer; chairs for nursing mothers and Angel-eye cameras. This equipment will improve the care we provide to our babies and their families. Some of our donors undertook huge fundraising initiatives despite immense personal loss. We remember the 49 babies that died in our care in 2020. May they rest in peace.

A separate **Neonatal Report** is published annually in late summer and contains further information on our Units activity including: a detailed chapter on NMH babies reported to the Vermont Oxford Database which allows us benchmark our care internationally as well as information on Admissions, Infection Control, Infant Feeding and Nutrition, Ventilation and Blood Usage, Neurodevelopmental Follow Up of Very Low Birthweight Babies, Congenital Anomalies and also a report from the Regional Neonatal Units within the Ireland East Hospital Network.

Neonatal Discharge Planning *Caroline McCafferty, Clinical Nurse Specialist (CNS)*

The Neonatal Discharge Planning service continues to play a vital part in the care of the high risk infant and family in the Neonatal Unit by streamlining each infant's discharge. High risk infants include all preterm infants with birth weight <1500g or <32 weeks gestational age, infants with Neonatal Abstinence Syndrome, complex social admissions, life shortening illnesses, those requiring palliative care as well as infants with congenital abnormalities and brain Injury. This has been achieved by supporting and building a rapport with the family from admission until discharge

and thereafter. The service offers support to parents as well as anticipating their needs pre and post discharge home. Support was given to 252 discharges with 610 follow up calls this year; one baby discharged home tube feeding. The CNS collaborates early with the Multi-disciplinary Team and Community Support Services so that the best possible support is made available to the high risk infant and their family while an inpatient and post discharge home. Staff, student midwives and student public health nurses are continually updated and advised regarding changes to discharge policies and procedures. A Basic Life Support class and 'preparing for home' class is regularly provided for families and carers of high risk infants on 1:1 basis and also virtually during the COVID-19 pandemic.

The service continues to be the link with the HSE appointed Northgate Hearing Screening Service who provide a national hearing screening programme for all infants. The CNS leads in collaborating information for all babies with a confirmed diagnosis of Trisomy 21 for the National Down Syndrome Register run by the University of Dublin, Trinity College and an information pack has been developed for families of babies with Trisomy 21 for all babies born in NMH.

Thank you also to our staff and families that donated to Unit 8 through the NMH Foundation. In 2020 we purchased much needed equipment...

We continue to work on Quality Improvement Initiatives in promoting Family Centred Care and early breastfeeding in the NICU sustaining on discharge home and we liaise with the NMH Foundation in projects that involve trying to improve learning throughout the pandemic for families i.e. Information screens, The NMH e-learning hub and creating an online version of the 'Babies in Neonatal Care' handbook.

A parent education webinar for parents of preterm babies is in development and a Parent Questionnaire was formulated in collaboration with Quality Team. The service is represented on the hospital's Prime B – Breastfeeding and Infant Mental Health Group committees and chairs the Inter Hospital Neonatal Clinical Nurse Specialist Group.

Neonatal Activity

Number of Admissions to the Neonatal Intensive Care Unit (NICU)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number	1348	1476	1823	1944	2083	1926	2090	1517	1579	1240

Sources of Admission to the NICU

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
First admission for inborn infants	1117 (83%)	1205 (82%)	1612 (88%)	1720 (89%)	1809 (87%)	1703 (88%)	1907 (91%)	1341 (88%)	1417 (90%)	1107 (89%)
• Delivery Ward		382	649	644	729	715	780	915	950	772
• Theatre		497	532	603	629	590	629	<i>Inc. above</i>	<i>Inc. above</i>	<i>Inc. above</i>
• Postnatal Ward		326	430	473	451	399	498	426	467	335
First admission for Outborn infants	47 (3%)	51 (3%)	62 (3%)	52 (3%)	48 (2%)	45 (2%)	55 (3%)	41 (3%)	38 (2%)	46 (4%)
First admission from home	47 (3%)	72 (5%)	69 (4%)	60 (3%)	91 (5%)	82 (4%)	67 (4%)	42 (3%)	38 (2%)	30 (2%)
Readmission from postnatal ward	89 (7%)	96 (7%)	34 (2%)	46 (2%)	60 (3%)	39 (2%)	30 (2%)	39 (3%)	41 (3%)	21 (2%)
Readmission from other hospital	18 (1%)	17 (1%)	19 (1%)	20 (1%)	27 (1%)	14 (1%)	12 (1%)	16 (1%)	21 (1%)	12 (1%)
Readmission from home	30 (2%)	35 (2%)	27 (2%)	46 (2%)	48 (2%)	43 (2%)	19 (1%)	38 (2%)	24 (2%)	24 (2%)
Total	1348 (100%)	1476 (100%)	1823 (100%)	1944 (100%)	2083 (100%)	1926 (100%)	2090 (100%)	1517 (100%)	1579 (100%)	1240 (100%)

Levels of Neonatal Care

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of Intensive Care Days	1645	1774	1647	1561	1397	1307	1664	1403	1289	1105
Number of High Dependency Care Days	2125	1972	2047	2499	2712	2813	3051	2916	3457	3134
Number of Special Care Days	7556	7274	7553	7557	7401	6423	7021	7644	6882	5822

*British Association of Perinatal Medicine. Categories of Care 2011 (August 2011). <http://www.bapm.org/publications/documents/guidelines/CatsofcarereportAug11.pdf>

Outpatient Clinic Attendances

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual clinics	381	410	388	419	417	381	428	395	248	250
New patients (first visits)	2693	2425	2632	1562	1537	1542	1894	2828	2835	1669
Return visits	1751	1952	1635	2740	2240	2372	2129	539	608	861
Total visits	4444	4377	4267	4365	3777	3914	4023	3367	3443	2530

There were an additional 235 telephone consultations during 2020

Summary of Infants reported to VON: 2020

	All Cases	Number of cases excluding congenital anomalies
Infants < 401g but ≥22 wks gestation	0	0
Infants 401-500g	3	3
Infants 501-1500g	112	105
Infants > 1500g but ≤29 wks gestation	3	3
Total	118	111

Janet Mbiyavanga, with her newborn baby Eden.



Survival Rate to Discharge of VLBW Infants reported to VON according to Gestational Age 2020 (n=118)

Gestational Age	Inborn Infants	Survival to Discharge	Outborn Infants	Survival to Discharge	Total Survival to Discharge
21 wks	0	0 (0%)	0	0 (0%)	0 (0%)
22 wks	1	0 (0%)	0	0 (0%)	0 (0%)
23 wks	4	0 (0%)	1	1 (100%)	1 (20%)
24 wks	6	5 (83%)	0	0 (0%)	5 (83%)
25 wks	13	9 (69%)	0	0 (0%)	9 (69%)
26 wks	7	5 (71%)	2	1 (50%)	6 (67%)
27 wks	3	2 (67%)	4	4 (100%)	6 (86%)
28 wks	18	16 (89%)	0	0 (0%)	16 (89%)
29 wks	22	21 (95%)	1	1 (100%)	22 (96%)
30 wks	12	11 (92%)	1	0 (0%)	11 (85%)
31 wks	3	3 (100%)	3	3 (100%)	6 (100%)
32 wks	10	10 (100%)	2	2 (100%)	12 (100%)
>32 wks	5	5 (100%)	0	0 (0%)	5 (100%)
Total	104	87/104 (84%)	14	12/14 (86%)	99/118 (84%)

Survival Rate to Discharge of VLBW Infants reported to VON according to Birthweight 2020 (n=118)

Birthweight	Inborn Infants	Survival to Discharge	Outborn Infants	Survival to Discharge	Total Survival to Discharge
<501g	3	1 (33%)	0	0 (0%)	1 (30%)
501-600g	7	1 (14%)	1	1 (100%)	2 (25%)
601-700g	10	7 (70%)	0	0 (0%)	7 (70%)
701-800g	6	5 (83%)	0	0 (0%)	5 (83%)
801-900g	7	7 (100%)	0	0 (0%)	7 (100%)
901-1000g	12	10 (83%)	3	2 (67%)	12 (80%)
1001-1100g	11	10 (91%)	3	3 (100%)	13 (93%)
1101-1200g	9	8 (89%)	0	0 (0%)	8 (89%)
1201-1300g	14	14 (100%)	1	1 (100%)	15 (100%)
1301-1400g	10	9 (90%)	1	1 (100%)	10 (91%)
1401-1500g	13	13 (100%)	4	3 (75%)	16 (94%)
>1500g	2	2 (100%)	1	1 (100%)	3 (100%)
Total	104	87/104 (84%)	14	12/14 (86%)	99/118 (84%)

The data in the above Survival tables are provisional; finalised data will appear in the Neonatal Clinical Report.



*Jennifer and James Kirwin
with their newborn baby
Tadgb all ready for
going home.*



Antenatal Education

Childbirth education has sought to give women and their partners a more active role in the birth experience while at the same time helping women to understand the physiology of childbirth and the appropriate interventions that may be necessary during the process of labour and delivery. It promotes confidence in mothers and their partners to meet the challenge of childbirth and early parenting.

In the hospital courses of classes are run as a team effort with the specialized knowledge and skills of the midwife, physiotherapist and dietitian coming together to offer a comprehensive structured education to the mother and her partner.

Overnight, the pandemic forced us to rethink how we provide our antenatal education service. COVID-19 presented many challenges to us all, personally and professionally. It has been an especially difficult time with increased anxiety for expectant mothers and their partners. It left mothers feeling isolated and vulnerable. In response to the sudden suspension of face-to-face antenatal education classes, we were forced to quickly adapt and rethink how we would connect with our mothers to be, and continue to provide an equally effective education for them.

Through a multidisciplinary approach using collaboration and technology, we adapted the classroom-based model to a virtual model of live, interactive antenatal education classes. On April 30th, the first virtual antenatal class took place. This could not be achieved without the support and goodwill of colleagues. Following that, a comprehensive programme of classes has been developed.

All these classes are presented live with time for questions and answers. Our attendance rate for our virtual antenatal education session was 73% for nulliparous which is the highest on record! The virtual classes for multiparous women and the early pregnancy sessions commenced later in the summer.

Electronic evaluation of classes suggests that the virtual classes are proving an excellent substitute. For the staff, it has been a steep learning curve but we are very proud of our success. While the online platforms are effective in imparting knowledge, our primary focus should concentrate on face-to-face classes in the future. However, there is a strong case for blending learning with virtual / face-to-face classes in the antenatal education going forward.

The classes available are as follows –

1. An early pregnancy class (1 to 20 weeks gestation) with input from a midwife, physiotherapist, dietitian and pharmacist. This class is held once a month.
2. For first time mothers and partners we run a day course both am and pm, twice weekly. This includes labour and delivery in the am, with breastfeeding and postnatal care for mother and baby in the pm. Breastfeeding is encouraged and the management discussed; the initiation rate for 2020 was 72% dropping to 69% on discharge. The parents can decide to do it all on the same day or to do it over the two days.
3. A refresher class for previous normal births are run three times a week.
4. Previous caesarean birth classes are run twice monthly.
5. Elective caesarean birth classes are run once a month.
6. Twin birth classes are run every five weeks.
7. Young teen birth classes are run every five weeks.
8. One to one classes are run twice weekly or more if requested.
9. Formal lectures to medical students and midwifery students are carried out when required.



Proud Mam & Dad, Aisling O'Farrell & James Flanagan with their newborn baby Fiadh who was born at 12.19am on Christmas Day 2020.

Bereavement

The vast majority of babies at the NMH are born healthy and well, but we are acutely aware of the great tragedy that is the death of a baby, whatever the circumstance. Over the past number of years, we have been working to develop a comprehensive holistic service for bereaved families attending the National Maternity Hospital.

The Bereavement Midwives at care for women who experience 1st trimester loss, stillbirth or neonatal death and couples who have Medical Termination of Pregnancy in the case of life limiting conditions or maternal interest. Central to the running of the service are the Clinical Midwife Specialists (CMS) in Bereavement, Brenda Casey, Sarah Cullen and Debbie Tarleton Bereavement Midwife (CMM1) who co-ordinate bereavement care for women, their partners and families. Arrangements are made for follow-up in specialised miscarriage and stillbirth clinics which are run by the Bereavement Midwives, senior medical personnel, special interest nurses and midwives.

There are four bereavement clinics: Dr Stephen Carroll met with 27 couples in the Stillbirth Clinic in 2020. 28 couples attended the late miscarriage clinic with Dr Cathy Allen. Follow up was also arranged with individual consultants for a further 47 couples with a significant amount of time invested in organising time frames for those that require joint obstetric and paediatric appointments. The recurrent miscarriage clinic remains busy with a high demand for appointments. 89 women attended the recurrent miscarriage clinic. A new Preterm Bereavement Clinic was set up facilitated by Dr Siobhan Corcoran and the Bereavement CMS. 17 couples were counselled following the death of their baby following a preterm birth with a clear and comprehensive plan put in place for future pregnancies.

A new clinic, facilitated by Dr Cathy Allen, was launched in July to provide extra support in the 1st trimester to women who are pregnant following recurrent miscarriages. The psychological impact of pregnancy following multiple loss requires special care; 53 women have attended so far. Women value the additional reassurance and psychological support.

Clinics provide an opportunity to ascertain how parents are coping with grief and loss and if further support is required. Women are counselled and medical information, obtained through investigations including

haematological, microbiological, sonographic, radiological and histology is shared. The MRI scanner at the Hospital assists in this specialised area and images are reviewed by Dr Gabrielle Colleran. Clinics are supported by Consultant Pathologists Drs Paul Downey and Eoghan Mooney, who provide valuable information through postmortem examination. Dr Willie Reardon, Consultant Geneticist, provides expertise and sees couples in those cases where genetic assessment is required.

COVID-19 has impacted on how clinics are facilitated: Dr Allen's miscarriage clinics are telephone consultations which have been well received by women and their partners. Our face-to-face counselling support service had to be suspended due to COVID-19, however telephone support is provided for women and couples by request. The Miscarriage Support Group commenced monthly meetings in January with positive feedback. The group is currently held monthly virtually due to restrictions. This initiative is the first midwifery led, hospital based support group in the country.

The Bereavement Midwives arrange all hospital burials in the Holy Angels plot in Glasnevin Cemetery. Burials were organized for 68 babies following early or mid-trimester miscarriage. We believe time invested in preparing babies for burial with respect and dignity is one of the most important aspects of our work.

The Annual Remembrance Service has grown to be a large event with some 1,000 people attending annually. It is a most important day in our hospital calendar. COVID-19 restrictions impacted on the service however, the event was marked virtually by a candle lighting ceremony.

Support, information and advocacy continues to be provided to women who have experienced the death of a baby at any stage throughout pregnancy. We plan to continue educational input with staff and student midwives within the hospital and UCD. The Hospice Friendly Hospitals standard of care initiative continues. The Irish Hospice Foundation education programme "Dealing with Loss in Maternity Settings" will be facilitated by CMS: this is an education programme aimed at supporting hospital staff involved directly or indirectly in bereavement care. We continue to work with colleagues in UCD on research in relation to bereavement care and education.

Breastfeeding Support Services

The Breastfeeding Support Team promotes and supports breastfeeding at The National Maternity Hospital.

72% of mothers were documented on the Maternal Newborn Clinical Management System (MN-CMS) breastfeeding at discharge.

Support is now available to families Monday to Saturday.

The dedicated work of breastfeeding support in the NICU was highlighted to celebrate National Breastfeeding Week through an education webinar "PRIME: The journey of the premature baby".

Antenatal breastfeeding classes and face to face contacts were unfortunately cancelled during the year due to the COVID-19 pandemic. An innovative decision was made to switch classes to webinars; this change has been very successful and attendance has increased. We now also have the benefit of an administrative assistant which has been a great addition to the service.

Also, due to the COVID-19 pandemic, face to face breastfeeding education for staff had to be cancelled. A webinar was introduced to replace the usual 8-hour staff education course, in conjunction with the Centre for Midwifery Education.

The breastfeeding support team reapplied for the International Board Certified Lactation Consultant (IBCLC) care award and was successful; we are the only hospital in Ireland to receive this award to recognise the important work of the IBCLC professional.

The Breastfeeding Support Team continues to be involved in the 'LatchOn' study which is a multi-centre, randomised controlled trial of perinatal support to improve breastfeeding outcomes in women who are overweight and obese. This study is being undertaken in collaboration with UCD, Regional Hospital Mullingar, St. Lukes General Hospital Kilkenny and Wexford General Hospital.

Education Programmes for Staff	Education for Patients – Antenatal and Postnatal
8 hour breastfeeding course – 3 programmes	Preparation to Breastfeed Classes – 2 per month
Non-consultant hospital doctors – 2 sessions	Breastfeeding clinic –x2 weekly
Midwifery and Public Health Nurse student clinical specialty education ongoing	Antenatal colostrum harvesting Outpatient Diabetic clinic – weekly

Consultation Overview

Consultation Type	Patients
1:1 Consultation on wards	3203
1:1 Consultation in NICU	602
Breastfeeding Clinic	672
Preparation to Breastfeed Class	1250
1:1 Antenatal consultations	20
1:1 Postnatal post discharge consultation	122
Antenatal Colostrum Harvesting education	98

Sita Kingham breastfeeding her baby son Alexander who was the very first preterm baby exclusively breastfeeding at the time of discharge home from the Neonatal Unit.

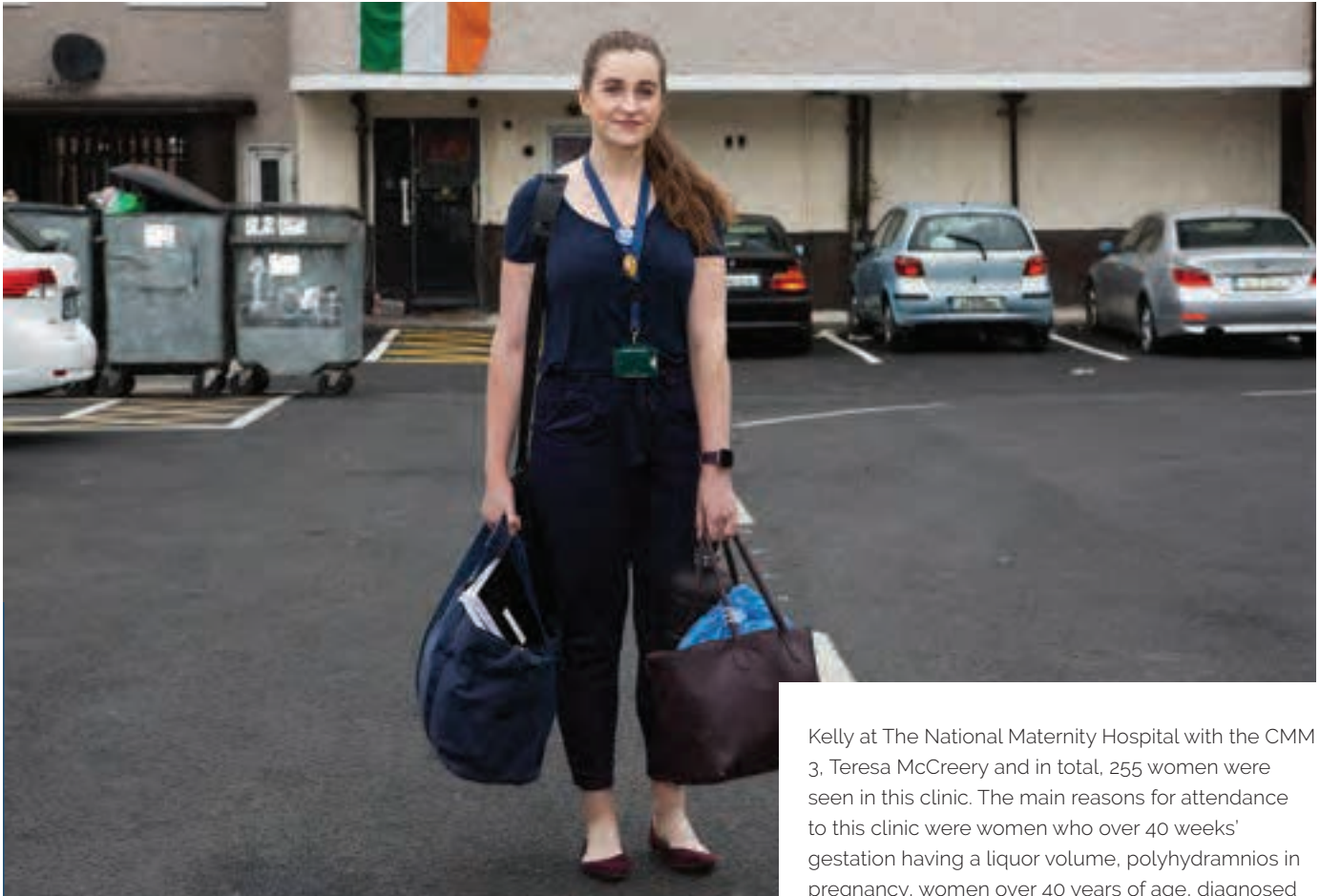


Community Midwifery Service



*Nicola Smyth,
Community Midwife*

The Community Midwifery Service is in its 22nd year of operation. The feedback from the mothers and families availing of the service has been incredibly positive. The activity levels of the service, particularly in the Early Transfer Home Programme (ETHP) Team were remarkably high secondary to the COVID-19 pandemic. In addition, we saw a notable increase in the mental health needs of pregnant and postnatal women, and this correlated with the increased number of referrals to the Perinatal Mental Health Team. We were delighted to present our key findings in relation to homebirths at the Annual National Perinatal Epidemiological Centre (NPEC) Conference at the beginning of the year.



*Ivana Lambe,
Community Midwife.*

Domino/Homebirth Antenatal Care

The aims of the service are:

- To provide continuity of care to low-risk women throughout the pregnancy, labour and postnatal period
- To provide a 24-hour midwifery care for all women booked with the scheme
- To have a Community Midwife providing care in labour and to have a Community Midwife known to the woman conducting her care
- To provide early discharge home where the postnatal care can be done in the women's home

The antenatal clinics take place at the following health centres:

- Churchtown Primary Health Centre
- Leopardstown Primary Care Centre
- St. Michael's Hospital (Dun Laoghaire)
- Pearse Street Primary Care Centre
- Bray Primary Care Centre
- Greystones Health Centre
- Newtownmountkennedy Primary Care Centre

We encourage all women to have combined care with their GPs. If a non-urgent obstetric opinion is requested, women are reviewed by Dr Zara Fonseca-

Kelly at The National Maternity Hospital with the CMM 3, Teresa McCreery and in total, 255 women were seen in this clinic. The main reasons for attendance to this clinic were women who over 40 weeks' gestation having a liquor volume, polyhydramnios in pregnancy, women over 40 years of age, diagnosed with COVID-19 infection and women requesting induction of labour for social reasons. Women have reported they value this reassurance visit with a Senior Midwife and Obstetrician Consultant. If a woman needs an urgent medical opinion, the Registrars or Assistant Master on-duty will review the woman as requested by the Community Midwife.

Antenatal classes moved online in April year and, while being challenging for the midwives, women have continued to give positive feedbacks with this resource.

Bookings

650 women made an initial enquiry about the service by phone with the service of which 525 had a face-to-face contact with a midwife at their booking appointment. A total of 405 women ended up giving birth with this service and the remaining 245 women left the scheme for the following reasons:

There are some interesting trends in the numbers this year in our service as seen in the tables at the end of this report.

1. After having their initial booking with the service, 18% of women realised that routine ultrasound scans at each visit were not offered and chose to attend a hospital-based care giver. 6% of these

women used their private health insurance and attended either semi-private or private care.

2. The 7% who did not return for delivery cited their move home due to the COVID-19 pandemic.
3. We had 39 homebirths in 2020. 6% of women who booked with our service during their pregnancy changed care giver to a Self-Employed Community *Midwife* or to attend the private midwives. The factors influencing their decision were that they fell outside our eligibility guidelines, they wanted an individual caregiver, or they were not in our catchment area for a homebirth.

Intrapartum Care

Of the 184 nulliparous women who birthed with the Community Midwifery Team, it is interesting to note that 27% required induction of labour. The indications for induction are the same as per The National Maternity Hospital Policy with the main reason for induction being Prolonged Spontaneous Rupture of Membranes (PSROM), advanced maternal age and postdates. It is also interesting to note that Group 1 of the Robson Ten Groups Classification of Caesarean Section was 7% with the overall Spontaneous Vaginal Delivery rate for nulliparous women at 60%. The only reason for the elective caesarean section for nulliparous was breech presentation.

The multiparous outcomes can be seen in the tables. Once again, the induction rate appears high, but the team followed the NMH Induction Policy, 91% were SVDs with 4% elective LSCSs, once again for breech presentation. The epidural rate for our nulliparous women is 47% and 9% for multiparous women irrespective of pathway of delivery. We are excited with the installation of the hydrotherapy pool and suspect this will have a positive effect on the epidural rates by facilitating a greater choice for women.

While the 32% episiotomy rate for nulliparous looks high, it falls to 18% of the women who had a spontaneous vaginal birth. Another interesting fact is the equal 3rd-degree tear rate in both multiparous and nulliparous. Four women had a blood loss of >1000ml and the average blood loss was 400ml in both nulliparous and multiparous. The largest baby born was 4.95kg and the smallest was 2.78kg (induced for being small for gestational age).

Breastfeeding

One of the key success indicators is the rate of women feeding on discharge from the service which are given in the tables.



Domino/ETHP Postnatal Care

The team combined the DOMINO and the ETHP visits in 2020, with the aim to providing equity within both services. For a period of six weeks, the hospital took the decision to offer the ETHP service to all women irrespective of care pathway during the height of the COVID-19 pandemic. This proved incredibly challenging to the team from a workforce planning viewpoint. The visits were challenging as we had to phone the women before entering the house to ensure they and the family members were asymptomatic of COVID-19. The families were exceptionally appreciative of this care.

It is interesting to note that within the ETHP service there was a 23% overall increase in the numbers of visits completed as more women were choosing to use this service. In addition, women are requiring more visits due to the additional stresses and lack of external supports due to COVID-19 pandemic. The average number of visits per woman was 3.3. The PHNs and GPs in some areas were unable to provide postnatal care.

External Clinics

The ETHP team continued to provide clinics weekly in both Ballinteer and St. Michael's Hospital in Dun Laoghaire. The midwives continue to refer women back into The National Maternity Hospital if they need a consultant review. In addition, they

*Eimear O'Connor,
Community Midwife.*

started to provide the Outpatients Department a midwife for two set days a week from 4:30pm to assist in the evening booking clinics. These have proven popular for women.

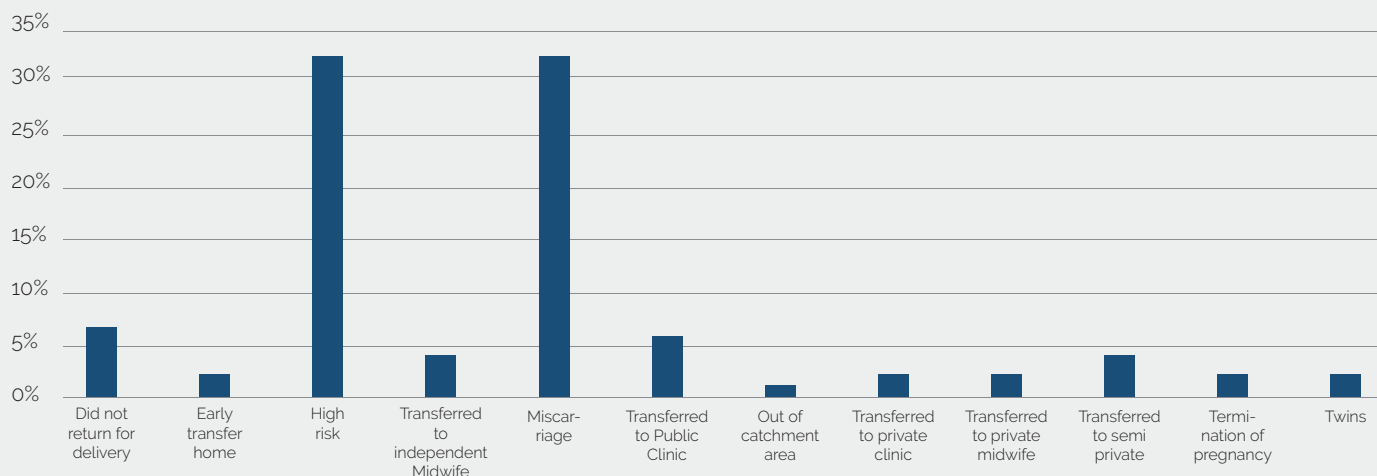
The mixed risk clinics are supported by Dr Venita Broderick and Dr Nita Adnan in Loughinstown, Bray, Arklow, Greystones and Wicklow Town. They were also challenged by the COVID-19 pandemic. The introduction of timed appointments became essential to ensure the guidelines of social distancing were met. These have proven remarkably successful. There is also a greater demand for these clinics as women preferred not to attend the hospital at this time.

Other Developments

The use of the debrief service offered by the Community Midwifery Manager has seen a large increase in demand with 28 women using this service. These appointments have received positive reports and whilst time consuming, are valued by the users.

Two more midwives are trained in the examination of the newborn which provides a greater level of holistic midwifery care. Sinead Thompson, creator of the Labour Hopscotch Tool, was seconded to the National Women’s & Infant Programme to roll out this initiative out nationally but this is currently on hold due to the COVID-19 pandemic.

Reasons for leaving Domino Scheme



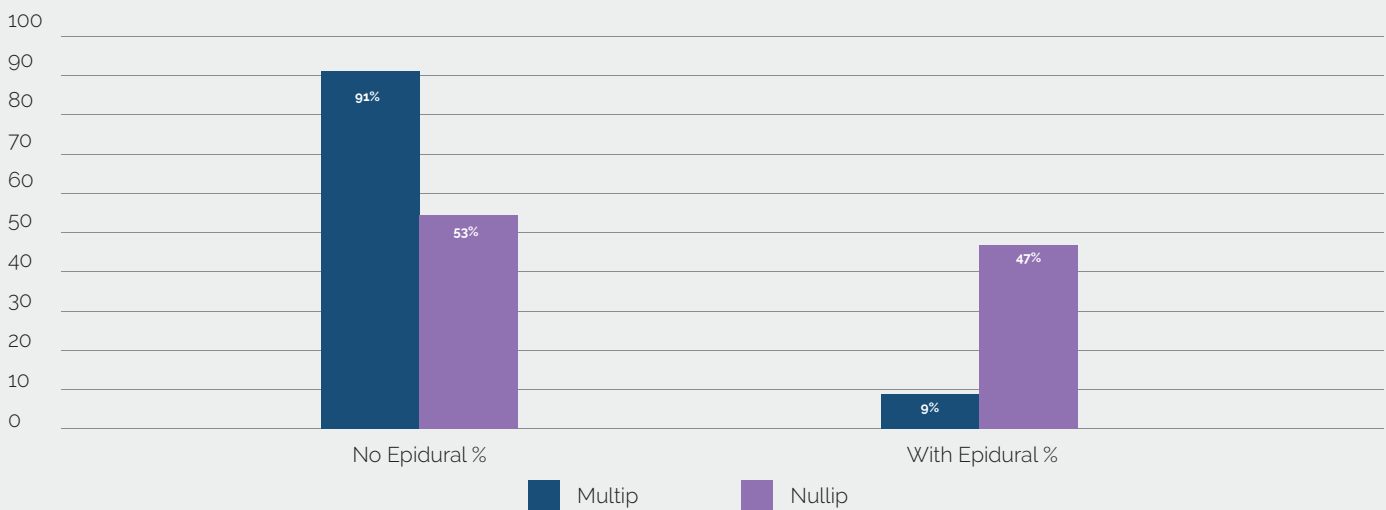
	New Attended	Follow Up Attended	Total Attendances
Greystones Health Centre	65	293	358
Leopardstown Primary Care Centre	104	540	644
St. Michael’s Hospital	29	139	168
Pearse Street Primary Care Centre	95	485	580
Churchtown Primary Care Centre	108	466	574
Bray Primary Care Centre	71	339	410
Newtownmountkenedy Primary Care Centre	35	202	237
Consultant Clinic at NMH	0	255	255
Outpatient Checks at NMH	18	131	149
	525	2,850	3,375

	Planned Homebirth	Actual Homebirth	PRSom	Post Dates	GBS	Failure To Advance	Maternal Choice	Suspected Distress	Other Care Giver	Other
Multip	60	32	3	1	3	1	2	2	11	5
Nullip	10	2	3	1	2	1	0	0	0	1

	Spontaneous Multiparous	Induced Multiparous
Failed ventouse/forceps	0%	0%
Forceps	0%	0%
Kiwi	0%	1%
LSCS	2%	1%
SVD	74%	17%
	77%	19%

+4% elective LSCS for breech presentation

Epidural and Parity



Domino/ETHP Postnatal Care	Home Visits	Number of women
Domino Dublin Home Visits	1664	-
Domino Wicklow Home Visits	620	420
ETH - Dublin Home Visits	3572	-
ETH - Wicklow Home Visits	1436	1080
	6936	1856

The perineal outcome for women who had a vaginal birth are as follows:

Sutures	Nullip	Multip
1st degree tear no sutures	3%	5%
1st degree tear with sutures	7%	14%
2nd degree tear	26%	31%
3rd degree tear	1%	1%
Abdominal	22%	7%
Episiotomy	30%	5%
Intact	9%	32%
Labial tear no sutures	0%	3%
Labial tear with sutures	2%	2%
Total	100%	100%

	Nullip	Multip
Breast feeding	84%	86%
Mixed feeding	11%	4%
Formula feeding	5%	10%
Total	100%	100%

The number of women for Domino/ETHP are calculated collectively

	New Attended	Follow Up Attended	Total Attendances
Loughlinstown Antenatal Clinic	111	599	710
Arklow Antenatal Clinic	52	472	524
Greystones Antenatal Clinic	1	532	533
Wicklow Antenatal Clinic	7	762	769
Bray Antenatal Clinic	1	725	726
Booking Clinic - Bray	150	0	150
Booking Clinic - Newtownmountkennedy	223	0	223
Ballinteer Antenatal Clinic	13	353	466
Dun Laoghaire Antenatal Clinic	8	251	259
	561	3695	4260



The diabetes in pregnancy service underwent significant development and change during 2020"

Members of the Diabetes Team, Ciara Coveney, AMP Diabetes, Assoc Prof Mensud Hatunic Consultant Endocrinologist and Prof Mary Higgins, Consultant Obstetrician and Gynaecologist.

Diabetes Mellitus

The Diabetes in Pregnancy Service provides a comprehensive interdisciplinary service for women with Pre-Existing Diabetes Mellitus and women who are diagnosed with Gestational Diabetes (GDM).

The diabetes in pregnancy service underwent significant development and change during 2020.

The diabetes midwifery service has now been entirely transformed into a virtual telehealth service from the point of diagnosis, treatment and through to discharge. From diagnosis, women are educated on a live webinar with midwives and dietitians, and then followed up with a Q&A webinar and virtual telehealth clinic.

The number of referrals to the diabetes in pregnancy service increased relative to a birth rate of 7,263 deliveries in 2020. As common to every other clinical service within the hospital, the greatest challenge this year was continuing clinical work during the COVID-19 pandemic. We were determined to continue to provide high quality multidisciplinary care to patients within our service, while also being aware that many had significant risk factors for severity of disease should they contract the infection.

The numbers of women presenting with Pre-existing diabetes (Type One, Type 2, MODY and Cystic-Fibrosis Related Diabetes) remained similar to referrals from previous years. The complexity of care has noticeably changed from previous years. The National Maternity Hospital provides a comprehensive service for women using Continuous Subcutaneous Insulin Pump Therapy (CSII) and continuous glucose monitoring (sensor) technology. The provision of this service requires expert training and continuous professional development to keep up to date with the multiple technology advances

being made in diabetes care internationally. Current figures show that over 50% of women with T1DM in our service are now using insulin pumps. Although the numbers of women with pre-existing diabetes in the service are small compared to the GDM cohort they are under the care of the service from six weeks' gestation and require weekly MDT input.

One of the biggest changes of 2020 was to screening for GDM, following the advice from both the Royal College of Obstetricians and Gynecologists and the Institute of Obstetricians. We have a long practice of risk based screening using a two-step approach (GCT, then OGTT if positive GCT) but the waiting time for OGTT was not feasible to allow for social distancing. Similar to 70% of units within the UK we changed to testing using HbA1c/fasting glucose to screen for GDM. An audit of this practice showed a reduction in the rate of GDM diagnosis and in July of 2020 we returned to usual practice. A full and detailed research study analyzing the long-term outcomes for mother and baby of this temporary approach is being completed for publication.

With the onset of COVID-19, the hospital's diabetes in pregnancy service introduced a change in clinical practice for women diagnosed with gestational diabetes mellitus (GDM) as women were traditionally brought into a midwifery led clinic for education, venous blood sampling and self-monitoring of blood glucose review. The diabetes midwifery service has now been entirely transformed into a virtual telehealth service from the point of diagnosis, treatment and through to discharge.

From diagnosis, women are educated on a live webinar with midwives and dietitians, and then followed up with a Q&A webinar and virtual telehealth clinic. The team sourced a blood glucose monitor, which is Bluetooth enabled and syncs to an App that auto-populates to a patient master list. It also allows for escalation to the Registered Advanced Midwife Practitioner for review if pharmacological treatment is needed. From there women can

Year	Type 1 diabetes	Type 2 diabetes	GDM and Previous GDMs	Impaired glucose tolerance	Cystic Fibrosis Related Diabetes	Maturity Onset Diabetes of the Young (MODY)	Total
2015	44	14	382	213	-	-	653
2016	42	17	365	248	-	-	672
2017	46	24	302	223	-	-	595
2018	40	13	354	251	-	-	658
2019	39	20	364	231	-	-	654
2020	43	19	589	N/A*	3	2	656

*Impaired Glucose Tolerance had previous been defined as on raised value on an Oral Glucose Tolerance Testing (OGTT). From March 2020 (COVID-19 Planning) Gestational Diabetes defined as any form of glucose intolerance on OGTT.

be referred to Endocrinology and Obstetrics within the Diabetes and Pregnancy specialist clinic if required. With the twinning of the "Attend Anywhere" virtual consultation platform and the new remote glucose monitoring, the team aim to deliver evidence-based care on a more personal level to transform the service for women. A patient survey reveals that the education webinars are meeting the needs of women with GDM in our service.

Administrative support from Helen McCrimmon has been essential in implementing telehealth for midwifery and dietetics.

Kayleigh O'Sullivan with her newborn baby daughter Millie Rita McAnaspie.



Currently the Royal College of Physicians of Ireland is completing the new Model of Care for Diabetes and Pregnancy in Ireland. A multidisciplinary team of endocrinologists, midwives, nurses, obstetricians, dietitians, patient advocates and programme advisors has been formed and is actively working on the project since September 2020. There is good representation from the NMH with Prof Mensud Hatunic, Hilary Devine, Ciara Coveney and Prof Mary Higgins (Co-Chair) all active members of the committee.

The Endocrinology Fellow until July 2020, Dr Dalal S Ali, published a research paper in Diabetes Therapy on the outcomes in the NMH of patients with Pre-gestational Diabetes (Ali DS, Davern R, Rutter E, Coveney C, Devine H, Walsh JM, et al. Pre-Gestational Diabetes and Pregnancy Outcomes. Diabetes Ther. 2020). We welcome the new Endocrinology Fellow, Dr Recie Davern, who will complete a two year MD research study in Thyroid Function Tests in Pregnancy.

Dr Niamh Keating joined the team in July 2019 as part of her two-year fellowship in Maternal Medicine, where she will also be completing research to MD level in Diabetes and Pregnancy. Niamh's research plans changed, like so many things, due to the pandemic. Of interest to this specialty, she is investigating the impact of fenugreek supplementation during the postnatal period on breastfeeding, and clinical outcomes following the change to a new screening method for GDM.

During the summer of 2020 the team welcomed medical students who completed clinical research electives with us. Sadhb Frisson Roche and Aonghus McCarthy completed two studies under the supervision of Dr Jennifer Walsh. These were an "Comparison of Obstetric and Neonatal Outcomes in Normal weight versus Obese Pregnant Women with Gestational Diabetes" and "Outcomes of Pregnancies Complicated by Gestational Diabetes according to a Validated Core Outcome Set (COS)". Margaret Henkhaus and Matthew Kelly completed an audit of outcomes of women with Pre-Gestational Diabetes Mellitus (PGDM) that informed this report and we are grateful for their hard work. We wish all four students the very best when they graduate in July 2021.

The diabetes team conducted an audit about insulin safety and documentation within the hospital. The results of this are being used to drive a Rapid Improvement Exercise using Lean Methodology to help improve insulin prescribing and safety within NMH.

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Ciara Coveney, Registered Advanced Midwife Practitioner (AMP), has presented the diabetes midwifery virtual clinics at many virtual conferences and webinars throughout 2020. She is also a member of the hospital telehealth implementation team and the HSE Telehealth Acute Leads Team.

In June 2020, Usha Daniel, a longstanding member of the team and the NMH Diabetes AMP retired. We wish Usha the very best in her retirement. Ciara Coveney was promoted to the Registered Advanced Midwife Practitioner role following Usha's retirement. Hannah Rooney and Sally Byrne joined the team and we are very grateful to have them on board.

The dietetic and catering department worked together to create a new suite of diabetes recipes and food photography for the hospital diabetes menu. Special thanks to head chef Paul Humphreys for his work on this. Laura Harrington, Dietitian returned to the team at the end of 2020, alongside Clinical Specialist dietitian Hilary Devine and Catherine Chambers. Thanks also to Naomi Hastings, locum dietitian who contributed incredibly to the team before taking a new role at the Rotunda.

The team is committed, hardworking and multidisciplinary, benefitting from the mutual respect of all the team members. The team has always had excellent representation from Dietetics (*Hilary Devine, Catherine Chambers and Laura Harrington*), Midwifery (*Ciara Coveney, Eimear Rutter, Hannah Rooney, Sally Byrne and Usha Daniel*), Endocrinology (*Prof Mensud Hatunic, Dr Dalal S Ali, Dr Recie Davern (Fellow)*) Obstetrics (*Prof Mary Higgins, Dr Jennifer Walsh, Dr Rhona Mahony, Dr Niamh Keating (Fellow)*) and administration (*Helen McCrimmon*).

It is a pleasure to work with this team in the care of women with complex medical needs.

Labour and Birthing Unit



The National Maternity Strategy 2016-2026 recognises that pregnancy and birth is a normal physiological process, and insofar as it is safe to do so, a woman's choice of maternity care should be facilitated. The vision for maternity services, as set out by the strategy, is one which places women and their families at the centre of the services provided. A choice of pathway of maternity care for each individual woman should be made available based on a risk profile. All pathways of care will strive to support the normalisation of the birth process as much as possible. An integral part of this vision is the commitment to providing a birthing unit that is a calm and relaxing environment, one that can best support the physiological process of birth. It is recommended that modern facilities including birthing aids and hydrotherapy pools should also be made available.

In 2018, The National Maternity Hospital responded to the recommendations of the maternity strategy and made plans for a Labour and Birthing Unit (LBU) renovation and expansion. In October 2020, the LBU extension was opened. The new ensuite rooms of the

extension accommodates the use of water in labour, either using the shower or the hydrotherapy pool room. When the renovation works are completed in 2021 there will be 14 labour and birthing rooms (12 ensuite) including a hydrotherapy pool room. All of these rooms are suitable for the provision of comfortable, low tech birth whereby labour aids such as birthing balls and stools can be utilised. Natural coping strategies, such as the labour hopscotch is clearly promoted throughout the unit. All options of care in labour needs are considered. If epidural analgesia, electronic fetal monitoring or oxytocin is required, women will remain in their allocated room and the same midwife will continue to provide care.

The staff of the LBU are proud to commit to providing care in a homely environment that is of a high standard and one which respects woman's choice, dignity and need for privacy during childbirth.

Antenatal Consultation

An increasing number of antenatal consultations are undertaken for a number of women who had either

Hydrotherapy Pool Room.

a fear of delivery or a previous negative birthing experience. Some mothers actively avoid pregnancy and are grateful to have the opportunity to discuss their fears and anxiety. These women are referred by midwives, obstetricians or the mental health team for discussion and antenatal preparation.

An increasing number of women are also referred to the Clinical Midwife Manager (CMM3) if they write a birth plan which needs a more detailed discussion with a member of Delivery ward staff.

Evaluation, Feedback and Debriefing Following Delivery

All women who attend the labour and birthing unit are invited to complete an evaluation form following the birth of their baby. The forms provide valuable feedback to staff regarding the experiences of women and their comments provide staff with insight as to how care given can be improved. The form is simple and has open ended questions to allow all points to be made.

Most of the forms are completed by the women in the first few days postnatally. Once completed, these forms are returned to the delivery ward. They are read

on a daily basis and initial adverse comments may be addressed while the women are still in hospital. Alternatively, women may request to meet with the CMM3 of the LBU and many concerns can be clarified as part of an inpatient discussion.

A 'tick box' is provided on the form if women wish to discuss their care further. If any negative feedback is given or a woman indicates she wishes to discuss her labour/delivery the CMM3 of the labour ward will contact the woman by telephone. Some points can be dealt with over the telephone but for those who wish to have a more detailed discussion a follow up appointment is made for discussion with the labour ward manager and obstetric consultant if necessary.

All completed evaluation forms are available on the LBU for staff to read and they are encouraged to do so. Both positive and negative feedback is discussed with staff who constantly strive to improve patient experience. The delivery ward staff work hard to provide a high standard of care and value any suggestions on service improvement. A list of the most common positive and negative points is given in the table on the next page.

Aleemat Ejide, Labour & Birthing Unit Midwife.



Postnatal Ward Visit

In an effort to improve patient experience, the CMM3 of the delivery ward endeavours to visit every woman who has a delivery complicated by shoulder dystocia or any traumatic vaginal birth. Requests are made by both staff and patients themselves who wish to further discuss their labour/delivery events.

Telephone Follow Up

Following review on the postnatal ward by the CMM3, a follow up phone call may be required and this discussion with the patient determines if an appointment is required to return to the hospital.

Postnatal Debriefing Clinic

The postnatal debriefing clinic is run by the CMM3, Martina Cronin and Consultant Obstetrician Dr Michael Robson. Mothers who have a delivery complicated by shoulder dystocia or any other traumatic birth are referred to this clinic.

Increasingly women themselves are self-referring to the clinic following discussion with their Public Health Nurse /GP or other Mothers.

This clinic offers the opportunity for patients to ask questions and seek clarification about their labour and birth events. These meetings are held outside the main hospital building in a relaxed environment with a generous time allocation to facilitate detailed discussion and debriefing. Many of these discussions took place virtually in the latter half of 2020 due to COVID-19 restrictions.

The National Maternity Hospital responded to the recommendations of the maternity strategy and made plans for a Labour and Birthing Unit renovation and expansion.

Positive Points	
One to one care	Made patient comfortable
Attentive	Vigilant at monitoring things closely
Good team work	Safe experience
Staff educated, efficient, informative	Very professional staff
All procedures explained	Staff are sympathetic and hard working
Wishes acknowledged	Students helpful and involved
Understanding	Consultant very supportive
Nice rooms with good equipment	Well looked after
Respectful	Reassuring, friendly, kind
Negative Points	
Delay in getting epidural	As a VBAC mum more explanation required
Partners not allowed in antenatal ward is very difficult	Ward too noisy due to construction
More explanation needed for the 'not in labour' period	Facilities on antenatal ward for early labour very poor
Delay in doctor review	More preparation needed for IOL process

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Antenatal Reviews	7	1	4	1	1	3	6	0	9	1	5	6	44
Ward Visits	3	5	3	4	6	1	1	2	5	3	0	2	34
Telephone Follow Ups	21	11	8	4	22	27	7	13	17	7	19	9	165
Postnatal Reviews	6	7	5	0	0	10	7	4	5	2	8	6	60

Labour and Delivery Audit

In January 2018, The National Maternity Hospital went live with the Maternal and Newborn Clinical Management System (MN-CMS). Effectively this is an electronic patient record for mother and baby which tells the story of their care but also collects all events, outcomes and complications. It also includes laboratory ordering and medication prescribing so that all care is digitally recorded. It now communicates with general practitioners and will eventually include a patient portal. It has the potential to be the most significant change to the way we provide healthcare in the future.

Routine data collection is a challenge to any organisation. The first measure of quality is knowing your results and the second is being able to interpret them. It helps when there is standardisation so you can compare and learn from others. The National Maternity Hospital has a long history of producing detailed Annual Clinical Reports and has led the way in perinatal audit. It has now a unique opportunity to continue this tradition. A commitment both in terms of resources and leadership is required but this investment will be rewarded in the future.

The principle that has been applied to data collection in the MN-CMS is that if you do something then you record it in MN-CMS. The Electronic Patient Record vendors have a responsibility to make it as easy as possible to record the information and analyse the results. Clinicians and administrative staff have a responsibility to document accurately and in a disciplined manner.

The interpretation of a clinical report will depend on three variables. Data quality (disciplined data collection using consistent definitions), significant epidemiological characteristics and lastly clinical practice. A good report will enable the reader to hypothesise which of these variables singularly or together contribute to the results recorded. Comments made in this chapter will attempt to demonstrate this.

Audit of maternal and fetal outcome following labour and delivery in this chapter is based on a standardised prospective framework consisting of the four obstetric concepts within which there are different parameters. The obstetric concepts are **previous record of the pregnancy** (*nulliparous, multiparous without a uterine scar, multiparous with a uterine scar*) **category of pregnancy** (*single cephalic*

pregnancy, single breech pregnancy, single oblique or transverse lie, or multiple pregnancy) **course of labour and delivery** (*spontaneous labour, induced labour or pre labour caesarean*) and **gestational age in completed weeks at the time of delivery**. Within this structure all perinatal events and outcomes, satisfaction and complications can be analysed. It is useful to remember that within homogenous groups of women (classification) the incidence of events, outcomes and complications are relatively consistent and are helpful in validating data. It is also important to remember in analysing events and outcomes it is unusual to over record (possibly due to change in data definition or application) but not unusual to under record (usually then due to inaccurate collection). It is easier to assess this the more years of data you have for comparison.

This is the third Clinical Report after the introduction of the MN-CMS and many of the same challenges remain and new ones develop but the amount of information contained in this chapter continues to increase. Significant efforts are made to improve data quality and reporting. Validation of information collected takes place on a daily basis with continuous training and feedback to clinicians.

Leah Byrne, Midwife.



Population changes of nulliparous women and multiparous women

	1999			
	Number in group	Number of C/S	Contribution to total population	% C/S
Nullip	3465	562	3465/7533 (46.0%)	562/3465 (16.2%)
Multip no scars	3559	185	3559/7533 (47.2%)	185/3559 (5.2%)
Multip + 1 scar	450	169	450/7533 (6.0%)	169/450 (37.6%)
Multip + 2 or more scars	59	58	59/7533 (0.8%)	58/59 (98.3%)
Totals	7533	974		974/7533 (12.9%)

	2019				2020			
	Number in group	Number of C/S	Contribution to total population	% C/S	Number in group	Number of C/S	Contribution to total population	% C/S
Nullip	3415	1104	3415/7871 (43.4%)	1104/3415 (32.3%)	3201	1025	3201/7263 (44.1%)	1025/3201 (32.0%)
Multip no scars	3290	334	3290/7871 (41.8%)	334/3290 (10.1%)	2956	349	2956/7263 (40.7%)	349/2956 (11.8%)
Multip + 1 scar	930	708	930/7871 (11.8%)	708/930 (76.1%)	882	683	882/7263 (12.1%)	683/882 (77.4%)
Multip + 2 or more scars	236	236	236/7871 (3.0%)	236/236 (100%)	224	222	224/7263 (3.1%)	222/224 (99.1%)
Totals	7871	2382		2384/7871 (30.3%)	7263	2279		2279/7263 (31.4%)

Comment: Significant increase in the percentage of women that have a previous caesarean scar since 1999 and increasing every year .

Onset Rates

	1999	%	2012	%	2013	%	2014	%	2015	%
Spontaneous	5062	67.2%	5494	61.2%	5214	59.6%	5347	58.7%	5164	56.2%
Induced	2006	26.6%	2367	26.4%	2323	26.5%	2465	27.1%	2534	27.6%
Pre-labour CS	466	6.2%	1117	12.4%	1218	13.9%	1294	14.2%	1488	16.2%
Total Deliveries	7534		8978		8755		9106		9186	

	2016	%	2017	%	2019	%	2020	%
Spontaneous	4850	54.8%	4461	52.9%	3841	48.8%	3240	44.6%
Induced	2530	28.6%	2518	29.9%	2443	31.0%	2500	34.4%
Pre-labour CS	1471	16.6%	1454	17.2%	1587	20.2%	1523	21.0%
Total Deliveries	8851		8433		7871		7263	

Comment: Significant increase in the number of women that are induced or in particular have a prelabour caesarean section.

Overall Delivery Method

	2016	%	2017	%	2019	%	2020	%
Spontaneous Vaginal Delivery	5287	59.7%	5048	59.9%	4498	57.1%	4063	55.9%
Vaginal Operative Delivery	1261	14.2%	1094	13.0%	989	12.6%	921	12.7%
Caesarean Section	2303	26.0%	2291	27.1%	2384	30.3%	2279	31.4%
Total	8851		8433		7871		7263	

Comment: Overall the caesarean section rate continues to rise each year.

Oxytocin Rates

	Nullip	Multip no scars	Multip + scar	Total
No Oxytocin	1365 (42.6%)	2358 (79.8%)	1073 (97.0%)	4796 (66.0%)
Oxytocin	1836 (57.4%)	598 (20.2%)	33 (3.0%)	2467 (34.0%)
Total	3201	2956	1106	7263

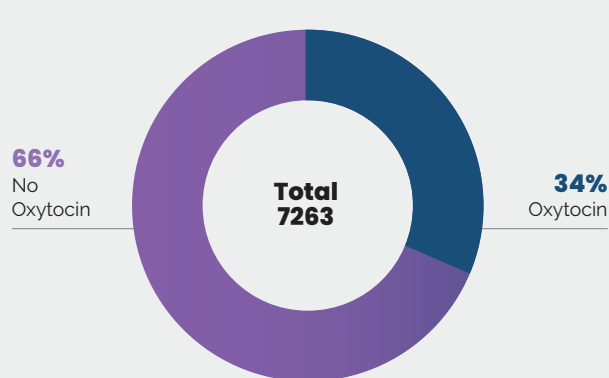
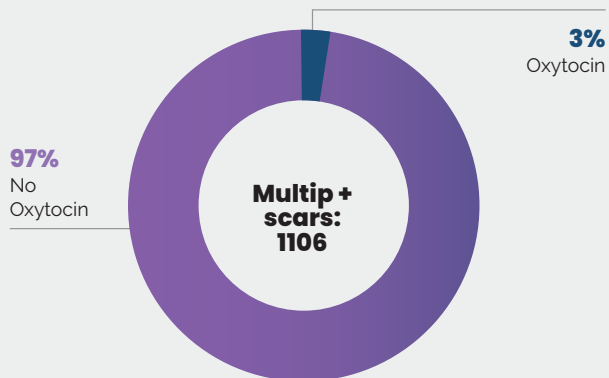
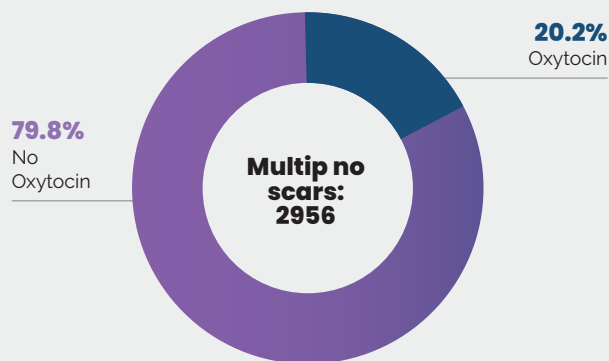
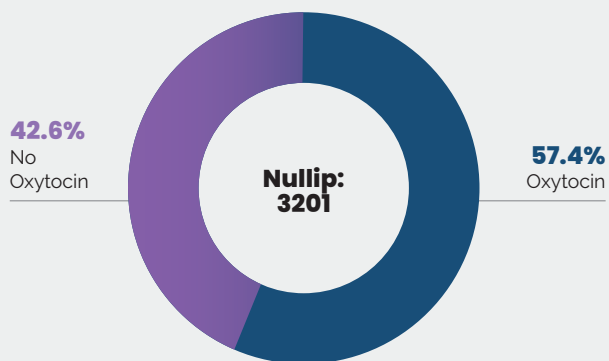


Table I: The overall caesarean section rate as classified by the 10 groups (total numbers)

Year	1974*	1984*	1994*	2014	2015	2016	2017	2018	2019	2020
Totals	377/7546	330/7758	551/6244	2138/9106	2382/9186	2303/8851	2291/8433	2157/7496	2384/7871	2279/7263
1	46/2020	63/2259	80/1771	175/2092	177/2044	151/1925	155/1716	147/1515	127/1468	113/1283
2	68/555	41/378	104/566	536/1444	577/1483	570/1472	566/1479	525/1249	697/1544	646/1531
2a	-	-	-	406/1314	448/1354	437/1339	426/1337	363/1085	490/1336	449/1334
2b	-	-	-	130	129	133	142	162/164	207/208	197/197
3	24/3217	15/3739	25/2467	33/2646	41/2527	24/2389	28/2223	34/2038	20/1946	11/1567
4	88/967	19/562	38/622	141/1024	142/1038	144/1105	132/1079	178/994	152/1053	177/1112
4a	-	-	-	53/936	54/950	44/1005	48/995	72/888	46/947	50/985
4b	-	-	-	88	88	100	84	106	106	127/127
5	32/196	74/332	108/321	671/983	817/1120	821/1069	748/986	712/917	816/1024	792/979
6	26/79	27/79	65/99	199/211	201/208	162/171	222/229	165/175	176/191	143/152
7	7/105	14/98	40/78	101/128	120/129	115/124	124/141	105/121	143/156	123/133
8	10/93	18/96	25/78	126/204	125/205	119/187	123/190	92/103	87/129	93/136
9	20	23	15	29	33	30	30	38/38	32/32	45/45
10	56/294	36/192	51/227	127/345	149/399	167/379	163/360	161/346	134/328	136/325

* Years 1974, 1984 and 1994 were not split up into 2a, 2b and 4a, 4b. The numbers are inclusive of inductions and pre labour caesarean sections

Table II: The contribution that each group makes to the overall hospital population (percentages)

Year	1974	1984	1994	2014	2015	2016	2017	2018	2019	2020
1	26.7%	29.1%	28.4%	23.0%	22.3%	21.8%	20.3%	20.2%	18.7%	17.7%
2	7.4%	4.9%	9.1%	15.9%	16.8%	16.6%	17.5%	16.7%	19.6%	21.1%
2a				14.4%	15.3%	15.1%	15.9%	14.5%	17.0%	18.4%
2b				1.4%	1.5%	1.5%	1.7%	2.2%	2.6%	2.7%
3	42.6%	48.2%	39.5%	29.1%	28.6%	27.0%	26.4%	27.2%	24.7%	21.6%
4	12.8%	7.2%	10.0%	11.2%	11.7%	12.5%	12.8%	13.3%	13.4%	15.3%
4a				10.3%	10.7%	11.4%	11.8%	11.8%	12.0%	13.6%
4b				1.0%	1.0%	1.1%	1.0%	1.4%	1.3%	1.7%
5	2.6%	4.3%	5.1%	10.8%	12.7%	12.1%	11.7%	12.2%	13.0%	13.5%
6	1.1%	1.0%	1.6%	2.3%	2.4%	1.9%	2.7%	2.3%	2.4%	2.1%
7	1.4%	1.3%	1.2%	1.4%	1.5%	1.4%	1.7%	1.6%	2.0%	1.8%
8	1.2%	1.2%	1.2%	2.2%	2.3%	2.1%	2.3%	1.4%	1.6%	1.9%
9	0.3%	0.3%	0.2%	0.3%	0.4%	0.3%	0.4%	0.5%	0.4%	0.6%
10	3.9%	2.5%	3.6%	3.8%	4.5%	4.3%	4.3%	4.6%	4.2%	4.5%

Comment: The sizes and ratios of Group 1: Group 2 reflect the changing incidence of induction and pre labour caesarean section. This is a change of clinical practice partly at least as a result of changing epidemiological variables.

Table III: The caesarean section rate within each of the 10 groups (percentages)

Year	1974	1984	1994	2014	2015	2016	2017	2018	2019	2020
Totals	5.0%	4.3%	8.8%	23.5%	25.9%	26.0%	27.2%	28.8%	30.3%	31.4%
1	2.3%	2.8%	4.5%	8.4%	8.7%	7.8%	9.0%	9.7%	8.7%	8.8%
2	12.3%	10.8%	18.3%	37.1%	38.9%	38.7%	38.3%	42.0%	45.1%	42.2%
2a				30.9%	33.1%	32.6%	31.9%	33.5%	36.7%	33.7%
2b				100.0%	100.0%	100.0%	100.0%	98.8%	99.5%	100.0%
3	0.7%	0.4%	1.0%	1.2%	1.6%	1.0%	1.3%	1.7%	1.0%	0.7%
4	9.1%	3.4%	6.1%	13.8%	13.7%	13.0%	12.2%	17.9%	14.4%	15.9%
4a				5.7%	5.7%	4.4%	4.8%	8.1%	4.9%	5.1%
4b				100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
5	16.3%	22.3%	33.5%	68.3%	72.9%	76.8%	75.9%	77.6%	79.7%	80.9%
6	32.9%	34.2%	65.0%	94.3%	96.6%	94.7%	96.9%	94.3%	92.1%	94.1%
7	6.7%	14.3%	50.6%	78.9%	93.0%	92.7%	87.9%	86.8%	91.7%	92.5%
8	10.8%	18.8%	31.6%	61.8%	61.0%	63.6%	64.7%	89.3%	67.4%	68.4%
9	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
10	19.0%	18.8%	22.4%	36.8%	37.3%	44.1%	45.3%	46.5%	40.9%	41.8%

Comment: Caesarean section rates in spontaneous labour (Groups 1 and 3) remain low and consistent.

Table IV: The absolute contribution of each group to the overall caesarean section rate percentages)

Year	1974	1984	1994	2014	2015	2016	2017	2018	2019	2020
Totals	5.0%	4.3%	8.8%	23.5%	25.9%	26.0%	27.2%	28.8%	30.3%	31.4%
1	0.7%	0.8%	1.7%	1.9%	2.0%	1.7%	1.8%	2.0%	1.6%	1.6%
2	0.9%	0.5%	0.4%	5.9%	6.5%	6.4%	6.7%	7.0%	8.9%	8.9%
2a				4.5%	5.1%	4.9%	5.1%	4.8%	6.2%	6.2%
2b				1.4%	1.5%	1.5%	1.7%	2.2%	2.6%	2.7%
3	0.3%	0.2%	0.4%	0.4%	0.5%	0.3%	0.3%	0.5%	0.3%	0.2%
4	1.2%	0.2%	0.6%	1.5%	1.6%	1.6%	1.6%	2.4%	1.9%	2.4%
4a				0.6%	0.6%	0.5%	0.6%	1.0%	0.6%	0.7%
4b				1.0%	1.0%	1.1%	1.0%	1.4%	1.3%	1.7%
5	0.4%	1.0%	1.7%	7.4%	9.2%	9.3%	8.9%	9.5%	10.4%	10.9%
6	0.3%	0.3%	1.0%	2.2%	2.3%	1.8%	2.6%	2.2%	2.2%	2.0%
7	0.1%	0.2%	0.6%	1.1%	1.4%	1.3%	1.5%	1.4%	1.8%	1.7%
8	0.1%	0.2%	0.4%	1.4%	1.4%	1.4%	1.5%	1.2%	1.1%	1.3%
9	0.3%	0.3%	0.2%	0.3%	0.4%	0.3%	0.4%	0.5%	0.4%	0.6%
10	0.7%	0.5%	0.8%	1.4%	1.7%	1.9%	1.9%	2.1%	1.7%	1.9%

Groups

1. Nulliparous, single cephalic, >=37 weeks, in spontaneous labour
2. Nulliparous, single cephalic, >=37 weeks, induced and CS before labour
 - 2a. Nulliparous, single cephalic, >=37 weeks, induced
 - 2b. Nulliparous, single cephalic, >=37 weeks, CS before labour
3. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, in spontaneous labour
4. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, induced and CS before labour
 - 4a. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, induced
 - 4b. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, CS before labour
5. Previous CS, single cephalic, >= 37 weeks
6. All nulliparous breeches
7. All multiparous breeches (including prev. CS)
8. All multiple pregnancies (including prev. CS)
9. All abnormal lies (including prev. CS)
10. All single cephalic, <= 36 weeks (including prev. CS)

Table 1: Spontaneous/Induced Caesarean Section Reason 756/7263 (10.4%)

	Fetal reason (no oxytocin)	IUA - Inability to treat fetal intolerance	% of Group	IUA - Inability to treat over contracting	% of Group	IUA - Poor response	% of Group	IUA - No oxytocin given	% of Group	EUA - Persistent malposition	% of Group	EUA - Cephalopelvic disproportion	% of Group	Total
Group 1	22	43	1.7%	2	0.2%	23	1.8%	5	0.4%	9	0.7%	9	0.7%	113
Group 2	75	157	4.9%	6	0.4%	149	9.7%	21	1.4%	30	2.0%	11	0.7%	449
Group 2a	75	157	5.6%	6	0.4%	149	11.2%	21	1.6%	30	2.2%	11	0.8%	449
Group 2b	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Group 3	9	0	0.6%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	1	0.1%	11
Group 4	8	15	0.7%	0	0.0%	14	1.3%	5	0.4%	5	0.4%	3	0.3%	50
Group 4a	8	15	0.8%	0	0.0%	14	1.4%	5	0.5%	5	0.5%	3	0.3%	50
Group 4b	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Group 5	34	2	3.5%	0	0.0%	9	0.9%	20	2.0%	2	0.2%	3	0.3%	70
Group 6	8	0	5.3%	0	0.0%	0	0.0%	1	0.7%	1	0.7%	0	0.0%	10
Group 7	5	0	3.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5
Group 8	13	0	9.6%	1	0.7%	6	4.4%	0	0.0%	0	0.0%	0	0.0%	20
Group 9	3	0	6.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
Group 10	10	7	3.1%	0	0.0%	5	1.5%	3	0.9%	0	0.0%	0	0.0%	25
Total (10.4%)	7263	187	2.6%	224	3.1%	206	2.8%	55	0.8%	48	0.7%	27	0.4%	756

Indications for Caesarean Section by Pathway to Delivery

Tables 1 and 2 show the indications for Caesarean Section (CS) within the Ten Groups Classification of Caesarean Section. A different classification is used for pre labour CS and those carried out after either spontaneous or induced labour. A great deal of effort is needed to ensure that the classification is correctly applied and the data validated and quality controlled. In these tables although the quality is good there remain discrepancies which we continue to seek to improve. The classification used for indications is one that the hospital has developed and used for 15 years and is now being used internationally.

Table 2: Pre-labour Caesarean Section Reason: 1523/7263 (20.9%)

	Group Total	Fetal reason	% of Group	Maternal medical reason/pains	% of Group	Non medical reason/patient request	% of Group	PET/HTN	% of Group	Postdates	% of Group	Previous caesarean section	% of Group	SROM	% of Group	Total
Group 1	1283	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Group 2	1531	66	4.3%	68	4.4%	45	2.9%	14	0.9%	1	0.1%	0	0.0%	3	0.2%	197
Group 2a	1334	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Group 2b	197	66	33.5%	68	34.5%	45	22.8%	14	7.1%	1	0.5%	0	0.0%	3	1.5%	197
Group 3	1567	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Group 4	1112	29	2.6%	57	5.1%	41	3.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	127
Group 4a	985	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Group 4b	127	29	22.8%	57	44.9%	41	32.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	127
Group 5	979	47	4.8%	22	2.2%	13	1.3%	7	0.7%	1	0.1%	622	63.5%	10	1.0%	722
Group 6	152	114	75.0%	6	3.9%	2	1.3%	4	2.6%	0	0.0%	0	0.0%	7	4.6%	133
Group 7	133	84	63.2%	5	3.8%	2	1.5%	1	0.8%	0	0.0%	26	19.5%	0	0.0%	118
Group 8	136	45	33.1%	6	4.4%	6	4.4%	5	3.7%	0	0.0%	10	7.4%	1	0.7%	73
Group 9	45	29	64.4%	2	4.4%	0	0.0%	1	2.2%	0	0.0%	8	17.8%	2	4.4%	42
Group 10	325	62	19.1%	21	6.5%	2	0.6%	20	6.2%	0	0.0%	5	1.5%	1	0.3%	111
Total (20.9%)	7263	476	6.6%	187	2.6%	111	1.5%	52	0.7%	2	0.0%	671	9.2%	24	0.3%	1523

Group 1: Single cephalic nulliparous pregnancies at greater than or equal to 37 weeks gestation in spontaneous labour.

Outcomes

	2020	2017	2016	2015	2014	2013	2012	2011	2010	
ARM to accelerate	49.8%	639/1283	49.9%	52.4%	50.2%	51.5%	54.0%	52.8%	53.6%	52.9%
Oxytocin	53.8%	690/1283	47.3%	43.9%	41.8%	49.1%	53.9%	53.9%	53.2%	51.2%
Epidural	76.0%	975/1283	68.4%	65.9%	66.8%	70.1%	70.0%	73.0%	73.7%	68.6%
Electronic monitoring	91.4%	1173/1283	92.0%	89.9%	86.0%	88.1%	87.7%	86.0%	79.0%	77.2%
Fetal blood sample	13.1%	168/1283	18.8%	21.0%	25.2%	20.0%	20.8%	22.4%	24.6%	21.5%
Vaginal operative delivery	29.2%	375/1283	28.7%	31.3%	27.6%	23.9%	23.5%	24.0%	24.6%	25.7%
Apgars <7 at 5 mins	0.3%	4/1283	1.0%	1.0%	0.7%	0.4%	0.7%	0.8%	1.1%	0.2%
Cord pH < 7.0	0.0%	0/1283	0.4%	0.2%	0.3%	0.6%	0.2%	0.3%	0.5%	0.2%
Overall caesarean section	8.8	113/1283	9.0%	7.8%	8.7%	8.4%	7.2%	9.3%	7.4%	7.5%
Caesarean section at VE=10	0.9%	12/1283	1.5%	1.7%	1.5%	1.6%	0.9%	1.2%	1.4%	1.3%
Admitted to Neonatal Unit	8.6%	110/1283	18.8%	18.1%	18.6%	17.9%	17.1%	10.1%	11.7%	10.6%
Episiotomy*	49.0%	629/1283	45.7%	49.5%	45.4%	42.6%	45.9%	48.6%	56.8%	56.1%
OASIS*	3.0%	38/1283	2.2%	3.7%	2.3%	2.7%	2.7%	3.1%	2.5%	2.9%
Length of labour >12 hrs	2.4%	31/1283	5.1%	3.9%	3.3%	2.6%	2.9%	3.4%	2.8%	2.2%
Babies >=4.0kg	12.2%	156/1283	12.7%	12.8%	14.0%	15.0%	14.5%	15.4%	15.9%	13.6%
Aged >=35	31.3%	402/1283	26.6%	23.7%	23.1%	24.2%	18.3%	16.7%	16.7%	14.5%
BMI >=30	9.4%	121/1283	8.6%	7.6%	7.9%	6.9%	7.2%	8.2%	8.1%	8.4%
PPH >1000mls	3.4%	44/1283	2.9%	3.0%	1.9%	1.4%	1.7%	1.3%	1.0%	0.4%
HIE	0.0%	0/1283	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%
Blood transfusion		/1283	2.7%	0.0%	2.1%	2.1%	1.7%	1.5%		

*includes Episiotomy and Sphincter Damage

Comment: The incidence of fetal blood sampling has reduced. This may be both due a data quality issue or practice change.

The incidence of cord pH less than 7.00 recorded as 0 is probably a data quality issue.

The incidence of caesarean section at VE =10 at 0.9% is a little low and may be a data quality issue as is admissions to the neonatal unit which has been lower this year.

Age Range	Number	%
<20	15	1.2%
20 - 24	96	7.5%
25 - 29	193	15.0%
30 - 34	577	45.0%
35 - 39	349	27.2%
>=40	53	4.1%
Unrecorded	0	0.0%
Total	1283	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	0	0.0%
2,000 - 2,499 g	4	0.3%
2,500 - 2,999 g	149	11.6%
3,000 - 3,499 g	478	37.3%
3,500 - 3,999 g	496	38.7%
4,000 - 4,499 g	142	11.1%
4,500 - 4,999 g	13	1.0%
>= 5,000 g	1	0.1%
Total	1283	

Body Mass Index	Number	%
Underweight: <18.5	177	13.8%
Healthy: 18.5 - 24.9	646	50.4%
Overweight: 25 - 29.9	296	23.1%
Obese class 1: 30 - 34.9	61	4.8%
Obese class 2: 35 - 39.9	25	1.9%
Obese class 3: >40	5	0.4%
N/R	73	5.7%
Total	1283	

Labour Duration	Number	%
0 - 2 hrs	377	29.4%
2 - 4 hrs	211	16.4%
4 - 6 hrs	196	15.3%
6 - 8 hrs	212	16.5%
8 - 10 hrs	116	9.0%
10 - 12 hrs	15	1.2%
> 12 hrs	30	2.3%
Unrecorded	126	9.8%
Total	1283	

Groups 1 & 2 (as the denominator): Single cephalic nulliparous pregnancies at greater than or equal to 37 weeks gestation. Indications for induction of labour (Group 2(a)) 1334/2814 (47.4%)

Fetal	458/2814	16.3%
SROM not in labour	348/2814	12.4%
Maternal	214/2814	7.6%
Postterm (>= 42 weeks)	118/2814	4.2%
PET/Hypertension	106/2814	3.8%
Postdates (>40 and less than 42 weeks)	94/2814	3.3%
No medical indication	11/2814	0.4%

Comment: The induction rate in single cephalic nulliparous women at term is 47.4%. This is high and a change of clinical practice partly at least as a result of changing epidemiological variables.

Group 2a: Caesarean Section Rate by Indication for Induction and Indication for Caesarean Section

	Fetal reason (no oxytocin)	IUA - Inability to treat fetal intolerance	IUA - Inability to treat over contracting	IUA - Poor response	IUA - No oxytocin given	EUA - Cephalopelvic disproportion	EUA - Persistent malposition
Fetal 169/458 (36.9%)	46/458 (10.5%)	57/458 (12.4%)	2/458 (0.4%)	45/458 (9.8%)	7/458 (1.5%)	3/458 (0.7%)	9/458 (2.0%)
SROM not in labour 118/348 (33.9%)	3/348 (0.9%)	42/348 (12.1%)	0/348 (0.0%)	60/348 (17.2%)	2/348 (0.6%)	4/348 (1.1%)	7/348 (2.0%)
Maternal 59/214 (27.6%)	9/214 (4.2%)	23/214 (10.7%)	1/214 (0.5%)	16/214 (7.5%)	2/214 (0.9%)	3/214 (1.4%)	5/214 (2.3%)
Postterm (>= 42 weeks) 36/118 (30.5%)	4/118 (3.4%)	15/118 (12.7%)	1/118 (0.8%)	8/118 (6.8%)	2/118 (1.7%)	0/118 (0.0%)	6/118 (5.1%)
PET/Hypertension 36/106 (34.0%)	5/106 (4.7%)	10/106 (9.4%)	0/106 (0.0%)	15/106 (14.2%)	6/106 (5.7%)	0/106 (0.0%)	0/106 (0.0%)
Postdates (>40 and less than 42 weeks) 27/94 (28.7%)	8/94 (8.5%)	8/94 (8.5%)	0/94 (0.0%)	5/94 (5.3%)	2/94 (2.1%)	1/94 (1.1%)	3/94 (3.2%)
No medical indication 4/11 (36.4%)	0/11 (0.0%)	2/11 (18.2%)	2/11 (18.2%)	0/11 (0.0%)	0/11 (0.0%)	0/11 (0.0%)	0/11 (0.0%)

Group 2(a) Outcomes

	2020	2017	2016	2015	2014	2013	2012	2011	2010	
ARM	52.6%	702/1334	62.8%	65.9%	60.2%	62.7%	64.6%	61.4%	60.9%	57.2%
Prostaglandin/Propess	50.4%	672/1334	55.2%	49.7%	46.2%	47.6%	51.3%	55.4%	57.8%	56.0%
Oxytocin	81.3%	1084/1334	72.1%	71.8%	65.9%	67.9%	73.0%	70.2%	69.0%	68.3%
Epidural	82.8%	1105/1334	91.8%	76.4%	75.5%	77.8%	77.2%	77.7%	76.1%	72.7%
Electronic monitoring	98.7%	1317/1334	92.6%	92.5%	89.2%	91.9%	92.0%	93.6%	91.3%	92.5%
Fetal blood sample	19.6%	262/1334	29.6%	28.4%	30.3%	31.2%	33.3%	32.6%	36.4%	32.8%
Vaginal operative delivery	27.0%	360/1334	0.0%	29.3%	22.7%	23.4%	23.9%	20.1%	23.4%	26.0%
Apgars <7 at 5 mins	1.3%	18/1334	1.3%	1.5%	1.4%	1.4%	1.8%	1.3%	1.6%	1.2%
Cord pH < 7.0	0.0%	0/1334	0.2%	0.4%	0.5%	0.5%	0.3%	0.2%	0.3%	0.1%
Overall caesarean section rate	33.7%	449/1334	31.9%	32.6%	33.1%	33.1%	30.0%	33.5%	30.2%	29.7%
Caesarean section at VE=10	1.8%	24/1334	2.4%	2.5%	2.1%	2.2%	1.7%	2.0%	2.7%	1.8%
Admitted to Neonatal Unit	13.2%	176/1334	29.8%	30.2%	26.5%	28.5%	23.5%	16.7%	19.5%	18.7%
Episiotomy*	42.0%	560/1334	40.9%	42.6%	38.3%	39.4%	42.2%	39.2%	46.1%	49.1%
OASIS*	1.6%	22/1334	1.4%	2.2%	1.6%	1.6%	1.3%	2.1%	2.2%	2.9%
Length of labour >12 hrs	3.8%	51/1334	9.1%	7.7%	6.7%	6.9%	6.8%	4.8%	5.8%	5.6%
Babies >=4.0kg	17.5%	234/1334	19.5%	18.1%	19.0%	19.6%	18.6%	18.5%	24.4%	19.3%
Aged >=35	41.5%	553/1334	32.8%	32.8%	29.7%	31.1%	27.5%	24.6%	25.4%	23.3%
BMI >=30	19.9%	266/1334	12.4%	12.4%	14.1%	13.7%	12.2%	12.6%	12.7%	17.8%
PPH >1000mls	6.2%	83/1334	6.9%	4.7%	4.1%	4.2%	3.4%	3.7%	2.5%	1.8%
HIE	0.3%	4/1334	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.6%	0.1%
Blood transfusion rate	1.6%	21/1334	4.2%	0.0%	3.7%	3.8%	1.8%	3.1%		

*includes Episiotomy and Sphincter Damage

Comment: The incidence of prostaglandin/propess is very similar to previous years but is lower than clinically expected. This may be a data quality issue.

The incidence of cord pH less than 7.00 recorded as 0 is probably a data quality issue.

The incidence of caesarean section at VE =10 at 1.8% is a little low and may be a data quality issue as is admissions to the neonatal unit which has been lower this year.

These comments are very similar to the Group 1 table and therefore more likely to be data quality issues.

Age Range	Number	%
<20	6	0.4%
20 - 24	75	5.6%
25 - 29	171	12.8%
30 - 34	529	39.7%
35 - 39	433	32.5%
>=40	120	9.0%
Unrecorded	0	0.0%
Total	1334	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	1	0.1%
2,000 - 2,499 g	16	1.2%
2,500 - 2,999 g	149	11.2%
3,000 - 3,499 g	421	31.6%
3,500 - 3,999 g	513	38.5%
4,000 - 4,499 g	210	15.7%
4,500 - 4,999 g	23	1.7%
>= 5,000 g	1	0.1%
Total	1334	

Body Mass Index	Number	%
Underweight: <18.5	149	11.2%
Healthy: 18.5 - 24.9	541	40.6%
Overweight: 25 - 29.9	340	25.5%
Obese class 1: 30 - 34.9	117	8.8%
Obese class 2: 35 - 39.9	67	5.0%
Obese class 3: >40	29	2.2%
N/R	91	6.8%
Total	1334	

Labour Duration	Number	%
0 - 2 hrs	367	27.5%
2 - 4 hrs	137	10.3%
4 - 6 hrs	123	9.2%
6 - 8 hrs	158	11.8%
8 - 10 hrs	100	7.5%
10 - 12 hrs	34	2.5%
> 12 hrs	48	3.6%
Unrecorded	367	27.5%
Total	1334	

Group 3: Single cephalic multiparous pregnancies without a previous caesarean section at greater than or equal to 37 weeks gestation in spontaneous labour

Outcomes

	2020		2017	2016	2015	2014	2013	2012	2011	2010
ARM to accelerate	51.8%	811/1567	53.2%	53.0%	54.4%	55.7%	57.4%	59.3%	60.5%	59.1%
Oxytocin	3.6%	57/1567	2.7%	2.0%	2.9%	3.6%	3.8%	4.6%	4.0%	3.4%
Epidural	39.8%	624/1567	34.1%	31.5%	29.8%	30.5%	34.4%	35.0%	34.9%	30.7%
Electronic monitoring	77.6%	1216/1567	73.6%	69.4%	63.6%	62.2%	66.2%	54.9%	45.2%	41.8%
Fetal blood sample	2.1%	33/1567	3.2%	3.3%	4.9%	2.5%	3.0%	3.4%	3.7%	3.4%
Vaginal operative delivery	3.3%	51/1567	3.5%	5.0%	3.7%	2.7%	2.8%	3.5%	2.5%	3.1%
Apgars <7 at 5 mins	0.4%	7/1567	0.3%	0.3%	0.2%	0.3%	0.4%	0.5%	0.3%	0.3%
Cord pH < 7.0	0.0%	0/1567	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.0%	0.1%
Overall caesarean section rate	0.7%	11/1567	1.3%	1.0%	1.6%	1.2%	1.2%	1.7%	1.1%	1.2%
Caesarean section at VE=10	0.0%	0/1567	0.3%	0.3%	0.3%	0.3%	0.2%	0.5%	0.2%	0.1%
Admitted to Neonatal Unit	6.1%	96/1567	8.8%	6.2%	7.0%	7.1%	7.5%	4.7%	4.9%	5.4%
Episiotomy*	8.1%	127/1567	6.2%	6.7%	6.4%	5.4%	6.8%	8.1%	8.8%	10.3%
OASIS*	1.0%	15/1567	0.2%	1.0%	0.9%	0.9%	1.0%	0.7%	1.0%	0.5%
Length of labour >12 hrs	1.2%	19/1567	0.3%	0.3%	0.2%	0.0%	0.2%	0.3%	0.2%	0.5%
Babies >=4.0kg	21.1%	331/1567	23.9%	21.7%	24.7%	23.7%	25.0%	26.0%	26.6%	23.2%
Aged >=35	59.9%	938/1567	53.1%	49.4%	44.5%	43.2%	40.8%	40.8%	37.3%	38.7%
BMI >=30	12.6%	198/1567	10.7%	10.0%	10.4%	10.4%	11.0%	11.9%	11.4%	13.6%
PPH >1000mls	1.2%	19/1567	1.6%	1.3%	0.8%	0.9%	1.1%	0.8%	0.5%	0.4%
HIE	0.0%	0/1567	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.1%
Blood transfusion rate	1.6%	21/1567	0.4%	0.0%	0.8%	0.8%	0.9%	0.7%		

*includes Episiotomy and Sphincter Damage

Comment: The incidence of fetal blood sampling has reduced. This may be both due a data quality issue or practice change.

The incidence of cord pH less than 7.00 recorded as 0 is probably a data quality issue.

The incidence of caesarean section at VE -10 at 0% is a little low (but possible)and may be a data quality issue as is admissions to the neonatal unit which has been lower this year.

The caesarean section rate in group 3 remains low as does the oxytocin rate.

Group 3 and 4 (as the denominator): Single cephalic multiparous pregnancies at greater than or equal to 37 weeks gestation.

Indications for induction of labour (Group 4a) 985/2679 (36.8%)

Age Range	Number	%
<20	0	0.0%
20 - 24	30	1.9%
25 - 29	158	10.1%
30 - 34	441	28.1%
35 - 39	735	46.9%
>=40	203	13.0%
Unrecorded	0	0.0%
Total	1567	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	0	0.0%
2,000 - 2,499 g	3	0.2%
2,500 - 2,999 g	75	4.8%
3,000 - 3,499 g	441	28.1%
3,500 - 3,999 g	709	45.2%
4,000 - 4,499 g	286	18.3%
4,500 - 4,999 g	50	3.2%
>= 5,000 g	3	0.2%
Total	1567	

Body Mass Index	Number	%
Underweight: <18.5	157	10.0%
Healthy: 18.5 - 24.9	672	42.9%
Overweight: 25 - 29.9	478	30.5%
Obese class 1: 30 - 34.9	103	6.6%
Obese class 2: 35 - 39.9	44	2.8%
Obese class 3: >40	16	1.0%
N/R	97	6.2%
Total	1567	

Labour Duration	Number	%
0 - 2 hrs	997	63.6%
2 - 4 hrs	288	18.4%
4 - 6 hrs	132	8.4%
6 - 8 hrs	40	2.6%
8 - 10 hrs	12	0.8%
10 - 12 hrs	3	0.2%
> 12 hrs	18	1.1%
Unrecorded	77	4.9%
Total	1567	

Group 3 and 4 (as the denominator): Single cephalic multiparous pregnancies at greater than or equal to 37 weeks gestation.

Indications for induction of labour (Group 4a) 985/2679 (36.8%)

Fetal	351/2679	12.7%
Maternal	300/2679	11.2%
SROM not in labour	120/2679	4.5%
Postdates (>40 and less than 42 weeks)	71/2679	2.7%
Postterm (>= 42 weeks)	62/2679	2.3%
PET/Hypertension	43/2679	1.6%
No medical indication	38/2679	1.4%

Comment: The induction rate in single cephalic multiparous women without a previous caesarean section at term is 36.8%. This is high and a change of clinical practice partly at least as a result of changing epidemiological variables. The clinical impact in terms of other outcomes is less significant than in nulliparous women.

Group 4(a) Caesarean Section Rate by Indication for Induction and Indication for Caesarean Section

	Fetal reason (no oxytocin)	IUA - Inability to treat fetal intolerance	IUA - Inability to treat over contracting	IUA - Poor response	IUA - No oxytocin given	EUA - Cephalopelvic disproportion	EUA - Persistent malposition
Fetal 23/356 (6.5%)	3/351 (0.9%)	8/351 (2.3%)	0/351 (0.0%)	7/351 (2.0%)	3/351 (0.9%)	0/351 (0.0%)	2/351 (0.6%)
Maternal 12/300 (4.0%)	4/300 (1.3%)	2/300 (0.7%)	0/300 (0.0%)	1/300 (0.3%)	1/300 (0.3%)	2/300 (0.7%)	2/300 (0.7%)
SROM not in labour 7/120 (5.8%)	0/120 (0.0%)	4/120 (3.3%)	0/120 (0.0%)	2/120 (5.3%)	0/120 (0.0%)	0/120 (0.0%)	1/120 (0.8%)
Postdates (>40 and less than 42 weeks) 1/71 (1.4%)	1/71 (1.4%)	0/71 (0.0%)	0/71 (0.0%)	0/71 (0.0%)	0/71 (0.0%)	0/71 (0.0%)	0/71 (0.0%)
Postterm (>= 42 weeks) 4/62 (6.5%)	0/62 (0.0%)	1/62 (1.6%)	0/62 (0.0%)	2/62 (3.2%)	0/62 (0.0%)	1/62 (1.6%)	0/62 (0.0%)
PET/Hypertension 3/43 (7.0%)	0/43 (0.0%)	0/43 (0.0%)	0/43 (0.0%)	2/43 (2.8%)	1/43 (1.4%)	0/43 (0.0%)	0/43 (0.0%)
No medical indication 0/38 (0%)	0/38 (0.0%)	0/38 (0.0%)	0/38 (0.0%)	0/38 (0.0%)	0/38 (0.0%)	0/38 (0.0%)	0/38 (0.0%)

Group 4(a) Outcomes

Group 4(a)	2020	2017	2016	2015	2014	2013	2012	2011	2010	
ARM	77.1%	759/985	75.6%	84.7%	80.4%	79.9%	83.0%	78.3%	79.4%	76.7%
Prostaglandin/Propress	48.8%	481/985	45.8%	34.6%	30.1%	35.0%	37.1%	39.7%	46.8%	42.7%
Oxytocin	49.1%	484/985	32.5%	32.1%	30.6%	29.3%	30.9%	30.8%	25.0%	26.6%
Epidural	60.7%	598/985	52.0%	51.4%	52.5%	49.8%	51.4%	53.4%	48.2%	47.1%
Electronic monitoring	98.7%	972/985	92.5%	90.8%	90.7%	88.5%	87.6%	85.4%	81.2%	78.9%
Fetal blood sample	5.7%	56/985	8.0%	6.8%	12.2%	8.2%	8.7%	10.3%	14.0%	8.9%
Vaginal operative delivery	5.8%	57/985	5.5%	5.7%	7.6%	4.0%	5.3%	5.7%	4.9%	5.7%
Apgars <7 at 5 mins	0.5%	5/985	0.7%	0.8%	0.9%	0.9%	1.3%	0.6%	0.9%	0.8%
Cord pH < 7.0	0.0%	0/985	0.5%	0.2%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%
Overall caesarean section rate	5.1%	50/985	4.8%	4.4%	5.7%	5.7%	6.8%	6.0%	5.8%	5.6%
Caesarean section at VE=10	0.2%	2/985	0.4%	0.2%	0.7%	0.1%	0.5%	0.3%	0.6%	0.6%
Admitted to Neonatal Unit	11.1%	109/985	16.7%	14.4%	12.4%	13.2%	18.3%	11.0%	10.0%	10.4%
Episiotomy*	10.3%	101/985	7.9%	8.5%	9.4%	8.2%	9.5%	11.3%	12.2%	13.8%
OASIS*	0.6%	6/985	0.5%	1.2%	0.1%	0.7%	0.8%	1.2%	0.6%	0.9%
Length of labour >12 hrs	1.3%	13/985	0.6%	0.9%	0.9%	0.3%	0.8%	1.0%	0.4%	0.7%
Babies >=4.0kg	25.1%	247/985	25.6%	26.3%	27.1%	30.6%	31.3%	27.9%	28.9%	26.2%
Aged >=35	64.4%	634/985	53.4%	52.8%	53.7%	51.0%	48.2%	46.4%	45.9%	45.6%
BMI >=30	22.2%	219/985	14.6%	14.4%	14.8%	13.7%	14.9%	17.5%	16.1%	16.5%
PPH >1000mls	2.1%	21/985	2.7%	2.7%	1.6%	2.2%	2.6%	1.6%	1.4%	0.4%
HIE	0.0%	0/985	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Blood transfusion rate		6/985	1.1%	0.0%	1.2%	1.2%	1.5%	1.0%		

*includes Episiotomy and Sphincter Damage

Comment: The incidence of fetal blood sampling has reduced. This may be both due a data quality issue or practice change

The incidence of cord pH less than 7.00 recorded as 0 is probably a data quality issue

The incidence of caesarean section at VE -10 at 0.2% is a little low and possibly a data quality issue

The incidence of oxytocin is higher than previous years and most significant in Groups and 2a and 4a but also in groups 1 and 2. This may indeed show that in previous years the data quality was not so good. The incidence of oxytocin is taken from the medication part of the chart now.

The incidence of propress/prostaglandin is similar to nulliparous women. This is clinically unlikely and is probably related to data quality

Age Range	Number	%
<20	2	0.2%
20 - 24	16	1.6%
25 - 29	87	8.8%
30 - 34	246	25.0%
35 - 39	433	44.0%
>=40	201	20.4%
Unrecorded	0	0.0%
Total	985	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	1	0.1%
2,000 - 2,499 g	10	1.0%
2,500 - 2,999 g	92	9.3%
3,000 - 3,499 g	265	26.9%
3,500 - 3,999 g	364	37.0%
4,000 - 4,499 g	207	21.0%
4,500 - 4,999 g	39	4.0%
>= 5,000 g	7	0.7%
Total	985	

Body Mass Index	Number	%
Underweight: <18.5	105	10.7%
Healthy: 18.5 - 24.9	340	34.5%
Overweight: 25 - 29.9	278	28.2%
Obese class 1: 30 - 34.9	92	9.3%
Obese class 2: 35 - 39.9	65	6.6%
Obese class 3: >40	23	2.3%
N/R	82	8.3%
Total	985	

Labour Duration	Number	%
0 - 2 hrs	520	52.8%
2 - 4 hrs	166	16.9%
4 - 6 hrs	108	11.0%
6 - 8 hrs	64	6.5%
8 - 10 hrs	28	2.8%
10 - 12 hrs	2	0.2%
> 12 hrs	13	1.3%
Unrecorded	84	8.5%
Total	985	

Group 5: Single cephalic multiparous pregnancies (with at least one previous caesarean section) at greater than or equal to 37 weeks gestation (n=979)

Spontaneous Labour	Induced Labour	Pre labour C/S
185/979	72/979	722/979
18.9%	7.4%	73.8%

Comment: The big issue about delivery after caesarean section is the proportion of pre labour caesarean sections. Caesarean Section contribution according to onset of delivery in single cephalic multiparous pregnancies with at least one previous section at greater than or equal to 37 weeks gestation: (792/979 (80.9%).

Spontaneous Labour	Induced Labour	Pre labour C/S
35/979	35/979	722/979
3.60%	3.60%	73.8%

Group 5 All

	2020		2017	2016	2015	2014	2013	2012	2011	2010
ARM	15.6%	153/979	31.7%	21.8%	20.8%	23.4%	25.6%	30.3%	31.9%	31.6%
Prostaglandin	0.1%	1/979	0.0%	0.2%	0.2%	0.2%	0.1%	0.0%	0.3%	0.2%
Oxytocin	3.4%	33/979	2.1%	2.4%	2.3%	3.0%	4.9%	6.2%	9.0%	7.7%
Epidural	16.5%	162/979	17.8%	20.8%	19.8%	24.4%	28.6%	32.9%	31.7%	30.7%
Electronic monitoring	46.0%	450/979	31.5%	38.2%	36.4%	41.6%	43.9%	51.9%	50.5%	51.2%
Fetal blood sample	0.3%	3/979	1.6%	2.5%	2.4%	2.2%	2.4%	4.8%	7.9%	8.4%
Vaginal operative delivery	5.3%	52/979	5.8%	5.1%	4.9%	6.9%	5.6%	7.1%	8.3%	9.1%
Apgars <7 at 5 mins	0.6%	6/979	0.8%	0.2%	0.2%	0.5%	1.0%	0.8%	0.2%	0.8%
Cord pH < 7.0	0.0%	0/979	0.3%	1.5%	1.4%	0.1%	0.2%	0.4%	0.4%	0.0%
Overall caesarean section rate	80.9%	792/979	75.9%	62.5%	59.6%	68.0%	68.1%	61.6%	60.9%	60.5%
Caesarean section at VE=10	0.4%	4/979	0.4%	0.6%	0.5%	0.9%	0.8%	1.2%	1.0%	0.9%
Admitted to Neonatal Unit	11.3%	111/979	13.6%	11.2%	12.7%	0.0%	12.2%	10.3%	11.1%	9.3%
Episiotomy*	9.0%	88/979	9.0%	9.1%	8.7%	12.2%	12.2%	16.2%	18.7%	17.9%
OASIS*	0.3%	3/979	0.5%	0.9%	0.9%	1.1%	0.9%	1.6%	0.6%	0.9%
Length of labour >12 hrs	0.2%	2/979	0.9%	0.8%	0.8%	0.1%	0.1%	0.6%	0.1%	0.6%
Babies >=4.0kg	19.5%	191/979	19.9%	20.3%	19.4%	22.1%	20.7%	23.5%	22.9%	23.1%
Aged >=35	67.5%	661/979	66.0%	60.9%	59.7%	52.0%	51.3%	51.3%	49.7%	50.2%
BMI >=30	21.2%	208/979	20.3%	18.7%	17.2%	17.1%	17.9%	18.2%	19.1%	21.6%
PPH >1000mls	2.2%	22/979	2.3%	2.2%	2.1%	3.1%	3.0%	2.6%	1.6%	1.4%
HIE	0.0%	0/979	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%
Blood transfusion rate	4.5%	9/979	2.0%	0.0%	2.4%	2.7%	1.8%	2.0%		

*includes Episiotomy and Sphincter Damage

Group 5 Spontaneous Labour

	2020		2017	2016	2015	2014	2013	2012	2011	2010
ARM	49.7%	92/185	48.4%	45.8%	49.2%	48.5%	46.7%	50.6%	55.6%	56.1%
Prostaglandin	0.5%	1/185	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Oxytocin	2.7%	5/185	3.9%	2.6%	3.8%	3.9%	6.4%	7.3%	10.6%	8.9%
Epidural	56.2%	104/185	51.2%	49.8%	54.2%	54.8%	39.7%	60.8%	59.6%	54.6%
Electronic monitoring	91.9%	170/185	94.5%	94.9%	95.6%	92.5%	92.8%	93.7%	90.5%	93.1%
Fetal blood sample	0.5%	1/185	5.1%	5.1%	7.8%	6.6%	5.5%	9.0%	12.7%	15.8%
Vaginal operative delivery	22.7%	42/185	18.8%	19.4%	16.3%	20.2%	12.5%	14.0%	16.3%	18.1%
Apgars <7 at 5 mins	0.5%	1/185	2.3%	0.7%	0.0%	1.5%	0.3%	1.0%	0.5%	0.5%
Cord pH < 7.0	0.0%	0/185	0.4%	0.0%	0.3%	0.3%	0.6%	0.7%	0.3%	0.0%
Overall caesarean section rate	18.9%	35/185	21.1%	19.4%	21.9%	22.3%	26.4%	24.7%	19.2%	21.2%
Caesarean section at VE=10	2.2%	4/185	1.2%	1.1%	1.9%	2.7%	2.0%	2.4%	2.2%	2.0%
Admitted to Neonatal Unit	9.7%	18/185	17.6%	12.1%	13.5%	13.1%	13.0%	8.0%	10.3%	7.4%
Episiotomy*	38.9%	72/185	29.3%	26.7%	26.6%	36.1%	30.7%	32.2%	37.9%	35.7%
OASIS*	1.6%	3/185	2.0%	3.3%	3.1%	2.4%	2.3%	3.1%	1.4%	1.5%
Length of labour >12 hrs	0.5%	1/185	1.6%	0.7%	1.3%	0.3%	0.0%	0.2%	0.0%	0.5%
Babies >=4.0kg	18.9%	35/185	21.9%	19.0%	20.1%	23.5%	22.9%	22.8%	19.5%	23.2%
Aged >=35	60.5%	112/185	57.4%	53.8%	55.5%	49.5%	47.5%	51.3%	46.9%	41.8%
BMI >=30	16.8%	31/185	16.0%	15.0%	12.9%	14.0%	15.9%	12.8%	15.4%	14.5%
PPH >1000mls	3.8%	7/185	5.5%	3.7%	3.4%	3.3%	1.7%	4.8%	1.6%	0.8%
HIE	0.0%	0/185	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%
Blood transfusion rate	2.7%	5/185	4.3%	0.0%	4.1%	3.9%	2.9%	3.2%		

*includes Episiotomy and Sphincter Damage

Group 10 by Onset and Gestation

	Spontaneous labour	Induced labour	Pre labour C-Section	Total
22	0	1	0	1
23	2	0	0	2
24	1	3	2	6
25	3	1	0	4
26	1	2	1	4
27	2	3	2	7
28	5	2	7	14
29	0	0	1	1
30	2	0	7	9
31	7	1	8	16
32	15	0	5	20
33	10	2	11	23
34	17	9	18	44
35	26	37	20	83
36	62	0	29	91
Total	153	61	111	325

All deliveries equal to or less than 36 weeks gestational age by onset and gestation

	Spontaneous labour	Induced labour	Pre labour C-Section	Total
22	0	2	0	2
23	2	0	1	3
24	1	6	4	11
25	7	1	5	13
26	2	6	3	11
27	3	0	0	3
28	4	3	11	18
29	6	3	14	23
30	4	0	11	15
31	8	0	10	18
32	18	1	15	34
33	14	0	16	30
34	24	2	31	57
35	32	11	26	69
36	66	44	54	164
Total	191	79	201	471

Incidence of preterm delivery <37 weeks = 471/7263 (6.5%)

Incidence of preterm <=34 weeks = 238/7263 (3.3%)

Incidence of preterm spontaneous labour <=34 weeks = 91/7263 (1.3%)

Age Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
<20	15	1.2%	6	0.4%	0	0.0%	2	0.2%	0	0.0%	0	0.0%
20 - 24	96	7.5%	75	5.6%	30	1.9%	16	1.6%	14	1.4%	5	2.7%
25 - 29	193	15.0%	171	12.8%	158	10.1%	87	8.8%	61	6.2%	13	7.0%
30 -34	577	45.0%	529	39.7%	441	28.1%	246	25.0%	243	24.8%	55	29.7%
35 - 39	349	27.2%	433	32.5%	735	46.9%	433	44.0%	473	48.3%	92	49.7%
>=40	53	4.1%	120	9.0%	203	13.0%	201	20.4%	188	19.2%	20	10.8%
Unrecorded	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	1283		1334		1567		985		979		185	

Body Mass Index Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
< 18.5	177	13.8%	149	11.2%	157	10.0%	105	10.7%	70	7.2%	20	10.8%
18.5-24.9	646	50.4%	541	40.6%	672	42.9%	340	34.5%	334	34.1%	82	44.3%
25-29.9	296	23.1%	340	25.5%	478	30.5%	278	28.2%	294	30.0%	50	27.0%
30-34.9	61	4.8%	117	8.8%	103	6.6%	92	9.3%	94	9.6%	15	8.1%
35-39.9	25	1.9%	67	5.0%	44	2.8%	65	6.6%	62	6.3%	4	2.2%
>=40	5	0.4%	29	2.2%	16	1.0%	23	2.3%	20	2.0%	2	1.1%
Unrecorded	73	5.7%	91	6.8%	97	6.2%	82	8.3%	105	10.7%	12	6.5%
Total	1283		1334		1567		985		979		185	

Birthweight Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
1. 500 - 999 g	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
2. 1,000 - 1,499 g	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
3. 1,500 - 1,999 g	0	0.0%	1	0.1%	0	0.0%	1	0.1%	0	0.0%	0	0.0%
4. 2,000 - 2,499 g	4	0.3%	16	1.2%	3	0.2%	10	1.0%	9	0.9%	0	0.0%
5. 2,500 - 2,999 g	149	11.6%	149	11.2%	75	4.8%	92	9.3%	88	9.0%	20	10.8%
6. 3,000 - 3,499 g	478	37.3%	421	31.6%	441	28.1%	265	26.9%	316	32.3%	62	33.5%
7. 3,500 - 3,999 g	496	38.7%	513	38.5%	709	45.2%	364	37.0%	375	38.3%	68	36.8%
8. 4,000 - 4,499 g	142	11.1%	210	15.7%	286	18.3%	207	21.0%	156	15.9%	25	13.5%
9. 4,500 - 4,999 g	13	1.0%	23	1.7%	50	3.2%	39	4.0%	33	3.4%	10	5.4%
99. 5,000 g	1	0.1%	1	0.1%	3	0.2%	7	0.7%	2	0.2%	0	0.0%
Total	1283		1334		1567		985		979		185	

Labour Duration Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
0 - 2hrs	377	29.4%	367	27.5%	997	63.6%	520	52.8%	271	27.7%	93	50.3%
10 - 12hrs	211	16.4%	137	10.3%	288	18.4%	166	16.9%	28	2.9%	24	13.0%
2 - 4hrs	196	15.3%	123	9.2%	132	8.4%	108	11.0%	24	2.5%	20	10.8%
4 - 6hrs	212	16.5%	158	11.8%	40	2.6%	64	6.5%	12	1.2%	10	5.4%
6 - 8hrs	116	9.0%	100	7.5%	12	0.8%	28	2.8%	10	1.0%	5	2.7%
8 - 10hrs	15	1.2%	34	2.5%	3	0.2%	2	0.2%	1	0.1%	1	0.5%
>12hrs	30	2.3%	48	3.6%	18	1.1%	13	1.3%	2	0.2%	1	0.5%
Not Recorded	126	9.8%	367	27.5%	77	4.9%	84	8.5%	631	64.5%	31	16.8%
Total	1283		1334		1567		985		979		185	

Body mass index and labour duration is not always recorded and is a data quality issue

Transfusion Rates according to the Robson Ten Groups Classification of Caesarean Section

Group	1	2a	2b	3	4a	4b	5a	5b	5c	6	7	8	9	10	Total
Number	1283	1334	197	1567	985	127	185	72	722	152	133	136	45	325	7263
Number Transfused	21	21	1	11	6	0	5	1	3	1	2	8	2	14	96
% Transfused	1.6%	1.6%	0.5%	0.7%	0.6%	0.0%	2.7%	1.4%	0.4%	0.7%	1.5%	5.9%	4.4%	4.3%	1.3%
															0
Units crossmatched	62	111	48	54	51	38	19	8	93	20	62	102	26	247	941
Units Transfused	32	31	1	20	11	0	6	2	5	1	4	23	3	35	174
Patients transfused 4 or more units	0	0	0	1	0	0	0	0	0	0	0	2	0	3	6
% Patients transfused 4 or more units (group)	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15%	0.0%	0.9%	0.1%
% Patients transfused who received 4 or more units	0.0%	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	21.4%	6.25%



*Sarah Elsaid and Jay
Abushbiwa with their baby
daughter Eirin Norah Elsaid
Abushbiwa.*

Maternal Mortality/Severe Maternal Morbidity

In keeping with changes to reporting of information, vignettes will no longer be included in this chapter.

Maternal Mortality

There were no maternal deaths in 2020. There was one late maternal death (>42 days postnatal, <1 year postnatal) due to metastatic carcinoma diagnosed in pregnancy.

Severe Maternal Morbidity

There are four contextual points to make for 2020

- The COVID-19 pandemic had an effect on the rate of sepsis
- Regarding the apparent increase in the rate of Massive Obstetric Haemorrhage (MOH), fibrinogen was used as a standard treatment for any woman with blood loss greater than 1l due to concerns regarding blood supplies. This only applied for three months during the first lockdown from April to June 2020 and therefore reflects an artificially high rate of MOH.
- There was a reduction in the rate of peripartum hysterectomy.

- There was an increase in the rate of eclampsia: each case was reviewed individually and also discussed within the multidisciplinary 'Grand Rounds', with ongoing education within the hospital across all disciplines and teams.

Data is compiled from a number of sources including the High Dependency Unit Record, Pathology Department, Placenta Accreta Spectrum Service, Haematology Team, Maternal Medicine Clinic, Microbiology Department as well as referral Intensive Care Units and Interventional Radiology teams. In early 2021, data from 2020 was again presented at a hospital wide Grand Rounds in order to share learning points for future care and confirm completion of data. I wish to acknowledge the work of Dr Fionnvola Armstrong, Dr Eoghan Mooney, Dr Paul Downey, Dr Susan Knowles, Ms Jacinta Byrne, Ms Celine O'Brien and Ms Fionnuala Byrne in compiling and confirming the validity of this information. The NMH reports all SMM to the National Perinatal Epidemiology Centre for inclusion in a National Severe Maternal Morbidity (SMM) report. Additionally, in 2020 the NMH participated in the second year of a national audit of Diagnosis and Management of Pulmonary Embolism in Pregnancy.

Morbidity	2018 Major SMM only*	2019 Major SMM only*	2020 Major SMM only*
Major Obstetric Haemorrhage	33	13	33
Uterine Rupture	2	1	1
Peripartum Hysterectomy	8	9	3
Eclampsia	1	0	4
Renal / Liver Dysfunction	1	3	7
Pulmonary Oedema	2	2	0
Acute Respiratory Dysfunction	1	1	0
Pulmonary Embolism	2	3	2
Cardiac Arrest	0	0	0
Coma	0	0	0
Cerebral Vascular Accident	0	1	0
Status Epilepticus	0	0	1
Septic Shock	4	4	6
Anaesthetic Problems	0	0	1
ICU/CCU admission	3	1	0
Other	1 (Anaphylaxis)	1 (DKA)	3 (1 DKA, 2 anaphylaxis)
Interventional Radiology	2	3	0
Total	52	42	61

* Data from January 1st 2020 to December 31st 2020; some women had more than one SMM – in this table only the major SMM is reported



Jean Kavanagh, Labour & Birthing Unit Midwife.

Maternal Medicine Service

There is a weekly multidisciplinary clinic for women with medical disorders led by Prof Fionnuala McAuliffe, Prof Mary Higgins, Dr Siobhan Corcoran in conjunction with Dr Karen Murphy, Consultant Haematologist and clinic midwives Ms Caroline Brophy, Ms Annabel Murphy, Ms Celine O'Brien and Ms Jacinta Byrne (haematology midwife). Ms Victoire Hurley, drug liaison nurse, advises on women with drug addiction.

There is a monthly combined obstetric – anaesthetic review of patients at the clinic with Consultant Anaesthetists Dr Roger McMorow, Dr Ola Rosaeg, Dr Siobhan McGuinness and their team. Pharmacy provides advice on the safety of maternal medications during pregnancy and breastfeeding with weekly attendance from Ms Anne Clohessy.

Specialist Services

Rheumatology: in 2017 we established a monthly Reproductive Rheumatology Health Service the ROSE clinic. Prof Doug Veale, Dr Kieran Murray and Dr Aine Gorman (SpR) and Ms Louise Moore attend and women are seen for pre-pregnancy counselling and for pregnancy management. Outputs from the clinic have formed the basis for Dr Kieran Murray's PhD and two clinical research papers from this clinic were published in 2019 and 2020. Our unique care pathway has been presented at national and international meetings.

Hepatology: Prof Aiden McCormick attends on a monthly basis for a joint hepatology clinic

Gastroenterology: In 2018 we established a joint gastroenterology obstetric service. Dr Juliette Sheridan and her team attend bi-monthly where we manage pregnant women with inflammatory bowel disease.

Epilepsy: There is a fortnightly clinic to review pregnant women with epilepsy run by Ms Sinead Murphy, specialist epilepsy midwife funded by Brainwave. Each woman is seen at least three times during the antenatal period and receive a postnatal telemedicine check. All women receive written information regarding their medication, and are invited to a newly established women with epilepsy private facebook group.

Cardiology: Dr John Erwin cardiology at St Vincent's University Hospital reviews patients at a monthly joint obstetric clinic at SVUH with one of our team in attendance.

Obstetric Haematology Service: this comprises of 2 Consultant Haematologists Dr Karen Murphy and Dr Joan Fitzgerald, a 0.5 WTE Haematology Registrar and the haematology midwife Ms Jacinta Byrne. There is a weekly Haematology clinic shared with Maternal Medicine colleagues which provides care for women with high risk thrombotic and bleeding problems during their pregnancies. This blended team ensures provision of high quality care for this complex group of patients during pregnancy. 2020 was uniquely challenging for all areas of medicine but the long established nature of the Obstetric Haematology service in NMH allowed for modifications in how the service worked robustly for periods of time when the Haematologists were off site and also allowed for swift development of new guidance with respect to COVID-19 and thrombotic risk. In addition to the numbers recorded below Jacinta Byrne reviewed 148 women with gestational thrombocytopenia, 323 with family history of venous thromboembolism and reviewed 2229 results in the virtual anaemia clinic.

Maternal Medicine Midwife Clinic

In 2020 Celine O'Brien saw 106 women through the maternal medicine midwife clinic which is a service for women in conjunction with the maternal medicine clinic to review women with stable disease. This accounted for approximately 16% of all maternal medicine antenatal visits and gives women access to midwifery care.

The weekly maternal medicine multi-disciplinary team meeting (organised by Dr Niamh Keating and Ms. Celine O'Brien) continues to be very successful facilitating the development of multidisciplinary individualised patient plans.

In 2020 there were 525 new patients seen in the maternal medical service. Some patients presented with more than one problem. The main diagnoses and indications for referral to the clinic in 2020 are recorded below (*only one diagnosis per patient*).

In our pre-pregnancy service, we saw 48 women and their partners / family members in 2020, in addition to the numbers below. This service is becoming increasingly popular for women with medical disorders, and we often counsel women and their partners together with the relevant physician.



This blended team ensures provision of high quality care for this complex group of patients during pregnancy.

Jennifer Kirwin with her newborn baby son Tadgh.

Haematology	Medical Reason	183
	Previous venous thrombo-embolism	56
	VTE current pregnancy	6
	Anti-phospholipid syndrome	16
	Factor V Leiden mutation	5
	Prothrombin gene mutation	3
	Protein S deficiency	1
	MTHFR	4
	Von Willibrand's Disease	7
	Factor VII deficiency	1
	Factor VIII deficiency	5
	Factor IX deficiency	2
	Factor X deficiency	1
	Factor XI deficiency	2
	Factor XII deficiency	2
	Family history of haemophilia	4
	Immune thrombocytopenic purpura	13
	Low platelets	21
	Essential Thrombocytosis	11
	Severe anaemia	6
	Bleeding disorder aetiology not known	3
	Hereditary spherocytosis	1
	Beta Thalassaemia trait	4
	Dysfibrinogenemia	1
	Hypofibrinogenemia	1
	Spherocytosis	1
	Myeloma	1
	Haemochromatosis	1
	MBL immunodeficiency	1
	Pre-pregnancy Hodgkins lymphoma	1
	Acute promyelocytic leukemia	1
	Pre-pregnancy leukemia	1
Infection (excluding COVID-19)		12
	HIV	4
	Hepatitis B	5
	Hepatitis C	3
Drug dependency (no hepatitis C)		2
	Methadone in pregnancy	1
	Benzodiazepine in pregnancy	1

Cardiac		37
	ASD repaired	3
	Anomalous pulmonary venous drainage + ASD	1
	Mitral valve regurgitation	2
	Mitral valve prolapse	2
	Sub aortic stenosis	1
	Aortic stent	1
	Aortic dilatation	1
	Pulmonary artery hypertension	1
	First degree heart block + pacemaker	1
	Long QT syndrome	5
	SVT	6
	Atrial fibrillation	1
	Atrial flutter	1
	Wolf Parkinson White	5
	Ebstein's repaired	1
	Cardiomyopathy HOCM + ICD	1
	Dilated cardiomyopathy	1
	Cardiomyopathy post chemotherapy	1
	Previous postpartum cardiomyopathy	1
	PFO	1
GIT		45
	Ulcerative colitis	15
	Crohn's disease	26
	Bariatric surgery - gastric sleeve	1
	Proctitis	2
	Intestinal TB bowel resection	1
LIVER		19
	Non-alcoholic fatty liver NAFL	3
	Intrahepatic cholestasis of pregnancy severe	4
	Post Whipple's procedure	1
	Gilberts syndrome	1
	Hepatoblastoma	1
	Alpha 1 anti-trypsin deficiency	1
	Primary Sclerosing Cholangitis	3
	Liver transplant	5

CNS		86
	Epilepsy	68
	Idiopathic intracranial hypertension	4
	Multiple sclerosis	6
	Spinal rods	1
	Spinal injury	2
	Arachnoid cyst	1
	Spina bifida	1
	Transverse myelitis	1
	Cauda equina syndrome	1
	Pineal cyst	1
Vascular		21
	Essential Hypertension	6
	Cerebrovascular accident in pregnancy	2
	CVA pre-pregnancy	4
	Parkes Weber	1
	Cavernoma pre-pregnancy	1
	Arnold Chairi decompressed pre-pregnancy	2
	Cerebral aneurysm coiled	1
	Cerebral vein thrombosis	1
	Hereditary Haemorrhagic Telangectasia	1
	AVM (chest / face)	2
Connective tissue disorders		74
	Systemic Lupus Erythematosus	14
	Stills disease	1
	Rheumatoid Arthritis	16
	Juvenile Idiopathic Arthritis	4
	Spondylarthropathy	1
	Psoriatic arthritis	13
	Inflammatory arthritis	2
	Fibromyalgia	1
	Takayasu Arteritis	1
	Ankylosing Spondylitis	2
	Sjogren's syndrome	8
	Behcet's disease	3
	Seronegative arthritis	5
	Mixed connective tissue disease	3

Respiratory		12
	Cystic fibrosis	2
	Sleep Apnoea	1
	Severe asthma	5
	Sarcoidosis	4
Renal		3
	Renal transplant	1
	Chronic kidney disease stage 2	1
	Renal vascular hypertension	1
Oncology		16
	Cervical cancer in pregnancy	1
	Breast Cancer pre-pregnancy	6
	Bladder cancer in pregnancy	1
	Gastric cancer pre-pregnancy	3
	Thyroid cancer pre-pregnancy	1
	Oligodendroglioma resected	1
	Astrocytoma resected	1
	Thyroid cancer pre-pregnancy	1
	Carcinoid lung tumour pre pregnancy	1
Miscellaneous		15
	ACTH deficiency	1
	Adrenal insufficiency	1
	Hyperparathyroid	1
	Thymoma in pregnancy	1
	Parathyroid adenoma	1
	Osteoporosis	1
	Paraglossal cyst	1
	Hydranitis	1
	Limb girdle muscular dystrophy	1
	Malignant hyperthermia	1
	Myotonic dystrophy	1
	Neurofibromatosis type 1	2
	Stickler syndrome	1
	Turner's syndrome	1
Overall Total		525

Maternity Outpatient Clinic



Activity remains at a high level in both the public Holles Clinic and semi-private Fitzwilliam Clinic.

Holles Clinic

Approximately 6,745 patients attended the public Holles Clinic this year. There is an increasing interest in our Midwifery-led clinics so to meet demand, we provide a Midwifery-led clinic every day and we are also trialling an evening midwifery-led clinic.

We continue to improve our midwifery booking appointments at the external Pearse Street Clinic and now provide a formal dating scan in association with our Fetal Medicine colleagues at these appointments. This has garnered much support from patients and increased patient satisfaction in the service.

As the medical complexity of the pregnant women continues to increase, the number of specialist clinics offered by the hospital continues to grow. Specialist clinics include maternal medicine, haematology, pre-term birth, endocrine, diabetes and the pain management clinic. Joint clinics between the Obstetric team and Consultants from St Vincent's University Hospital (SVUH) are offered including cardiology, neurology, rheumatology, respiratory, hepatology and gastroenterology. As part of the multidisciplinary care offered by the hospital, social workers, dieticians, mental health staff and physiotherapists, work as part of the team offering care to the increasing number of mothers with complex medical, mental health and social issues. Despite requiring assisted care, we have dedicated midwifery-led clinics to offer patients midwifery-led care and support in conjunction with

their medical teams. Clinical Midwife Specialist (CMS) Celine O'Brien works alongside the Maternal Medicine obstetric team to offer patients access to midwifery-led care while also meeting their complex medical needs.

This year we launched a new teen clinic in the department, 'The Daisy Clinic'. This runs alongside a Consultant-led clinic and gives dedicated midwifery care to teenagers during their pregnancy. This is run by CMM1 Lisa Courtney and facilitated by Dr Orla Sheil in partnership with the dietician, social work and education teams.

A new clinic offering extra support in the 1st trimester to patients who are pregnant following recurrent miscarriage is led by Dr Cathy Allen and the Bereavement team. This has so far given extra, necessary care and support to over 50 patients who have come to value this facility in early pregnancy.

Our postnatal, 'Poppy Clinic' offers quality and continuity of care to patients who experience complications during the pregnancy and in the postnatal period. Up to 25 mothers are seen in the clinic each week. Referrals are from within the hospital, GPs, PHNs and other maternity hospitals. This is run by Advanced Midwife Practitioner (AMP) Caroline Brophy and Dr Laoise O'Brien, Consultant Obstetrician and Gynaecologist and further information can be found in The Postnatal Poppy Clinic section.

Dedicated appointment times were introduced this year to improve patient flow throughout the clinic. Each booking visit was divided to incorporate a 'virtual' aspect to the appointment in an effort to reduce the amount of time patients were waiting in the department.



Fitzwilliam Clinic

The semi-private Fitzwilliam Clinic offers a wonderful antenatal experience to expectant women at the original front entrance of The National Maternity Hospital on Merrion Square. Almost 3,000 patients attended the Fitzwilliam Clinic during the year. This is a Consultant-led clinic with a dedicated team of Midwives working alongside them. Each patient is booked for a 1st trimester ultrasound booking scan as part of the service. Allocated appointment times have worked very successfully in this department for a number of years. 'Virtual' bookings were introduced this year due to the COVID-19 pandemic with very positive results.

No. 60 Mount Street Clinics

Patients also have the option of attending a chosen Consultant Obstetrician & Gynaecologist for private antenatal care and are seen in a suite of rooms located in a dedicated building adjacent to the main hospital.

*Midwives celebrating
International day of the
Midwife 2020.*

Summary of Obstetric Clinic Attendances

	Holles Clinic	Pearse St Clinics	Midwives Clinics	Specialist Clinics*	Fitzwilliam Clinics	Total
(New) First Visits	2,752	438	345	417	2,793	6,745
Follow Up Visits	12,690	0	865	4071	6,532	24,158
Total Attendances	15,442	438	1,210	4,488	9,325	30,903

*High Risk Clinics, Diabetes, Pre-Term Birth, Maternal Medicine.
Does not include Community Midwifery, Nutrition, Satellite or Private Clinics

Multiple Pregnancy

Total Mothers Delivered	7263	
Total Babies Born	7402	
Type	No. of Cases	No. of Births*
Twins	134	266
Triplets	2	6
Quads	0	0
Totals	136	272

*babies born >=500g and/or 24 wks (2 babies died < 500g)

	Spontaneous Labour	Induction of Labour	Elective Caesarean Section	Total
Dichorionic Diamniotic	24	28	45	97
% Caesarean Section	10/24 (42%)	8/28 (28%)	45/45 (100%)	63/97 (65%)
Monochorionic Diamniotic	6	5	25	36
% Caesarean Section	2/6 (33%)	1/5 (20%)	25/25 (100%)	28/36 (78%)
Monochorionic Monoamniotic	0	0	1	1
% Caesarean Section	0/0 (0%)	0/0 (0%)	1/1 (100%)	1/2 (50%)
All Twins	30	33	71	134
% Caesarean Section	12/30 (40%)	9/33 (27%)	71/71 (100%)	100/134 (75%)
Multiple Pregnancies per '00 Deliveries			1.87	(n=133/7263)

Perinatal Deaths	Number
Antepartum Deaths	4
Early Neonatal Deaths	1
Congenital Anomalies	0
Total	5

Delivery Method of Perinatal Deaths	Number
Caesarean Sections	3
Spontaneous Vaginal	2
Totals	5

Perinatal Deaths by Chorionicity*	Number	
Dichorionic Diamniotic	1	(n=194)
Perinatal mortality rate per '000 DCDA babies	5.2	
Monochorionic Diamniotic	4	(n=70)
Perinatal mortality rate per '000 MCDA babies	57.1	
Monochorionic Monoamniotic	0	(n=2)
Perinatal mortality rate per '000 MCMA babies	0	

*Babies born >=500g

Corrected perinatal rate per '000 twin births	18.8	(n=5/266)
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Nulliparous Deliveries		
Incidence per '00 nullip dels	64	(n=3201)
Perinatal Deaths	2.0	
Caesarean Sections	2	
Neonatal Encephalopathy/HIE	1	
	0	

Multiparous Deliveries		
Incidence per '00 multip dels	70	(n=4062)
Perinatal Deaths	1.7	
Caesarean Sections	3	
Neonatal Encephalopathy/HIE	2	
	0	



New Dad Shane with his twin girls, Bonnie and Ava.

Early Neonatal Death (1)

EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	Placental Histology	Cause of death	PM
23+3	520	F	LSCS	5, 7	3	NICU	DCDA	Hypoxic respiratory failure, refractory hypotension, extreme prematurity, extremely low birth weight, DCDA twin.	No

Antepartum Stillbirth (4)

EGA	BW (gms)	Gender	Delivery method	Placental Histology	Cause of death	PM
25+4	190	F	SVD	MCDA. Low grade FVM.	TTTS.	No
25+4	620	F	SVD	MCDA. Low grade FVM.	TTTS.	No
27+4	280	M	SVD	MCDA. No abnormal histology reported.	TTTS.	No
36+5	800	M	LSCS	MCDA. Low grade villitis.	Twin 2 IUD at 20 wks. TTTS.	No

There were five perinatal deaths in four twin pregnancies. The perinatal mortality rate was 18.8 per 1000. Severe TTTS was present in three of the four cases. In three cases Laser Treatment for severe TTTS was required and an IUD occurred in one twin sometime after treatment in each case. One occurred at 19 wks, one at 22 wks and another at 24 wks estimated gestational age in each of the cases. Delivery was at 25 weeks' gestation in the case where both babies did not survive after the Laser Treatment.

5 Year Table: TWINS	2016	2017	2018	2019	2020
Number of Cases	184	188	150	125	134
Twin Babies	364	371	300	246	266
Incidence per '00 deliveries	2.1	2.2	1.9	1.6	1.9
Perinatal Deaths	6	9	8	7	5
<i>Perinatal rate per '000 twin babies</i>	16.5	24.3	26.7	28.5	18.8
Caesarean Section	119	123	119	80	100
Caesarean Section Rate	65%	65%	79%	64%	75%



Perineal Clinic

The Perineal Clinic has been running in the National Maternity Hospital for almost 30 years. It was one of the first clinics of its kind in Europe and, within Ireland, is only one of two clinics that are currently functioning. The primary remit of the service is to ensure that women who have sustained an anal sphincter injury following childbirth are recovering well and are not suffering from faecal incontinence. If they are, the clinic ensures timely referral to physiotherapy and surgical services, if warranted. In addition, we counsel antenatal patients, who have previously sustained such an injury, on future mode of delivery. Once a month the clinic is held in St Michael's Hospital, Dun Laoghaire along with Dr Gerry Agnew, Consultant Obstetrician and Gynaecologist, and Ms Ann Hanly, Consultant in Colorectal Surgery. This multidisciplinary clinic caters for the more complex, mixed pictures of incontinence and has taken a proportion of referrals away from the NMH clinic.

2020 was hugely impacted on all levels by the arrival of COVID-19. The Perineal Clinic, like all clinics, was affected by cancellations, conversion to telemedicine clinics and a gradual resumption of services, albeit on a smaller scale to ensure social distancing. However, we continued to see a core group of women throughout the course of the pandemic. These women were experiencing significant postpartum difficulties. By

September, the clinic was functioning as normal with slightly reduced numbers to comply with social distancing measures. As in previous years, our referrals are primarily for postpartum assessment of obstetric anal sphincter injury. We are the tertiary referral centre for such tears for many units throughout the country and almost half of our referrals are from other units.

We assess patients at 4 to 6 months postnatal and for that reason, the number of NMH patients that attend the clinic in a calendar year will not match the actual number of Obstetric Anal Sphincter Injuries (OASIS) that occur in NMH in that same year. In addition, a percentage of patients will not attend the Perineal Clinic for follow up. We are extremely keen to assess as many women as possible following OASIS but in particular, knowing how our own NMH patient cohort is faring is vital and is a direct reflection on the standard of care we are providing within the hospital. For that reason, a smooth referral pathway from the postnatal wards to the Postnatal (Poppy) clinic to the Perineal clinic is essential. The importance of attending for the visit is emphasised at all points but despite this, we have a stubbornly high DNA rate of 22%. The persistent DNA rate is disappointing but is mirrored in other clinics.

A total of 86 women were recorded as having sustained OASIS in the NMH in 2020 giving an

incidence of 1.7% of vaginal deliveries. Of the 86, an episiotomy had been performed in 41%, which is higher than the overall episiotomy rate of 31%. This suggests that episiotomy is over-represented within this population and may lend weight towards a school of thought that episiotomy is not protective for these tears and if anything may contribute to them. The majority of tears recorded were graded as 3a and 3b tears. Of note 21/86 (24%) were ungraded and this is unhelpful in terms of future management and prognosis. The grading of tears reflects the extent of damage to the sphincter. When this is not recorded, it may lead to underestimation of the difficulties the patient may experience. 62/86 (72%) were nulliparous, reinforcing all published data that shows first vaginal delivery holds the greatest risk. While such tears are not overly common, neither are they a rare event. We strongly advocate that the possibility of such tears should be explained to all women attending for antenatal care. Indeed, this is likely to become a legal imperative in the future and better that we include it in our routine information provision than it be thrust upon us unprepared.

27% of babies delivered in this group of women weighed greater than 4 kgs compared with the general hospital population of 18%. 39% were associated with instrumental delivery compared with 18% in the general hospital population. These figures confirm that the risk factors associated with anal sphincter tears are nulliparity, large birthweight and instrumental delivery. This combination should heighten our suspicion for the

a smooth referral pathway from the postnatal wards to the Postnatal (Poppy) clinic to the Perineal clinic is essential.

occurrence of such a tear and careful inspection of the perineum performed to outrule it.

The management of these tears and the documentation of the management of these tears are extremely important for doctors and midwives alike. Clear recording of the grade of tear and the performance of a rectal examination after delivery and after the repair are essential and standards of recording must be adhered to in the electronic chart, where proformas and diagrams are less available than previously.

Reassuringly the vast majority of patients attending the Perineal Clinic for assessment are asymptomatic or have mild symptoms of faecal incontinence. This is a yearly finding and it is evidence that the quality of repairs being undertaken is good. Those women who have significant symptoms are referred for physiotherapy or, in severe cases, for a colorectal review. The documented numbers referred to physiotherapy, in particular, belies the huge amount of work our Physiotherapy colleagues put into these patients in the months before they arrive to our clinic. The small numbers, who require further physiotherapy, after seeing us, is a testament to their hard work and that of the women themselves.

	2016	2017	2018	2019	2020
Appointments offered	433	440	391	375	310
Attendances	333	343	301	282	241
New referrals	236 (71%)	238 (69%)	213 (71%)	198 (70%)	175 (73%)
Follow-ups	97 (29%)	105 (31%)	88 (29%)	84 (30%)	66 (27%)
Did Not Attend	100 (23%)	97 (28%)	90 (23%)	93 (25%)	69 (22%)

NMH OASIS	
Total	86
3a	28 (33%)
3b	30 (35%)
3c	4 (5%)
4th	3 (3%)
Ungraded	21 (24%)
SVD	54 (63%)
Forceps	9 (10%)
Ventouse	11 (13%)
Forceps/Ventouse	12 (14%)
Nulliparous	62 (72%)
Episiotomy	35 (41%)
Birthweight > 4gs	23 (27%)

Placenta Accreta Spectrum

Placenta Accreta Spectrum (PAS) refers to a range of clinical conditions characterised by abnormal placental adherence to the uterine wall. The incidence of PAS has increased substantially from 0.8 per 1000 deliveries in the 1980s to 3 per 1000 deliveries in the past decade, largely attributed to a rising global caesarean section rate.² The condition is associated with significant maternal morbidity.

The PAS multidisciplinary team (MDT) service was established in The National Maternity Hospital in June 2017. This service provides care to patients of NMH and also accepts external referrals nationwide.

The MDT aims to allow for the optimisation of antenatal risk factors, the development of both elective and emergency delivery plans and the appropriate postnatal follow up.

On average 5 cases are discussed at each MDT (range 2-10). In 2020, 15 patients with PAS were delivered, this included 11 caesarean hysterectomies and 4 uterine conservation procedures. 40% (n=6) of these patients were external referrals. See table 1 below for details. The median gestation at delivery was 34+3 wks (range 29+6 wks – 37+1 wks). 33 % of cases required emergency delivery (n=5) with 2 of these cases requiring emergency delivery in peripheral hospitals. The average estimated blood loss (EBL) is 1987mls (range 660 – 5800mls). With elective delivery the average EBL is 1650mls (range 600 - 5800mls) compared to 2660mls (range 1200 - 5000mls) in the emergency setting. Eight patients (53%) did not require a blood transfusion.

All patients received social work, perinatal mental health, physiotherapy and lactation support as well as information about the Placenta Accreta Ireland Support Group.



On Saturday the 29th of February 2020, Placenta Accreta Ireland, in partnership with The National Maternity Hospital and The NMH Foundation, held its inaugural fundraising Ladies Springtime Lunch. The event sold out; 363 ladies and three men came to mark the occasion and support this very worthy cause. The funds raised are being used to support research and initiatives to further understand the causes and consequences of a pregnancy complicated by Placenta Accreta.

Placenta Accreta is a rare condition, which has increased substantially from the 1980s, from 0.8 per 1000 deliveries to 3 per 1000 deliveries in the past decade. There are reported mortality rates of up to 7%, with a hysterectomy (and therefore infertility) being a consequence in about 80% of cases.

"Placenta accreta spectrum" covers a range of clinical conditions where the placenta is embedded too deeply into the lining of the womb. It therefore does not separate from the womb when a baby is delivered.

There were 0-2 cases per year from 2000-2010. There have been 3-10 cases per year since 2010.

It is hoped that post-COVID, The Ladies Springtime Lunch will become an annual Springtime Lunch.

Table 1. Overview of PAS procedures

	Age	Parity	Place of Delivery	Elective/ Emergency	EGA	Procedure +/- IR	Anaes- thesia	EBL mls	Complications using Clavien-Dindo Classification (see appendix)	Postnatal LOS days
1.	34	5	Other maternity hospital	Elective	34+4	Caesarean hysterectomy	GA	1945	Cystotomy, indwelling catheter x 7 days	12
2.	33	1+1	NMH	Emergency	30+4	Caesarean Hysterectomy	GA	5000	0	5
3.	39	2+2	Other maternity hospital	Emergency	35+0	Caesarean hysterectomy	GA	1200	0	5
4.	41	3+3	Other maternity hospital	Elective	34+3	Caesarean Hysterectomy	GA	5800	II - Ileus ,	12
5.	30	2+1	Other maternity hospital	Elective	37+1	LSCS +BS	Spinal	660	0	5
6.	38	4	Other maternity hospital	Emergency	31+1	Caesarean Hysterectomy	Spinal	1200	II -Hypothermia	6
7.	38	3	Other maternity hospital	Elective	34+1	Caesarean hysterectomy	GA	800	0	7
8.	39	2+1	Other maternity hospital	Elective	34+6	Caesarean Hysterectomy	GA	700	III -Left ureteric transection	5
9.	42	16+3	NMH	Emergency	30+4	Caesarean Hysterectomy	GA	1400	III - right ureteric injury	17
10.	37	2	Other maternity hospital	Elective	35+4	Caesarean hysterectomy	GA	1000	0	7
11.	33	2	NMH	Elective	31+6	Caesarean Hysterectomy IR Aortic balloon	Spinal	1500	0	6
12.	36	1+1	Other maternity hospital	Emergency	29+6	Myometrial resection	GA	4500	I	5
13.	37	2+1	NMH	Elective	36	Myometrial resection	GA	1200	0	5
14.	43	3	Other maternity hospital	Elective	34+1	Caesarean hysterectomy	GA	1200	0	6
15.	36	2+1	NMH	Elective	34	Myometrial resection	GA	1700	0	5

Caesarean Scar Pregnancy

Caesarean scar pregnancy (CSP) is a common precursor to severe PAS and both conditions exist as part of a common disease spectrum. The true incidence of CSP is unknown with reported rates in literature varying from 1:800 to 1:2656. Although relatively uncommon its incidence is increasing in line with increasing caesarean section rates.

During 2020, 6 patients with CSP were discussed at the multi-disciplinary team meeting. Gestation at diagnosis ranged from 5+2 – 11+1 weeks gestation. 83% of patients were asymptomatic at diagnosis. (n=5) with only one case presenting with early pregnancy bleeding. The most common risk factor associated

with CSP was a history of 1 previous LSCS. 1 patient with a history of a previous CSP continued her pregnancy. PAS was diagnosed and she underwent elective caesarean

hysterectomy at 31+6 weeks gestation in a general hospital (patient 1 table 1 and 2).

5 patients underwent ERPC all performed under ultrasound (US) guidance. One patient developed

a post-operative scar haematoma and had a laparotomy and excision of scar 6 months later and an MRI performed 3 months after repair demonstrated an excellent anatomical result.

Table 2: Caesarean Scar Pregnancy Overview

	Age	Parity	RF	Gestation	Management	EBL ml	Outcome
1	33	2+1	1 x ERPC Previous CSP 1 x LSCS	6+1	Continued pregnancy PAS	1500	Caesarean hysterectomy @ 31+6 with IR support
2	36	1+0	1 x LSCS	11+1	ERPC US Guidance	2000	Scar haematoma post op MRI follow up Excision of scar niche via laparotomy
3	42	1+3	1 x LSCS 2 x ERPC IVF	7+3	ERPC US guidance	50	MRI 3/12 and GOPD
4	40	3+0	2 x LSCS	5+2	ERPC US guidance	100	MRI 3/12 GOPD
5	34	1+2	1 x LSCS 1 x ERPC	9+2	ERPC us guidance	100	MRI 3/12 Recurrent miscarriage clinic
6	37	1+0	1 x LSCS	7+3	ERPC – unsuccessful Methotextrate x 2 Serial bhcg	n/a	Follow up Letterkenny

Postnatal Poppy Clinic



Mairíad Kilbride and Simon O'Connor with their newborn baby Emma.

The Poppy Clinic commenced as a postnatal maternal morbidity clinic in March 2013. It is run by Dr Laoise O'Brien and Advanced Midwife Practitioner (AMP), Caroline Brophy. It was initially established to deal with minor postnatal complications e.g. wound infections. It then expanded to include mothers who have had complicated deliveries at 6 weeks postnatal e.g. Preterm birth, HELLP Syndrome, PET, Caesarean section under general anaesthesia, postpartum haemorrhages. Notes are reviewed and a provisional plan is made for a next delivery

All patients who have a third degree tear are seen at six weeks. This is to assess how these patients are and if there are any issues on history and examination then the routine referral to the Perineal Clinic is expedited.

Any patient who is readmitted in the postnatal period is also reviewed in the clinic. Many women seem to understand what is happening while an inpatient but naturally their baby is the main point of focus at this time. The Poppy Clinic allows women to discuss

events surrounding their delivery and this often allays fears about a subsequent pregnancy. Many women value this opportunity as questions often arise when patients go home.

Patients are referred from the wards in conjunction with the postnatal ward rounds which take place on the wards twice weekly. GPs and PHNs can also refer patients as well as Non-Consultant Hospital Doctors (NCHDs) when they encounter a wound infection on call.

Attendances at the clinic continue to rise annually with a decrease in the DNA rate this year to 15.8%. We now have a Registrar and an SHO at every clinic. Many of our patients are seen on more than one occasion and a few are seen 4-5 times in the postnatal period. 20 patients had a General Anaesthesia for revision of episiotomies/ removal of granulation tissue. The Postnatal Clinic and ward rounds are run with advice and guidance from Dr Susan Knowles (Consultant Microbiologist).

Clinic Activity

	Attended	Did Not Attend	DNA rate
2013	122	30	19.7%
2014	425	106	20.0%
2015	411	96	18.9%
2016	505	107	17.5%
2017	544	171	23.4%
2018	621	148	19.2%
2019	667	125	15.8%
2020*	720	89	11.6%

**includes 40 virtual attendances*

A separate Postnatal Debriefing Clinic run by Consultant Obstetrician, Dr Michael Robson and Labour and Birthing Unit Manager, Martina Cronin is provided for women who have had a traumatic delivery and offers a relaxed environment and generous time allocation to facilitate open discussion and debriefing.

Caroline Brophy became an Advanced Midwife Practitioner (AMP) in August 2020 and runs her own AMP clinic weekly as well as the Poppy Clinic above. This clinic facilitates registrar debriefing clinics so that NCHDs can see patients whom they cared for directly. Wounds are seen on the wards when readmitted and there is a service to see a perineum or caesarean section wound daily in the emergency room.

Preterm Birth Clinic



The Preterm Birth Team (PTB) is led by Consultant Obstetrician and Gynaecologist Dr Siobhan Corcoran, Specialist Midwife, Dr Larissa Luethé, Preterm Birth (PTB) Clinical Fellow, Dr Niamh Keating, PTB Research Fellow, Dr Anthony Rafferty, Consultant Obstetrician and Gynaecology Colleagues Dr Donal O'Brien, Prof Donal Brennan

Referral Criteria & Care Pathway

Women are referred for antenatal care to the PTB clinic if they have previously had a preterm birth (<34 weeks) or have risk factors for sPTB (spontaneous Preterm Birth) such as two or more LLETZ procedures or a Cone Biopsy. Frequent consultations every 2-3 weeks, a dedicated specialist midwife,

microbiological screening, cervical length surveillance and interventions such as vaginal progesterone and cervical cerclage where indicated are employed in this high risk group.

Women also attend PTB clinic for Pre-conceptual Counselling.

Outcomes

In 2020, 158 women that had their antenatal care at the Preterm Birth Clinic delivered a liveborn infant at The National Maternity Hospital. A further 5 women had a mid-trimester loss.

Publications are listed in the Appendices

Sometimes the smallest things take up the most room in our hearts.
Winnie The Pooh

Total	163
Livebirths >24+0 wks Gestational Age	158/163 (97%)
Midtrimester Losses 14 - 23+0 wks	5/163 (3%)
Gestational Age at Delivery of Livebirths - Range	28+1 - 42+1 wks
Nullip	47/163 (28.8%)
Multip	116/163 (71.1%)
CS rate	42/158 (26.5%)
Operative Vaginal Delivery	24/158 (15.1%)
Spontaneous Vaginal Delivery	91/158 (57.5%)
Livebirths Delivery <34 wks	12/158 (7.5%)
Livebirths Delivery 34+1- 36+6 wks	16/158 (10.1%)
Livebirths Delivery 37+0 - 42/40 wks	129/158 (81.6%)
McDonald/Shirodkar Cerclage	19
Mid trimester losses in this group	3/19 = 16%
Livebirths in this group	16/19 = 84%
Range of Gestational Age of Livebirths in this group	36+5 - 40+6 wks
Prepregnancy Laparoscopic Abdominal Cerclages Inserted	8
Arabin Pessary use	5
Gestational Age Range at delivery for those with Arabin Pessary	34+4 - 41+2 wks (2/5 had Prolonged Preterm Rupture of Membranes <34/40 wks)

Shoulder Dystocia

Shoulder dystocia is diagnosed at vaginal delivery when the anterior shoulder fails to deliver on the first attempt at routine axial traction.

	Nullips	Multips	2020	2019	2018	2017	2016	2015	2014
Number of cases	19	21	40	51	52	71	67	73	59
Incidence of shoulder dystocia	19/1415 1.3%	21/2632 0.8%	40/4047 1.0%	0.9%	0.7%	1.1%	1.1%	1.1%	0.9%
Spontaneous labour	11	14	25	31	25	47	43	40	37
Spontaneous vaginal delivery	4	15	19	21	19	25	27	32	24
Operative vaginal delivery	15	6	21	30	33	47	40	41	35
Birthweight >4000g	10	12	22	31	30	45	41	45	41

Procedures to assist delivery of shoulders

	Nullips	Multips	2020	2019	2018	2017	2016	2015	2014
None	0	0	0	0	0	0	0	0	0
McRoberts	1	9	10	5	1	11	8	10	5
All Fours	0	0	0	0	0	2	0	0	0
McRoberts and suprapubic pressure	7	7	14	21	29	27	33	39	33
McRoberts and suprapubic pressure and internal rotation	2	0	2	1	3	3	0	1	5
McRoberts and suprapubic pressure and delivery of posterior arm	2	1	3	17	6	13	17	12	10
McRoberts and suprapubic pressure and internal rotation and delivery of posterior arm	4	1	5	2	7	5	9	5	4
McRoberts and posterior arm	3	3	6	5	0	4	0	4	1
Internal Manoeuvre only	0	0	0	0	4	0	0	0	1
Mc Roberts & Internal rotation	0	0	0	0	2	0	0	1	-

Position of head at delivery

	Nullips	Multips	2020	2019	2018	2017	2016	2015	2014
ROT	7	13	20	30	30	29	29	37	29
LOT	11	7	18	19	22	38	38	35	28
Charts not available	1	1	2	2	0	5	0	1*	2

Maternal Complications

	Nullips	Multips	2020	2019	2018	2017	2016	2015	2014
Postpartum haemorrhage >500ml	6	2	8	17	10	18	14	12	10
Third or fourth degree tear	0	1	1	2	1	7	2	6	2

* includes episiotomy & sphincter damage

Termination of Pregnancy Service

The National Maternity Hospital is one of ten maternity units within the state providing a termination of pregnancy service. The hospital provides care under each of the four legal provisions for termination of pregnancy care: <12 weeks estimated gestational age, risk to life or health of mother, risk to life or health of mother in an emergency, and the presence of a condition likely to lead to the death of the fetus. Options for surgical and medical termination of pregnancy care is given to all women <12 weeks estimated gestational age and, gestation dependent, to those with maternal or fetal issues.

The majority of people attending for care are less than 12 week's gestation (71%), followed by fetal indication (22%), maternal (5%) and emergency (2%).

Over half (60%) underwent a surgical termination of pregnancy and the remainder (40%) were medical. For both, extensive multidisciplinary input is required to provide safe, respectful, compassionate care to the women and their families. Teams involved include Obstetrics, Maternal Fetal Medicine, Neonatology, Midwifery, Nursing, Anaesthesiology, Bereavement, Chaplaincy and Perinatal Mental Health (Psychology and Psychiatry).

Clinicians working in the hospital also lead on a project with the HSE to provide an information leaflet on 'Compassionate induction of labour' for those within the Fetal and Maternal groups as this was identified as a gap within the service. Clinical staff also actively participated in a research project with Trinity College Dublin, funded by the HSE, on women's experience within the termination of pregnancy service.

First Trimester Service

In 2020, most women had only one visit to clinic. Of these, four women chose to continue in their pregnancy following attendance in the clinic, often requiring many hours of discussion with clinic staff members. Two women were booked for termination of pregnancy but did not attend the hospital for the procedure. Women under the age of legal consent are also seen by the medical social work team and mandatory referrals have been made to Tusla. Some women have also required the input of the Sexual Assault Unit, the Gardai (if allegations of assault) or the Genito-urinary medicine teams (if positive for sexually transmitted infections).

First trimester termination of pregnancy are equally divided between medical and surgical termination of pregnancy based on woman's preference and medical need. For medical termination of pregnancy, women are admitted directly to a single room on the Gynaecology Ward. Over half will complete the termination of pregnancy within six hours and the remainder require an overnight stay to complete the process. For surgical termination of pregnancy, women are also admitted directly to a single room in the Gynaecology Ward. Most are discharged post procedure within six hours of admission.

Some patients attended for Anti-D following a medical termination of pregnancy in the community between seven and nine weeks, requiring midwifery, laboratory science and medical input.

There were further attendances following 'unsuccessful' community termination of pregnancy – that is, that they had a persistent positive pregnancy test after the community termination of pregnancy. Some of these women had a positive pregnancy test due to retained products of conception and required an evacuation of retained products of conception. A small minority had an ongoing pregnancy and attended for consideration of repeat termination of pregnancy (surgical).

Termination of Pregnancy for Maternal Medical Conditions

Some women underwent termination of pregnancy due to a maternal medical condition that met the criteria for the Act. Planning for termination of pregnancy due to maternal medical conditions involves the input of multiple specialities to provide safe and respectful care. We continue to be grateful to our General Medical and Speciality colleagues in St Vincent's University Hospital for their input into the care of this complex group.

Termination of Pregnancy for Fetal Abnormalities

2020 was the second year since the Health (Regulation of Termination of Pregnancy) Act 2018 was passed into law and permitted access to abortion in Ireland. There were 28 patients seen at the National Maternity Hospital who met the criteria for FFA/LLC under Section 11 of the Act and underwent termination of pregnancy. The majority (25) of these cases were looked after at the NMH and the remaining 3 returned to their referring hospital for delivery.

Fetal Medicine Unit



The National Maternity Hospital provides a comprehensive early pregnancy assessment, ultrasound and fetal medicine service to over 8,000 women booked with the hospital. In addition the hospital is a busy tertiary referral unit accepting referrals from health professionals from all over the country. 2019 saw a further increase in the number of high risk patients referred to our unit. Every maternity hospital in the country referred patients. The following services are provided: early pregnancy assessment, first trimester screening, detailed anomaly screening, monitoring of multiple pregnancy, assessment of fetal wellbeing, amniocentesis, chorionic villus sampling, management of rhesus disease, fetal therapy (including IUT, shunt placement and laser photocoagulation for twin to twin transfusion syndrome), antenatal care for high risk pregnancies. There are 9 dedicated Fetal Medicine sessions weekly.

The Fetal Medicine Unit workload remained extremely busy with a total of 33,420 (35,745 in 2019) official pregnancy ultrasound scans performed and recorded on the Viewpoint System in 2020 representing a 6% decrease (figure 1) compared with the 7.7% decrease in the number of births. 24,332 ultrasounds were performed in the Fetal Medicine Unit and 7,773 in Merrion Fetal Health (MFH). This unit provides similar ultrasound services to fee paying patients and as such works with the exact same clinical guidelines and governance. MFH performed 23% of the total scans. The figures presented in this report are a combination of both units. In addition to the above, there were 1,271 gynaecology scans performed in the Fetal Medicine Unit which do not include gynaecology scans performed by Consultant Radiologists which are recorded on the Radiology system. In addition to performing scans, other duties

*Dr Siobhan Corcoran,
Consultant Obstetrician and
Fetal Medicine subspecialist
donning Personal Protective
Equipment during the
COVID-19 pandemic.*



*Prof Peter McParland,
Consultant Obstetrician and
Gynaecologist, Director of
the Fetal Medicine Unit.*

of our ultrasonographers include performance of CTGs, phlebotomy, preparation, attendance and assistance at invasive procedures, gynaecology scans, counselling, department audits, clinical guidelines, bereavement counselling and liaising with social work, GPs and other disciplines in addition to providing general antenatal care. All patients are offered an anatomy scan and 20-21 wks. A detailed information leaflet is given to patients outlining the limitations of ultrasound. There is a daily early pregnancy assessment service.

Prenatal Screening/Diagnosis

The demand for prenatal diagnosis and screening continues with a further 17% increase in non-invasive prenatal screening (NIPT/Harmony) in 2020. Table 1 and figure 1 outline the trend over the last ten years.

It is interesting to note that almost 49% (figure 2) of the hospital population were 35 years of age or more (compared with nearly 31% 10 years ago) and 10.7% of those were aged 40 or more. 35% of

all nulliparous deliveries were aged 35 or older. The figure of 49% over 35 years of age contrasts with our two sister hospitals where the rate is 38%. There continues to be no formal local or national policy on which patients should be offered these tests. The adoption and implementation of a nationally agreed equitable prenatal screening/diagnosis programme is needed urgently. The responsibility for funding and implementation for this lies with the HSE/NWHIP.

Non-Invasive Prenatal Testing (NIPT)

NIPT (Harmony) was introduced in June 2013 and the numbers of patients availing of this test has rapidly increased with this trend highly likely to continue as the test becomes more affordable (figure 3). Currently this test is not state or hospital funded and is unlikely to be in the near future. There was a falloff in first trimester screening numbers reflecting the superiority of NIPT as a screening test. A total of 2,127 NIPTs were performed with 47 screen positive results (T21, 27; T18, 6; T13, 7; gender, 7). Figure 3 outlines the trends of numbers attending for NIPT.

The number of prenatal diagnostic procedures showed a slight decrease in 2020 with 49 CVSs and 118 amniocentesis (total=167) carried out (Table 2).

The majority of prenatal diagnostic testing was carried out when there was an ultrasound suspicion of an abnormality. Table 2 outlines the indications for amniocentesis/CVS over the past ten years and table 3 outlines the various abnormalities detected by these procedures. There was a high incidence of abnormal results with 83 out of 167 (50%) yielding abnormal karyotypes in those undergoing diagnostic testing which is a very similar yield to previous years (Table 3).

In addition to the above prenatal diagnostic procedures, there were a total of 44 other invasive procedures: 7 intrauterine transfusions, 4 shunt drainage procedures, 6 amniocentesis and 21 photocoagulation laser procedures (jointly with the Rotunda) for twin to twin transfusion syndrome (TTTS), 1 vesicocentesis, and 5 fetal blood samples.

The demand for prenatal diagnosis and screening continues with a further 17% increase in non-invasive prenatal screening

...almost 49% of the hospital population were 35 years of age or more (compared with nearly 31% 10 years ago) and 10.7% of those were aged 40 or more.

Table 4 outlines the ultrasound anomalies diagnosed using the RCOG/RCR classification for the last 10 years. There were a total of 354 abnormalities detected by ultrasound. In addition there were 83 chromosomal anomalies diagnosed giving a total of 437 congenital abnormalities for the year. The majority of diagnoses within the hospital population are made by midwife sonographers/radiographers and are usually seen within 24 hrs by a fetal medicine consultant where appropriate. We continue to see an increase in the number of external referrals and if these are deemed urgent they can usually be seen within 24 – 48 hours. There is a daily high risk clinic which is staffed by a consultant in which these patients can be seen. Where appropriate genetic testing, surgical, neonatal and genetic counselling is arranged pre-delivery and the patient usually attends the fetal medicine unit for the remainder of the pregnancy.

The weekly perinatal meeting continues to be an excellent forum for multi-disciplinary discussion of these complex cases. These meetings are attended by obstetricians, maternal fetal medicine specialists, neonatologists, a geneticist, paediatric radiologists, pathologists and microbiologist, midwifery and nursing staff, laboratory staff, social workers and medical students. We also provide a fetal cardiology clinic in conjunction with a paediatric cardiologist. In addition to these specialist clinics there is a twice weekly neonatal consultant-led clinic where couples with complex cases meet with the neonatologist and discuss the ongoing management and anticipated care following birth.

Termination of Pregnancy from Fatal Fetal Abnormalities/Life Limiting Conditions (FFA/LLC)

2020 was the second year since the Health (Regulation of Termination of Pregnancy) Act 2018 was passed into law and permitted access to abortion in Ireland. There were 28 patients seen at the National Maternity Hospital who met the criteria for FFA/LLC under Section 11 of the Act and

underwent termination of pregnancy. The majority (25) of these cases were looked after at the NMH and the remaining 3 returned to their referring hospital for delivery. The NMH terminations take place in a private room in the

middle of a busy ward which is suboptimal and does not give appropriate privacy.

Many units, including our own, have conscientious objectors who need to be respected. There are issues nationally and locally including; interpretation of some aspects of the Health Act, lack of perinatal/neonatal palliative care, lack of universal ultrasound/prenatal screening/lack of an appropriate genomics service, which require urgent attention by the HSE/NWHIP.

Whilst the absolute numbers are not large, the time and workload that each of these cases entails is considerable. There are often multiple visits involving screening, ultrasound diagnosis, discussion of diagnostic procedures, interpreting results, informing patient of results, neonatal input and consideration of options before further visits and their admission. Information is given in a clear balanced manner about their options and that they will be fully supported in whatever path they choose. Not all couples with FFA/LLC choose termination of pregnancy and these couples are followed up in the Fetal Medicine Unit with a care pathway outlined for the remainder of the pregnancy and delivery with appropriate psychological, bereavement and chaplaincy support. At all times we endeavour to keep general practitioners and referring clinicians informed. We are indebted to Barbara Cathcart and Heather Hughes, who largely coordinate all of the above in a very calm, sensitive and efficient manner. There is however, an urgent need for appropriate administrative support. Dr Claire Flahavan, Perinatal Therapist, continues to offer a much needed and valuable support service for couples who find themselves in these very distressing situations with excellent patient feedback.

Fetal Cardiology Programme (Dr Siobhan Corcoran)

The Fetal Cardiology service at The National Maternity Hospital is a busy tertiary referral service

which has seen year on year increases in the number of cases seen. This is in no small part owing to the exceptional and increasing skill of Obstetricians, Sonographers and Midwife Sonographers both at the NMH and around the country in picking up cardiac anomalies at routine anomaly scanning. The service is staffed by Professor Colin McMahon (Consultant Paediatric Cardiologist), Dr Siobhan Corcoran (Consultant Obstetrician and Fetal Medicine Subspecialist) and Ms Cecelia Mulcahy (Midwife Sonographer). We receive dedicated and continuous support from our Fetal Medicine CMS Heather Hughes and Barbara Cathcart. We are also very grateful for the support and expertise of our colleagues from Neonatology in offering optimal care for these complex cases.

Table 6 gives a description of the cardiac anomalies that were antenatally diagnosed and managed by the service in 2020. This is reported in a "one patient, one diagnosis" fashion. The most relevant cardiac lesion is included. In total, 89 structural cardiac anomalies/dysrhythmias were managed in 2020 (Table 4 which demonstrates 81 cardiac abnormalities

does not include Premature Atrial Contractions (4) any untreated arrhythmias (3)). 47 (53%) of the cases were internal referrals from The National Maternity Hospital and 42 (47%) were from referred from peripheral units. Apart from the anomalies, the Fetal Medicine Department also performed 224 targeted fetal echocardiograms where the result was normal. The indications for these echocardiograms are outlined in Table 2. 149 (66.5%) of these referrals came from with The National Maternity Hospital and (33.5%) were from peripheral units.

As the availability and quality of routine anatomy scanning and aneuploidy screening increases across the country, it is likely that this service will continue to expand in the coming years.

Dublin Fetal Surgery Group (*Prof Fionnuala McAuliffe and Dr Stephen Carroll*)

Since 2010, the fetal surgical teams at The National Maternity Hospital, Dublin, and the Rotunda Hospital Dublin have collaborated jointly for the management of all cases of twin-to-twin transfusion syndrome

Alison Hickey, Midwife.



referred to either centre. This has resulted in a single team approach to all such cases, regardless of which of the two hospital locations at which such patients are seen. During 2020, a total of 21 cases of severe twin-to-twin transfusion syndrome were managed by the Dublin Fetal Surgery Group by means of fetoscopic laser ablation of placental vessels. Amongst these 21 pregnancies, 11 resulted in survival of both fetuses, and 7 resulted in survival of one fetus, overall 29/42 babies (69%) survived. By the end of 2020, the group had treated 228 fetuses with laser surgery for severe TTTS, with at least one survivor occurring in 81% of cases (186/228). These results are consistent with the results at the major international centres providing this advanced fetal therapy. This approach to a complex but relatively rare, fetal problem is an excellent example of a joint collaborative management strategy that successfully optimises care for these patients.

National Fetal Neurosurgery Programme. (Prof Fionnuala McAuliffe and Prof Peter McParland)

There are fortnightly fetal neurosurgical clinics with Mr Darach Crimmins, Mr John Caird and the Neurosurgery specialist nurses from Children's University Hospital, Temple St. Cases are presented to a multidisciplinary team with ultrasound and fetal MRI images discussed. Following this the patients are seen and jointly counselled by the neurosurgery and fetal medicine teams. Women with pregnancies with fetal spina bifida are offered referral to Leuven Belgium to explore the option of fetal NTD repair. Dr Gabrielle Colleran and Dr Ian Robinson jointly review the fetal MRI images and provide an excellent service. In 2020 35 cases were seen and assessed at the clinic, though a number of other cases were discussed at the fetal neurosurgery multidisciplinary rounds, without the patient being seen in clinic. Details of cases seen in the joint clinic with one diagnosis per patient are: twelve fetal spina bifida, two occipital encephalocele, sixteen ventriculomegaly (11 severe, 3 moderate and 3 mild), three absence of corpus callosum with moderate ventriculomegaly, one intracranial tumour and one partial vermian agenesis. This service is coordinated by Heather Hughes and Barbra Cathcart. The programme receives referrals from all over Ireland and is the only clinic of its kind in Ireland.

Haemolytic Disease of the Newborn

Routine antenatal prophylaxis with Anti-D at 28 weeks was introduced in May 2015 and should

The Fetal Medicine Unit continues to play an active role in teaching with both UCD and RSCI undergraduates. NCHDs are encouraged to attend for basic training by observing initially, followed by hands on experience.

further reduce the number of cases seen (see Pathology & Laboratory Medicine Chapter). There were 6 pregnancies that required 7 transfusions and all had good outcomes. Table 5 outlines the numbers attending for IUT over the past ten years. This hospital has been generally recognised as the national referral centre for this disease for many years.

Education/Appointments

The Fetal Medicine Unit continues to play an active role in teaching with both UCD and RSCI undergraduates in attendance. NCHDs are encouraged to attend for basic training by observing initially, followed by hands on experience. The midwifery staff continue to play a major role in both the theoretical and hands on components of the MSc in Diagnostic Imaging (UCD). Sue O'Callaghan completed a Masters in Ultrasound at UCD. The Midwifery staff presented papers at the annual British Medical Ultrasound Society (BMUS) study day. The unit hosted the first International Society of Ultrasound & Gynaecology (ISUOG) approved course in Ireland entitled "Dublin First Trimester Symposium"; there were delegates and overseas speakers from 12 different countries.

We continue to be recognised for full sub-specialty training in Maternal Fetal Medicine by the RCOG making this the only centre in Ireland for full training. Dr Clare O'Connor completed her training and we welcomed Dr Gillian Ryan who commenced her training. Both contributed significantly to both the clinical and research output of the unit.

The workload of the unit remains busy in both volume and complexity. I would like to acknowledge the stewardship and contribution to ongoing development by Valerie Spillane (CMM3) and to all the team who every day go above and beyond to provide a safe, high quality and compassionate service to women and families.

Table 1: Prenatal Screening (excluding triple tests) and invasive diagnostic procedures

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
First trimester screening	664	756	805	824	979	822	478	380	340	275	199
NIPT (Harmony)	-	-	-	74	268	526	783	1183	1519	1818	2127
Amniocentesis	150	145	128	121	105	101	91	90	105	126	118
Chorionic Villus Sampling	52	55	72	89	57	44	56	58	64	49	49
Total	866	956	1005	1108	1409	1493	1408	1711	2028	2268	2493

Figure 1: Prenatal Screening (excluding triple tests) and invasive diagnostic procedures

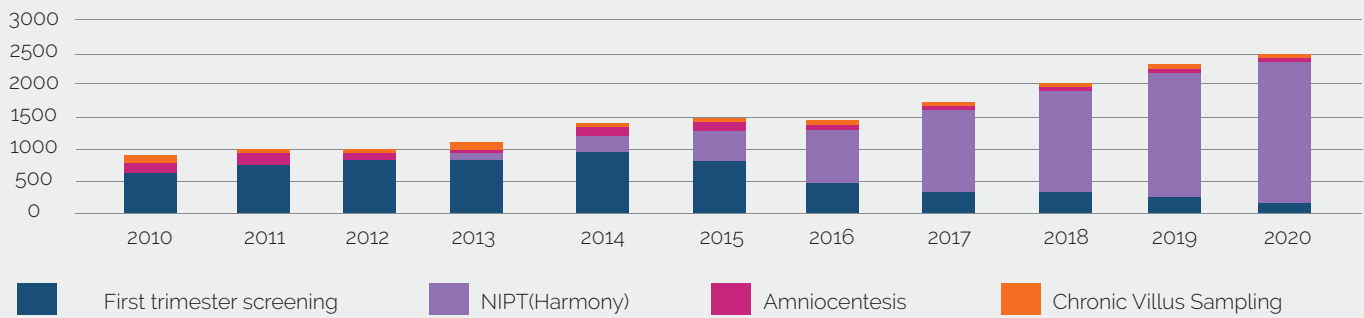


Figure 2: Age Range of Mothers Delivered (*Aged >= 35 years includes those aged 40+)

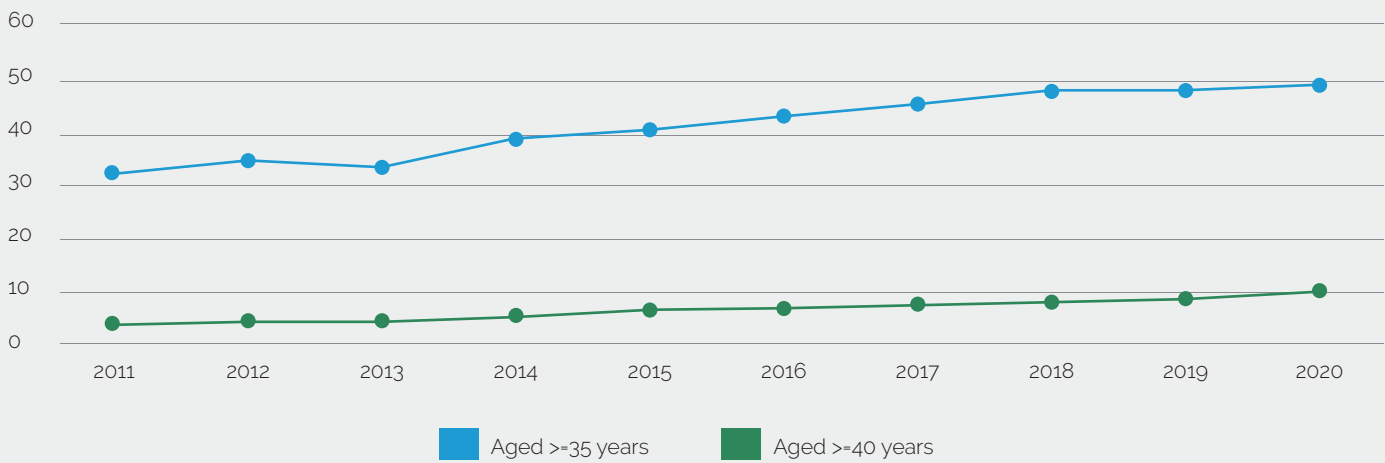
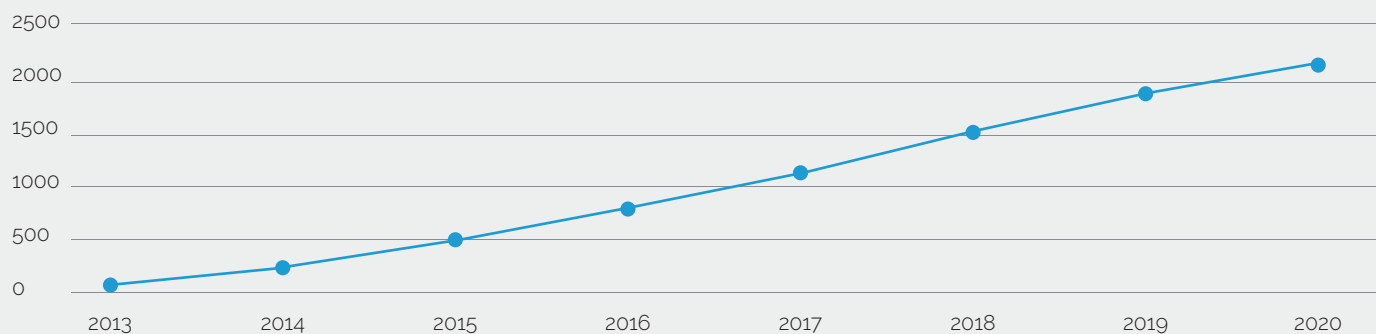


Figure 3: Non-Invasive Prenatal Testing increasing since its introduction in 2013**Table 2:** Indication for Prenatal Diagnosis (Amniocentesis and CVS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Maternal age	10	14	10	2	3	3	0	1	2	0
Abnormal fetal ultrasound	86	97	82	87	83	74	79	103	113	106
Positive screening test	47	41	59	40	31	37	45	37	36	44
Previous chromosomal abnormality/carrier of translocation	18	20	22	10	11	16	10	6	9	3
Previous non-chromosomal genetic syndrome	23	19	23	18	12	13	12	9	8	8
Miscellaneous	16	9	14	5	5	4	2	13	7	6
Total	200	200	210	162	145	147	148	169	175	167

Table 3: Abnormalities Detected by Prenatal Testing

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Trisomy 21	27	22	26	31	23	28	33	28	39	39
Trisomy 18	20	15	13	13	18	17	18	15	23	22
Trisomy 13	7	9	8	9	4	5	1	8	8	9
Other aneuploidies	14	16	9	11	16	6	10	17	19	9
Non chromosomal genetic abnormality	5	6	8	5	3	8	3	2	0	4
Total	73	68	61	69	64	64	65	70	89	83

Table 4: Abnormalities Detected based on RCOG/RCR classification

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
CNS (excluding choroids plexus cyst)	47	44	75	53	66	52	47	89	87	77
Head and Neck (including hygromata)	17	22	14	25	36	58	42	51	48	58
Cardiovascular system (excluding echogenic foci and untreated arrhythmias)	68	82	75	65	94	78	73	50	62	82
Renal (excluding pelvic dilatation of <10mms)	34	23	60	47	45	36	46	34	45	35
Abdominal contents (including anterior abdominal wall defects and excluding echogenic bowel)	22	23	34	32	33	41	37	24	25	24
Skeletal	23	15	18	22	26	24	23	26	23	25
Thoracic (excluding cardiac abnormalities)	11	11	12	24	7	14	15	16	5	1
Others	34	40	37	24	27	40	42	49	40	42
Total	256	260	325	327	334	343	325	339	335	354

Table 5: Intrauterine Transfusions (IUT)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
No. of patients requiring IUTs	6	5	7	8	4	7	8	4	5	6
No. of IUTs	11	7	17	16	8	14	13	5	6	7

Table 6: Congenital Heart Disease and Fetal Arrhythmias diagnosed in 2020

Lesion	Number of cases	Referral from NMH	Referral from Peripheral Units	Antenatal diagnosis of genetic abnormality
Atrial Septal Defect	1	1	0	1
Atrial Ventricular Septal Defect	8	3	5	6
Cardiac Axis deviation	3	2	1	0
Cardiac Rhabdomyoma	1	1	0	0
Coarctation of the Aorta	1	1	0	0
Complex Heart Defect	3	1	2	2
Congenital Heart Block	4	3	1	0
Right atrial & IVC dilation	1	0	1	0
Double Outlet Right Ventricle	8	0	8	1
Heterotaxy	2	0	2	0
Hypoplastic Left Heart Syndrome	3	3	0	0
Hypoplastic Right Heart Syndrome	1	1	0	0
Hypertrophic Cardiomyopathy	1	0	1	0
Left SVC to Coronary Sinus connection	1	0	1	0
Left Ventricular Hypertrophy	1	0	1	0
Right ventricular Hypertrophy	2	2	0	1
Non-Offsetting of the AV Valves	5	1	4	1
Premature Atrial Contractions	4	1	3	0
Right Aortic arch	3	3	0	0
RV/LV disproportion	2	2	0	0
Situs Inversus Totalis	1	1	0	0
Supraventricular Tachycardia	1	1	0	0
Taussig Bing Anomaly	1	1	0	0
Tetralogy of Fallot	6	4	2	2
Transposition of the Great Arteries	3	3	0	0
Tricuspid atresia/dysplasia/regurgitation or stenosis	4	3	1	1
Truncus Arteriosus	1	0	1	0
Ventricular Septal Defect	17	9	8	7
Total	89	47	42	22

Colposcopy and Gynaecology Outpatient Clinics

A wide range of services are offered at the Gynaecology Outpatient Department which include specialist services in Colposcopy, Oncology, Urogynaecology, Rapid Access Menorrhagia, DES, Reproductive Medicine, Menopause, Endometriosis, Trophoblast, Perineal, Endocrine, Adolescent Services, Ambulatory Gynaecology, Recurrent Miscarriage and Stillbirth Counselling services as well as general gynaecology care. We also work with the Transgender services at Loughlinstown hospital and accept referrals for surgery.

In 2020 we also developed an additional clinic for Premature Ovarian Insufficiency (POI). This clinic was established by Dr Cathy Allen and is also attended by Dr Deirdre Lundy, GP Specialist in Women's Health. It focuses on women with POI as well as those women with medical disorders requiring special consideration for menopause management.

A nurse-led pessary clinic has also been established to help reduce the waiting times for the Urogynaecology clinic.

COVID-19 had a significant impact on the gynaecology outpatient services. In the second quarter of the year routine services were suspended for three months however, we continued to see urgent appointments and we introduced phone appointments for patients that we could not see in person.

With all the changes enforced on the clinic's services due to COVID-19 restrictions, we reviewed our appointments process to see how we can make the clinics more efficient by reducing the amount of patients who do not attend for their appointment. Patients are now only informed of their appointment

date six weeks prior to their appointment and asked to confirm that they will attend. A text message reminder is then sent seven and five days before the appointment. Clinics are also reviewed in advance to ensure they are running at maximum capacity.

In June, normal services resumed. We continued with telephone appointments where possible and reduced the clinic sessions from two to three to accommodate social distancing in our small waiting area. The clinic now runs from 0800 – 1830hrs incorporating three consultant clinics per day. It has been a very busy and challenging year, but despite this, we managed to complete the upgrade refurbishment works to the clinic and continued to deliver a high standard of patient centred care. Even with all the disruptions to the clinic, patient feedback has been positive as evidenced by two patient satisfaction surveys carried out within the clinic.

With a view to rebuilding the Gynaecological services after such major disruption, The Gynae Services Group was formed. From July, meetings have been held every 3-4 weeks. The Gynaecology Clinic team are delighted to be part of this group.

The team also presented our audit of the fertility services during 2019 at the NMH Innovation Awards. Our presentation demonstrated the improved waiting times and increased efficiency in the fertility service provided at the National Maternity Hospital. I'm delighted to say we won the innovation third prize oral presentation at the inaugural research and innovation symposium. The audit showed a reduced DNA (Did Not Attend) rate by 30%, and patients only waited less than 2 months for a fertility appointment which is a reduction from 6 months previously.

Colposcopy and Gynaecology Clinic Activity

	New Attended	Follow Up Attended	Did Not Attend	New Telemed/ Telephone Attended	New Telemed/ Telephone DNA	DNA Rate
Gynaecology	4122	3885	1543	775	20	15.1%
Colposcopy	1383	4257	569	0	0	9.2%

Colposcopy



The Global COVID-19 pandemic ensured that 2020 was an exceptional year for the colposcopy service at the NMH. The need to re-purpose available space to divide the hospital into COVID-19 and non-COVID-19 areas resulted in the cancellation of many gynaecological services including colposcopy. In addition, the CervicalCheck programme moved from a cytology based programme to the more sensitive Human Papilloma Virus (HPV) based programme in March 2020 before pausing screening between the end of March and July. The reduction in screening activity resulted in a marked reduction in referrals based on an abnormal screening result.

Colposcopy service staff were redeployed to support the hospital's occupational health and contact tracing teams for four months with the result that capacity for colposcopy was reduced to a minimum during that time. Unprecedented levels of cancellations were followed by a backlog of 4000 appointments which needed to be dealt with when restrictions eased. This primarily affected women with follow up appointments as well as some new referrals with suspected low grade disease. Because of these

pressures, delays in processing test results led to delays in communicating the results to women.

Considerable credit is again due to the team for the dedicated response to these events. When the service was working normally women were seen from 8am to 7pm with clinics running five days per week using a combination of nurse and consultant led clinics. Follow up appointments fell again this year as HPV testing in colposcopy continued to facilitate earlier discharge for surveillance to the community.

The mean age of the women attending the service was 36 years with a range between 19 and 84 years. Of the 1,164 new referrals, 938 women were referred because of an abnormal screening test which included a combination of abnormal cytology in the presence of an infection with high risk HPV. This represented a significant reduction compared with the 1,662 referred in 2019. The numbers of women referred to colposcopy for clinical reasons continued to surge but more efficient triage enabling the use of available local gynaecological services resulted in only 465 being given appointments to be seen at colposcopy. This redistribution of clinical

cases to gynaecology services will continue to ensure adequate capacity for the anticipated greater numbers of referrals in the future due to the use of the more sensitive primary screening test (HPV).

Of the abnormal screening test referrals, 136 (13%) of those seen were referred with high grade cytological abnormalities (high-grade squamous intraepithelial lesions (HSIL)) or worse. Of the low grade results, the referral smear was low grade squamous intraepithelial lesions (LSIL) in 386 women (32%) and atypical squamous cells of undetermined significance (ASCUS) in 429 women (31%).

Appointments were allocated according to the grade of cytological abnormality aiming to work within the timeframes suggested by the CervicalCheck quality standards. Despite the reduced capacity, the service tried to meet the targets for the waiting times for new referrals. During the year, 114 out of the 136 (84%) of women with suspected high grade disease were offered appointments within the recommended four weeks after the receipt of the referral letter. For the 1,161 women with suspected low grade disease, 84% (973 out of 1,161) were offered appointments within the recommended eight weeks.

An ongoing challenge is the number of appointments that were unattended without prior notice (defaulted). This year the improved rate of 74% for the service is within the recommended standard of <10%. The figure for new appointments was 7% compared to 9.9% for follow-up appointments, reflecting the long interval between follow-up appointments – twelve months. The sustained use of a text message reminder system has helped to minimize underutilized appointment slots.

A diagnostic punch biopsy was performed in 1,599 cases and 453 excisional procedures were performed. Excisional treatments included 443 Large Loop Excision of the Transformation Zone (LLETZ) procedures (all but three performed as an outpatient) and 10 knife cone biopsies. In addition, 142 ablative procedures were performed in selected women using cold coagulation. The histology results are recorded in the table below; 642 biopsies recorded a diagnosis of high grade abnormalities including 10 cancers and 12 cases of adenocarcinoma in situ.

In 57 women, the LLETZ was performed at the first visit (select and treat) of which, no Cervical Intra-epithelial Neoplasia (CIN) was detected in 11 cases (19%); four

of these women were referred for clinical reasons with normal smears. Three women were referred with ASCUS, two with ASC-H (ASCUS-suspected high grade), one with borderline glandular abnormalities and one with HSIL. It is significant to note that these women tended to be older with an average age of 54 years and a range of between 46 and 71 years. In older women, the presence of a type 3 Transformation Zone (TZ) limits the value of the colposcopic assessment and balancing the risk of overtreatment with the risk of missing occult high grade CIN or cancer in this group of women remains an ongoing challenge. By comparison of the 765 women referred based on an abnormal screening test and low grade cytology, only ten underwent an excision at the first visit (1.3%) which was well within the target of <10%. Clinical pathological CPC review meetings continued monthly with review of the cytology, colposcopy and histology findings and these continue as a valuable addition to our service.

The reduced staffing levels during the year impacted on the waiting times for results of tests performed at colposcopy. For histology, the median time for generation of a letter with the results was 3.5 weeks with compliance of the standard of within four weeks for 35% of women with a diagnostic punch biopsy and 37% of women with a LLETZ. For women who underwent follow up smear and HPV tests at colposcopy the median time to generate the results letter was 5.3 weeks with a range of up to 22 weeks with compliance of the standard for generation of the results of the cytology and HPV results in four weeks in only 32% of cases.

The multidisciplinary colposcopy clinical governance committee met regularly and reviewed the quality of our service. The colposcopy information management system again provided most of the figures for this year's report and continues to be important in delivering improved communication of results and treatment plans. Structured training continued to be provided for trainees under the auspices of the British Society for Colposcopy and Cervical Pathology (BSCCP) which included web-based tutorials were held in preparation for the BSCCP Objective Structured Clinical Examination (OSCE) examination.

Number of biopsies performed and number of biopsies analyzed by pathology are not the same in any given time. As in previous years, the most severe abnormality is used for coding - a minority of cases have both squamous and glandular lesions present.

Outpatient Attendances

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
New attendances	2771	2175	2443	2147	2154	2304	2317	2307	2294	1384
Total attendances	10326	10229	9867	8189	8938	8710	7994	7959	7467	5558

Treatments

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
LLETZ	1117	1059	849	875	858	921	795	709	691	443
Knife Cone	35	44	35	36	33	49	41	24	29	10
Ablation	15	5	5	5	28	232	253	271	294	142
Total	1167	1108	889	916	919	1202	1089	1081	1014	595

Administrative Standards CervicalCheck

	NMH	Target
Proportion of women referred with high grade smear seen within four weeks	84%*	>90%
Proportion of women referred with a low-grade smear seen within eight weeks	84%*	>90%
Proportion of appointments which were unattended without notice	7.4%	<10%

Clinical Standards CervicalCheck

	NMH	Target
Proportion of LLETZ as outpatients	97%	>80%
Proportion of women with CIN on histology of excisional specimens	82%*	>85%
Percentage of women referred with low grade abnormality treated at the first visit	1.3%	<10%
Proportion of women treated at the first visit with CIN on histology	82%*	>90%
Proportion of women admitted as inpatient following treatment	1%	<2%
Proportion of results letters sent within 4 weeks of the clinic visit	37%*	>90%

Pathology Diagnoses*

Histology	Diagnostic biopsy	LLETZ
Adenocarcinoma in-situ	6	6
Cervicitis	5	0
CIN uncertain grade	24	0
CIN1	633	125
CIN2	259	83
CIN3	134	125
Inadequate	82	3
Invasive cancer	7	3
Normal	328	75
Other	17	0
Polyp	21	0
Vaginal Intraepithelial Neoplasia (VAIN1)	15	0
VAIN2	14	0
VAIN3	4	1
VIN1	8	0
VIN2	8	0
VIN3	3	0
Viral changes only	24	2
Total	1592	423

Gynaecology Oncology

The gynaecological oncology service continued to develop during another busy year. The service is based between St Vincent's University Hospital (SVUH) and The National Maternity Hospital (NMH) but this year saw a development in our governance structure with the formation of The UCD Gynaecological Oncology Group (UCD-GOG). This group, incorporating UCD, the Mater Misericordiae University Hospital (MMUH) and St Vincent's University Hospital (SVUH), is the largest Gynaecological Oncology Group in the country serving over two million people. This is a very positive development and builds upon long standing clinical and research relationships. A new website was developed that is a valuable resource to patients. <https://www.ucd.ie/medicine/studywithus/specialityunits/ucdgynaecologicaloncologygroup/>

Our 'New' Cancer numbers increased from 135 in 2019 to 167 this year. This is a 23% increase despite COVID-19 having a profound effect on elective work. Thankfully, the cancer services from NMH and SVUH were transferred to St Vincent's Private Hospital (SVPH) during the pandemic. This was essential and without access to the private hospital we would not have been able to look after this increased work load. It is a model of care that serves the campus and the units very well.

This group, incorporating UCD, The Mater and St Vincents University Hospital, is the largest Gynaecological Oncology Group in the country serving over two million people. This is a very positive development and builds upon long standing clinical and research relationships.

There are now two specialist nurses in the service: Sarah Belton and Louise Comerford. They are an invaluable resource to our patients and together with colleagues in the MMUH, are involved in setting up our survivorship programme.

Treatment Services

Almost all major surgery is now carried out at SVUH with less invasive surgeries carried out at NMH. During the year a lot of our surgical services were

transferred to SVPH. Radiotherapy is provided mainly at St Luke's Hospital as well as SVUH. Medical oncology services are provided at SVUH. A limited number of patients who are suitable for peritonectomy and HIPEC (heated intraperitoneal chemotherapy) are treated in MMUH.

Multidisciplinary Structure

Every woman with a new diagnosis of gynaecological cancer is discussed at a multidisciplinary team (MDT) meeting. The MDT meeting room at SVUH is equipped with video conferencing and data sharing equipment and remote participation is the norm. There were 25 MDT meetings in 2020 at which 517 women were discussed. This is a substantial increase from 350 patients in 2019 and 254 in 2018.

Results

2020 was a busy year for the service with 167 new cases of gynaecological cancer diagnosed. The anatomical site of the cancer is below:

Cancer Diagnosis Type

Type	Total
Cervix	25
Endometrium	57
Ovary	55
Vulva	7
Combined	2
Borderline	21
Total	167
Not yet confirmed	14
Benign	21
Recurrences	28
Non Gynae	11

- Cervical cancer was diagnosed in 25 women. This is a slight increase from last year.
- Ovarian cancer continues to be the biggest challenge for the unit unfortunately. 55 people were diagnosed with ovarian cancer this year. These patients need a multi-disciplinary approach and often have a prolonged hospital stay and extensive surgery.
- 21 borderline tumours were treated during the year; this is a big increase from 2019. All were treated with surgery and thankfully have an excellent prognosis.
- 7 cases of new primary malignant vulval cancer were diagnosed in 2019; this number is very stable over the last few years.

Outpatient Hysteroscopy

The Ambulatory Gynaecology service at The National Maternity Hospital provides an important diagnostic and treatment facility for women with a wide range of gynaecological presentations. COVID-19 has had a significant impact on gynaecology outpatient and theatre waiting lists. In response to this increased demand, Outpatient Hysteroscopy clinics increased from three to four sessions per week in 2020. The service continued without interruption throughout 2020. The service is led by a lead clinician and provided by four Consultant Gynaecologists. The service is supported by nursing staff and health care assistants from the Gynaecology Outpatient Department. Pelvic ultrasounds are performed by ultra-sonographers in the Fetal Medicine Unit.

Most referrals come directly from general practice. Referrals also come from our affiliated hospitals. In 2020, we introduced a dedicated referral form which is available on the hospital website as well as a dedicated e-mail address in order to facilitate improved triage of referrals.

Many women are seen and treated in one visit. We are performing more operative cases under local anaesthetic, thereby significantly reducing the numbers of women needing to have procedures in theatre. In 2020 only 4% of our patients required procedures under general anaesthetic. This service has a significant impact on decreasing theatre waiting times and increasing theatre capacity.

2020 saw a 32% increase in the numbers of outpatient hysteroscopy procedures performed with an 84% increase in the numbers of operative hysteroscopy procedures performed.

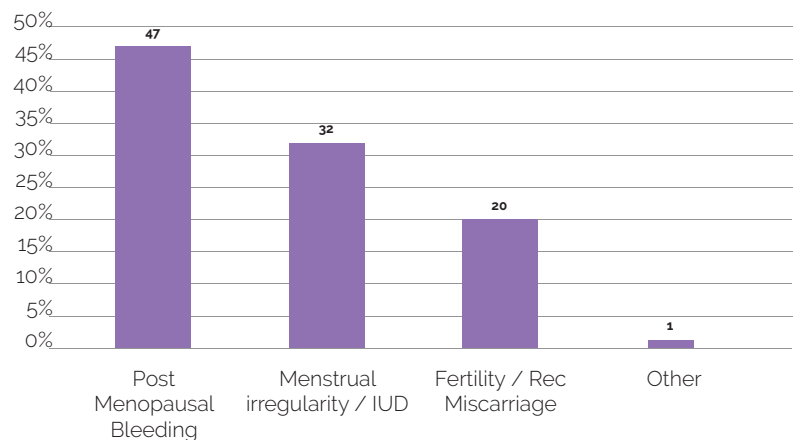
A recent audit of women referred to NMH with postmenopausal bleeding indicated that 91% of women were evaluated and had a histological diagnosis within 8 weeks and 100% within 12 weeks. A patient experience survey showed that women were very satisfied with the service provided and that procedures were well tolerated.

We plan to continue expansion and development of this important service in 2021.

Ambulatory Gynaecology Procedures	2016	2017	2018	2019	2020
Total no. of Patients	317	477	471	582	718
Total Outpatient Hysteroscopy Procedures	290	401	432	543	713
Diagnostic Hysteroscopy			355	395	563
Operative Hysteroscopy			76	102	150
Cases requiring general anaesthetic			13.5%	6.7%	4.5%

Ambulatory Gynaecology Referral Indications	2020	2019
Hysteroscopy +/- Mirena IUD insertion	563	395
Truclear / Myosure polypectomy	112	61
Betocchi Hysteroscopic removal Mirena	38	39
Total	713	543

Ambulatory Gynaecology Referral Indications



Trophoblastic Disease

Dr Donal O'Brien, Consultant Obstetrician & Gynaecologist, Naomi Cooney, Co-founder Placenta Accreta Ireland, Miriam O'Callaghan, Television Personality and Event Host, and Prof Donal Brennan, Consultant Obstetrician & Gynaecologist and Co-founder Placenta Accreta Ireland at The Ladies Spring Lunch in aid of Placenta Accreta Ireland in February 2020.

The clinic continues to be run by Clinical Nurse Manager Claire McElroy and Dr David Fennelly. 29 new patients were seen in 2020. 3 patients needed repeat Evacuation of Retained Products of Conception (ERPC) and only 1 patient received chemotherapy. The number of women needing

chemotherapy remains very low in our service by national and international standards. We accomplish this by a combination of careful initial surgical management, with judicious use of repeat ERPCs. We think this approach offers advantages over early use of chemotherapy.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Number	515	36	31	20	17	35	30	28	20	29	761
Chemotherapy	63	2	3	2	2	1	1	1	1	1	77

Cases for 2010 include cases from 1980



Paediatric and Adolescent Gynaecology



Paediatric and Adolescent Gynaecology (PAG) services provide specialist care to children and adolescents aged 0-18 years. The management of children and adolescents with gynaecological problems requires a dedicated service, specific to their individual needs.

The PAG service at NMH is led by Dr Orla Sheil and Dr Venita Broderick.

Two clinics are held per week where we see girls aged 12+. This is one of only three adolescent gynaecology clinics in Ireland. Children and adolescents and their families travel from all over Ireland to access these specialist services.

We provide ongoing specialist care for women diagnosed with complex congenital conditions in childhood and in adolescence.

80% of referrals come from general practitioners, 11% from CHI Crumlin. The remainder come from other hospital consultants around the country. We are supported by our dedicated gynaecology clinic nurses. We have a dedicated adolescent nutrition and dietetics service which runs concurrently with our clinics. We have access to imaging both in NMH and at SVUH.

The majority of referrals are for adolescent menstrual problems. Other common reasons for referral include pelvic pain and ovarian cysts. We also see girls with rare conditions such as congenital anomalies of the reproductive tract and premature ovarian insufficiency.

Many of the young girls attending the adolescent Gynaecology clinics, and especially those with anomalies, have complex needs and consultations can be lengthy and recurrent. The impact of

*Jeanette Cabradilla CNMI
Gynaecology Ward.*

these diagnoses both on the adolescent and the adolescent's family is significant.

A small number of adolescents with complex congenital conditions requiring reconstructive surgery are referred to Professor Sarah Creighton at University College Hospital, London.

We work closely with paediatric colleagues at Childrens Health Ireland (CHI) Crumlin. We form part of a national multidisciplinary team managing children born with complex congenital anomalies such as the Disorders of Sexual Differentiation. This group meets at one of the children's hospitals a number of times per year.

Fertility preservation is a new and exciting development in Ireland. We at the department of Paediatric and Adolescent Gynaecology at NMH together with our colleagues from the Merrion Fertility Clinic are working with the NCCP (Childhood, Adolescents/Young Adult Cancers CAYA). A fertility preservation service for children and adolescents

at risk of infertility as result of chemotherapy/ radiotherapy has recently commenced.

We contribute to undergraduate education programmes in both UCD and RCSI, postgraduate education programmes such as the MSc in Obstetrics and Gynaecology, UCC. Basic specialist trainees and Higher specialist trainees attend our weekly clinics. We are regularly involved in GP education days as well as interdisciplinary teaching at CHI. In 2020 we were successful in securing HSE Covid Era Fellowship funding. We hope to train a fellow in this niche subspecialty.

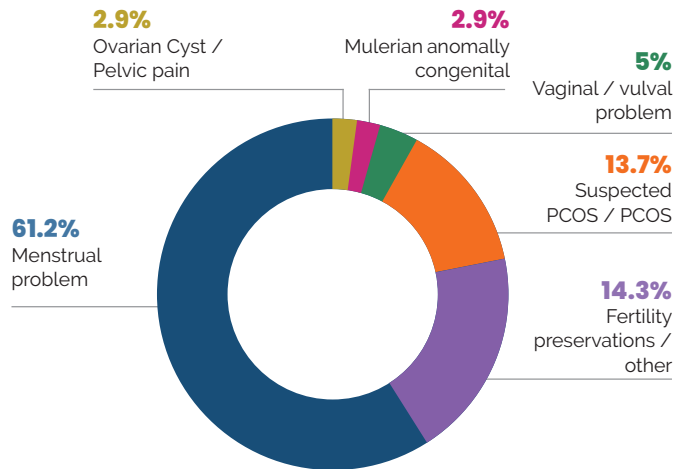
In 2020 in response to the Covid 19 pandemic we introduced virtual appointments. This has been of particular benefit to patients and their families who would otherwise have to travel long distances to attend the clinic.

We plan to continue to develop these services in 2021.

Clinic Activity

	New Patients	Return Patients	Virtual Appointments	Total
Attendances	374	173	137	823

Reasons for attendance (%)



Reproductive Medicine



Twenty twenty was a challenging year because of the unprecedented COVID-19 pandemic. Nevertheless, reproductive medicine services, including assisted reproduction services, were facilitated and enhanced. Because of initial fears regarding a possible impact of the virus on early pregnancy and also the extra demands being placed on general health services, in March 2020 international bodies including ASRM (American Society for Reproductive Medicine) and ESHRE (European Society of Human Reproduction and Embryology) advised that fertility patients should avoid pregnancy until further evidence became available. In line with this, Merrion Fertility Clinic ceased assisted reproduction services in late March. Video consultations and patient support continued. Services recommenced in May 2020, again following international guidance.

Fertility treatment was declared an essential service, something we absolutely support. By the end of 2020 all services were back up and running, albeit with increased telemedicine, restricted access for partners and enhanced infection control measures.

New Developments

A. Designation of NMH as Fertility Hub for Ireland East Hospital Group (IEHG)

In June 2020 the NMH was designated as a HSE-funded fertility hub, with the intention of enhancing secondary level fertility care in the Ireland East Hospital Group. This is a really exciting development, demonstrating for the first time ever a commitment by NWIHP and the HSE to the development of national publicly-funded fertility services. The model of care developed by NWIHP envisages fertility services being provided across a continuum care pathway, commencing in primary care, through to secondary care and ultimately, if clinically required, through to specialised, tertiary services which will include the provision of IVF. Funding will be provided for clinical, nursing, andrology and administration staff to develop this new service.

B. Aspire Fellowship awarded for Integration of Fertility Care to the Irish public hospital system

In 2020, MFC and the NMH were awarded a prestigious HSE-NDTP *Aspire* Post-CSCST Fellowship to develop comprehensive clinical care pathways for

*Jennifer Cullinane,
Laboratory Manager and
senior embryologist at
Merrion Fertility Clinic,
viewing embryo development
under a high-power
microscope.*

the management of infertility in the Irish public sector. The Aspire Fellow will commence in July 2021 and will work with the Reproductive Medicine team at the NMH to enhance public fertility care. This will provide an opportunity to engage with relevant stakeholders including primary care providers, hospital managers in the IEHG, NWHIP and the general public.

C. Telehealth and patient e-learning digital platform

As a result of the global COVID-19 pandemic and in line with international guidance, mitigation strategies were introduced to clinic procedures to enhance social distancing, to reduce staff and patient footfall, to increase the use of PPE and to upgrade hygiene procedure. MFC remained open for telemedicine consultations and continued to provide virtual psychological and clinical support to patients. To facilitate online patient education on fertility treatment (including lifestyle preparation, initial investigations and blood screens, treatment protocols etc), a multidisciplinary team of MFC clinicians, nurses and scientists generated an e-learning platform. These online tools have been very well received by patients and are routinely reviewed by the team at MFC.

D. The Childhood Cancer Fertility Project (MFC and Irish Cancer Society)

The Childhood Cancer Fertility Project was launched jointly with the Irish Cancer Society in August 2020, MFC having been successful in securing grant funding from the Irish Cancer Society for a three-year project (2020-2022) to develop and provide fertility preservation for children, adolescents and young adults. This service is provided in close collaboration with colleagues in Children's Health Ireland (CHI) at Crumlin. Clear referral pathways and staff and patient information resources have been developed. The project currently provides supports and services to male and female adolescents in the form of sperm and oocyte freezing. It is planned to develop ovarian tissue cryopreservation for children during the course of the grant. Oocyte vitrification in 14 to 17-year-old girls with newly diagnosed cancer is challenging and the expert assistance of our anaesthetic colleagues is an essential part of their care.

E. Children and Family Relationships Act 2015

The Children and Family Relationships Act of 2015, which governs donor assisted reproduction was commenced on 5th May 2020 – 5 years after its enactment. This is a very welcome milestone in terms of Ireland eventually beginning to legislate for the medically, socially and ethically complex field of

assisted reproduction. Several meetings were held with the Department of Health and a large body of work was required including the development of patient consent forms, information leaflets and careful treatment and reporting pathways.

F. ESHRE Accreditation

Consultants at the NMH and MFC currently provide training in Reproductive Medicine for Specialist Registrars. In 2020, NMH/MFC applied to the European Society for Human Reproduction and Embryology (ESHRE) for recognition as an ESHRE / European Board and College of Obstetrics and Gynaecology (EBCOG)-affiliated subspecialist training centre. This application is currently pending – Stage one approved, Stage 2 currently on hold due to the COVID-19 pandemic. Establishment of this subspecialty program will formalise training at a senior level in Reproductive Medicine and will make trainees eligible to become European Fellows of Reproductive Medicine (EFRM).

Clinical Activity (Tables at the end of section)

Dedicated hospital clinics for reproductive medicine, encompassing infertility, endometriosis, Polycystic Ovarian Syndrome continued throughout 2020 with a total of 234 first visits, 250 return appointments and 92 telephone consultations. Eighty-seven women/couples were seen at the recurring miscarriage clinic and the new menopause clinic saw 42 women and did 19 telephone consultations.

At Merrion Fertility Clinic there were 728 new consultations and 1330 return consults.

Conscious sedation was provided by Consultant Anaesthetists for all oocyte retrievals and surgical sperm retrievals.

Nine cases of surgical sperm retrieval (SSR) were carried out in 2020.

46 cycles of oocyte vitrification were completed. The average number of oocytes frozen per patient was 8.

The mean age of women undergoing fresh IVF/ICSI cycles was 36.7 years. In 2020, 21% of all cycles started were in women aged 40 or more, consistent with the rates in previous years.

Elective single embryo transfer eSET: 67.8% of MFC patients had a single embryo transfer in 2020, reflecting the clinic's strong single embryo transfer



policy. Of this group, a subset of good prognosis patients had an elective single embryo transfer (eSET), meaning they had a good quality embryo to transfer and at least one other to freeze. This group comprised 36.8% of all embryo transfers and, across all age groups, had a clinical pregnancy rate of 52.5% on the fresh cycle. Of those eSET patients who did not conceive on their fresh cycle, 36.7% conceived on their first frozen embryo transfer (FET), bringing the cumulative pregnancy rate in this group to 72.3% (following one fresh transfer and a FET if the fresh was unsuccessful). Many of these patients have additional embryos still in storage.

Multiple pregnancy: The multiple pregnancy rate following a fresh embryo transfer was 7%, a rate which is very low by international standards. All of these multiple pregnancies were twins and occurred following double embryo transfer (25% multiples vs 0% in SET group). The multiple pregnancy rate for frozen embryo transfers was 3.9%, reflecting excellent decision making regarding the number of embryos electively transferred.

Livebirth rates: (LBR) are the best marker of ART success and are reported for 2019 as, at the time of

writing, not all 2020 pregnancies are complete. The livebirth rates per embryo transfer for fresh IVF and ICSI cycles performed in 2019 (delivering in 2019/2020) are excellent by international norms (Table 3, Chart 2). Approximately one third of all couples completing IVF/ICSI cycles had a livebirth. (Tables 3-5)

Frozen embryo transfer (FET) cycles: In 2020, 236 FET cycles were completed with a clinical pregnancy rate of 38% per transfer. The livebirth rate per embryo transfer for frozen embryo transfer (FET) cycles performed across all age groups in 2019 was 27.5%.

Intrauterine Insemination (IUI): The clinical pregnancy rate with intrauterine insemination in 2020 was 9.9%, a small decrease from the previous year (10.6%). However, the number of cycles is small (100) so this drop is not likely to be statistically significant. The livebirth rate per completed cycle IUI was 9.9% | 2019.

Donor Sperm treatments: Merrion Fertility Clinic commenced a donor sperm service in 2018. Sperm is sourced from 2 approved banks in Denmark. This is an essential treatment for single women, lesbian couples and heterosexual couples with severe male factor

infertility, not suitable for ICSI. This is a growing and successful service. (Tables 6+7)

Child, Adolescent and Young Adult (CAYA) Fertility Preservation Services

AYA Males: Eight adolescent males between the ages of 13 and 15 years were referred to MFC in 2020 for sperm cryopreservation services before undergoing gonadotoxic treatment or surgery. Their oncology diagnoses were: Ewings Sarcoma, T-cell Acute Lymphoblastic Leukaemia, Hodgkin's Lymphoma, Osteosarcoma, Acute Myeloid Leukaemia and Rhabdomyosarcoma. Of these 8 boys, 62.5% (n=5) produced a semen sample and 80% (n=4) had sperm of suitable quality for freezing.

AYA Females: Four adolescent females (aged 14 to 16 years) were referred to MFC in 2020 for oocyte vitrification *before* undergoing gonadotoxic cancer therapy. Their oncology diagnoses were: Rhabdomyosarcoma, Medulloblastoma, Hodgkin's Lymphoma and Osteosarcoma. Three of these young women (75%) had a successful cycle, with a mean of 12 oocytes cryopreserved for future use. The 4th young woman's attempt was cancelled due to her deteriorating medical condition.

Six female survivors of CAYA cancer, who had previously received gonadotoxic treatment as part of their cancer therapy, attended MFC in 2020 for an initial fertility consultation.

Research

The Reproductive Medicine Department maintains an active and productive research portfolio, collaborating with scientists in Irish academic institutions such as UCD and TCD. MFC employs a full-time Research Officer and two Clinical Research Fellow posts exist for higher training in Reproductive Medicine & Surgery, with both fellows undertaking higher degrees. MFC also hosts PhD and MSc students.

Research at MFC is aimed at improving knowledge, expertise and care pathways in the field of reproductive medicine. Our studies span a range of topics, from basic mechanistic biology to clinical translational research. In 2020, researchers at MFC also worked closely with collaborators at several of Ireland's leading academic research institutions, including University College Dublin and Trinity College Dublin, on the following research projects:

- Innate immune factors, endometrial receptivity and infertility (Funding: Grant for Fertility Innovation, Merck)
- Endometrial microbiome and infertility (Funding: Grant for Fertility Innovation, Merck)
- Glycome analysis in endometriosis (NIBRT collaboration. Funding: Horizon 2020, Marie Curie International Fellowship)
- Development of improved laboratory tests for sperm quality and function in male infertility (Funding: Irish Research Council)
- Knowledge and attitudes towards fertility preservation among patients and healthcare providers
- Ovarian Reserve in childhood cancer survivors

Publications, Posters, Presentations and Invited Lectures are listed in the Appendices.



Assisted Reproduction, Merrion Fertility Clinic

Table 1: Five-year overall activity levels (numbers)

Year	Semen analyses	Surgical Sperm Retrievals	Ovulation induction and IUI (completed)	IVF/ICSI (Completed to oocyte retrieval)	Frozen embryo transfer cycles (Completed to embryo transfer)	Oocyte vitrification Completed to oocyte retrieval)
2016	1375	8	223	401	260	NA
2017	1398	8	157	454	263	3
2018	1459	2	151	407	301	40
2019	1412	6	161	399	334	49
2020	1172	9	152	413	236	46

Table 2: Activity and Clinical pregnancy rates (%) for IVF and ICSI cycles

	All Ages	Under 35	35-37	38-39	40-41	42-44
Cycles Started (n)	464	127	114	107	79	37
Oocyte Collections	413	115	103	95	67	33
Embryo Transfer	326	85	84	76	56	25
Average Eggs Collected	8.7	10.6	9.4	7.4	7.7	4.8
Clinical Pregnancies	126	40	33	31	18	4
CPR per Cycle Started	27.2	31.5	28.9	29.0	22.8	10.8
CPR per Oocyte Collection	30.5	34.8	32.0	32.6	26.9	12.1
CPR per ET	38.7	47.1	39.3	40.8	32.1	16.0

Clinical pregnancy rates as per ESHRE (European Society for Human Reproduction and Embryology) i.e. fetal heart, fetal pole or a clear pregnancy sac are seen on ultrasound at 6 to 8 weeks gestation. Biochemical pregnancies (positive pregnancy test only) are not included but ectopic pregnancies and miscarriages are.

Chart 1: 2020 Clinical Pregnancy Rates by Maternal Age

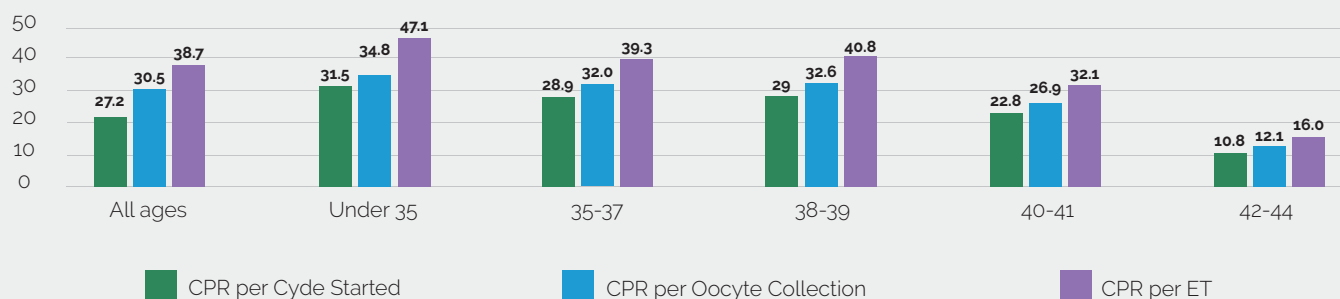


Table 3: Live Birth Rate fresh IVF/ICSI 2019

	All Ages	Under 35	35-37	38-39	40-41	42-44
LBs	128	38	47	29	11	3
LBR per OCR	27.5%	31.9%	34.6%	25.4%	15.5%	11.5%
LBR per ET	33.8%	43.2%	42.7%	28.7%	17.5%	17.6%

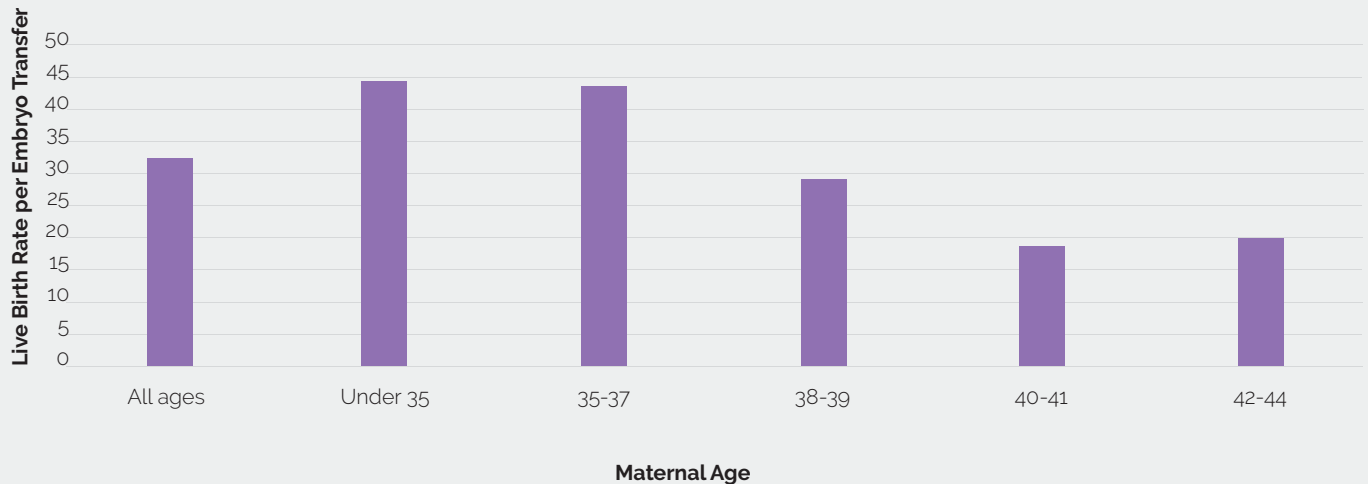


Table 4: Live Birth Rates Frozen Embryo Transfer 2019

	All Ages
Thaws	349
Embryo Transfer	346
Live Births	95
LBR per Thaw	27.2
LBR per Embryo Transfer	27.5

Table 5: Live Birth Rates following IUI 2019

2019	All Ages
Cycles started	100
Inseminations	91
Live Births	9
LBR per cycle started	9.0
LBR per insemination	9.9

Table 6: Clinical pregnancy rates (%) for IVF and ICSI cycles using Donor Sperm

	All Ages	Under 35	35-37	38-39	40-41	42-44
Cycles Started	14	5	4	5	NA	NA
Oocyte Collections	14	5	4	5	NA	NA
Embryo Transfer	11	3	4	4	NA	NA
Clinical Pregnancies	5	2	1	2	NA	NA
Multiple Pregnancies	1	0	0	1	NA	NA
Average Eggs Collected	8.6	9	9	8	NA	NA
CPR per Cycle Started	35.7	40.0	25.0	40.0	NA	NA
CPR per Oocyte Collection	35.7	40.0	25.0	40.0	NA	NA
CPR per ET	45.5	66.7	25.0	50.0	NA	NA
Multiple Rate	20%			20%		

Table 7: Clinical Pregnancy Rates (%) for IUI cycles using Donor Sperm 2020

	All Ages
Cycles started	13
Inseminations	9
Clinical Pregnancy	1
CPR per cycle started	7.7
CPR per insemination	11.1
Multiple rate	0

Theatre Procedures

Major	
Pelvic floor repair	63
Laparoscopic treatment of ectopic pregna	46
Sterilisation via open abdominal approach	38
Anterior repair	35
Bilateral salpingo-oophorectomy	23
Hysterectomy (all types)	60
Laparotomy	16
Fenton's procedure	9
Laser procedure for Twin to twin transfu	8
Perineal repair	8
TOT/TVTO (obturator tape)	5
Laparoscopic Bilateral Salpingo Oophorec	4
Salpingo-oophorectomy	4
Caesarean Hysterectomy	3
Labioplasty	3
Myomectomy-laparotomy	3
Colpocleisis	2
Laparoscopy with fulguration of lesion	2
Lymph node dissection	2
Myomectomy-laparoscopy	2
Removal of ovarian cyst	2
Urethral dilation	2
Bilateral oophorectomy-laparoscopic	1
Division of septum - uterine	1
Excision of labial lesion	1
Hysteropic resection uterine septum	1
Hysteroscopic Resection of Fibroid	1
Laparotomy post surgery	1
Mesh repair	1
Partial vulvectomy	1
Peritoneal biopsy	1
Resection of TVT/TOT/TVTO	1
TV.T. (trans-vaginal sling)	1
Unilateral oophorectomy-laparotomy	1
Ureteric reimplantation	1
Total Major	353

Intermediate	
Repair of perineal tear	116
Tubal ligation (laparotomy/laparscopy)	93
Diagnostic laparoscopy	85
Endometrial ablation	39
Truclear polypectomy	37
Injection of Nerve Block	34

Removal of granulation tissue	31
Ovarian cystectomy- laparoscopy	24
Botox injection therapy	20
Salpingectomy	19
Cystectomy	13
Oophorectomy	10
Ablation/diathermy endo-laparos	7
Open myomectomy	7
Hymenectomy	4
Operative Laparoscopy	4
Diathermy of Endometriosis	3
Laparoscopic drainage of ovarian cyst	3
Left salpingectomy	3
Repair of vaginal laceration	3
Adhesiolysis-laparos	2
Appendicectomy-laparotomy	2
Division of labial adhesions	2
Exploration abdominal wound	2
Gynaecological laparoscopy	2
Laparoscopic ovarian cystectomy, unilateral	2
Laparoscopic Pelvic Lymph Node Dissection	2
Right salpingectomy	2
Adhesiolysis via Laparotomy	1
Appendicectomy Laparoscopy	1
Diathermy to cervix	1
Laparoscopic dye test of Fallopian tube	1
Omentectomy	1
Repair of vaginal wall prolapse	1
Revision of Abdominal Scar	1
Unilat ovarian cystectomy-laparoscopy	1
Total Intermediate	579

Minor	
Hysteroscopy	282
Dilatation and currettage	193
Intrauterine contraceptive device (insertion/ removal/replacement)	120
Examination under anaesthesia	71
Cystoscopy	34
Dye injection at laparoscopy	29
Polypectomy	24
Injection of urethral bulking agent	23
Bartholin's cyst (incision/drainage)	22
Blood Patch	13
Cone biopsy of cervix	12
Hysteroscopy D&C with Mirena insertion	10

Diagnostic hysteroscopy	7
Excision of Granuloma of Vagina	7
Cervical smear	6
Episiotomy	6
Evacuation of haematoma-vaginal	4
Injection into uterine cavity	4
LLETZ	4
Removal of skin tag	4
Biopsy of cervix	3
Excision of vulval lesion	3
Incision and drainage of haematoma	3
Incision and drainage of labial cyst	3
Removal of pessary from vagina	3
Vulval biopsy	3
Biopsy of vulva	2
Cervical polypectomy	2
Drainage of ovarian cyst	2
Excision of VAIN	2
Marsupialisation of lesion of vulva	2
Omental biopsy	2
Perineal Injection	2
Smear	2
Vaginal biopsy	2
Biopsy of lesion of vulva	1
Cervical myomectomy	1
Cystoscopy and Injection of Botox	1
Diathermy	1
Dilation of cervix	1
Endometrial biopsy	1
Endometrial Polypectomy	1
Excision of Cyst	1
Excision of lesion	1
Excision of skin tag	1
Excision of vaginal lesion	1
Excision of vaginal septum	1
Excision of VIN- Vulval intraepithelial	1
Excision/ablation endo peritoneal lesion	1
Excision/Cautery of granulation tissue	1
Exploratory Laparoscopy	1
Injection of local anaesthetic	1
Insertion of ring pessary into vagina	1
Insertion of vaginal pack	1
Labial reduction	1
Removal of displaced intrauterine contra	1
Removal of foreign body from vagina	1
Total Minor	933

Obstetric	
Caesarean section	2279
Evacuation of the retained products of conception	552
Manual removal of retained placenta	136
Vaginal delivery	30
Cervical / Cerclage	31
Ectopic pregnancy	66
Total Obstetric	3094
Total	
Major	353
Intermediate	579
Minor	933
Obstetric	3094
Total	4959

Urogynaecology



Due to the advent of COVID-19 in March 2020, there was an immediate pause on elective gynaecology in the hospital with both elective outpatients and benign gynaecological surgery compromised. The effect of this was felt most acutely in the urogynaecology department as most of the surgery is deemed elective by nature. Therefore, our figures for clinics and surgical procedures are reduced for the year.

Despite this, the hospital continued to offer a tertiary led urogynaecology service which saw expansion in both clinical and administrative personnel. Some of this expansion was due to our designation as one of the two Irish centres dealing with mesh complications. It is hoped that in early 2021 we shall see the appointment of a urologist and pain specialist to the mesh multi-disciplinary team offering improved clinical care to these patients.

The ongoing pause in mesh procedures now sees us offering women a choice of bulking agents,

colposuspensions or pubo-fascial slings and this is likely to continue into 2021. We have continued to offer partial mesh removals in the NMH, but we are indebted to Mr. James Forde in Beaumont who undertakes more radical removal of mesh when required.

The Urodynamics team work alongside the Urogynaecology team to provide diagnostic tests (Uroflow, Urethral Pressure Profilometry and Cystometry) for women attending with urinary incontinence. The team also educate, support and follow-up women who present with urinary retention in the antenatal, postnatal and postoperative period. This includes teaching bladder management techniques such as clean intermittent catheterisation, double voiding and on occasion management of long-term indwelling catheters. Multidisciplinary team working is important for women with continence issues and we work closely with our colleagues in the physiotherapy department and the pelvic floor centre in St Michaels Hospital, Dun Laoghaire.

Dr David O'Driscoll (centre), recipient of the John F. Cunningham Medal for achieving First Class Honours as well as the highest results in Obstetrics and Gynaecology, with Prof Declan Keane, Consultant Obstetrician & Gynaecologist with a subspecialty in Urogynaecology and Bernadine O'Driscoll, Master's Secretary.

Education is a key component of the role not only in terms of the women who attend the service but also midwifery and medical students, public health nursing students and the non-consultant hospital doctors working in the hospital. Over the last year

lectures and education sessions have been provided using a number of different platforms including: bright-space, Zoom, Microsoft Teams and Web-ex. It is hoped that face to face teaching will return in the near future,

Urogynaecology Activity	
<i>Consultant Led</i>	
New	540
Return	870
Total Attendances	1410
DNA Rate	19%
<i>Advanced Midwifery Practitioner (AMP) Led</i>	
New	112
Return	11
Total Attendances	123
DNA Rate	6%
Urodynamics Performed	91
Flow Studies	27
Self-Catheterisation	14
Bonano Catheter	1
Nurse Led Urogynaecology Referrals Source	
Consultant NMH	91
Consultant Elsewhere	0
GP	0
Self	0
Other	0
Total Referrals	91
Nurse Led Urodynamics Diagnosis	
Normal Urodynamic Studies	9
Urodynamic Stress Incontinence	41
Mixed Incontinence	16
Hypersensitive Bladder	0
Overactive Bladder	23
Voiding Disorder	0
UTI No UDS – MSU Taken	1
Other	1
Total Diagnosis	91

Surgical Procedures

a) Continence procedures	
Mid urethral sling procedure	0
Mesh excision (partial)	5
Injection of paraurethral bulking agent	22
Cystoscopy +/- intravesical Botox	24
Pubofascial sling	6
b) Prolapse procedures	
Vaginal hysterectomy	17
Laparoscopic assisted vaginal hysterectomy with BSO	2
Laparoscopic assisted vaginal hysterectomy	0
Vaginal anterior repair	35
Vaginal posterior repair	50
Vaginal anterior & posterior repair	23
Fenton's procedure	4
Utero-sacral colpopexy	2
Sacrocolpopexy	3
Labioplasty	3
Anal Sphincter Repairs	
Third degree tear	83
Fourth degree tear	3

Anaesthesia, Pain Medicine and High Dependency Care



Dr Siobhan McGuinness and Dr Ingrid Browne Consultant Anaesthesiologists and Dr Siobhan Corcoran, Consultant Obstetrician and Gynaecologist at a designated COVID-19 zone.

Staffing

Dr. Larry Crowley was head of department for the year. The department bade farewell to Dr Ola Rosaeg who retired in 2020 after many years of service. Dr. Kevin McKeating retired from obstetric anaesthetic practice but continues to oversee the chronic pain medicine service.

There were 11 anaesthesia trainee members of the department from January - July and 10 from July-December 2020.

Operating Theatre Activity

Despite the difficulties imposed by the COVID-19 pandemic, the Department of Anaesthesia continued its high level of activity in 2020. The total number of procedures performed in theatre was 4,121 (a decrease of 472 on 2019 likely due to COVID-19 related curtailment of services).

Analgesia for Labour and Delivery

A wide range of multi-modal labor analgesic options were utilised by mothers including both non-pharmacologic (relaxation therapy, aromatherapy, TENS) and pharmacologic methods (nitrous oxide

inhalation, intramuscular opioids and neuraxial techniques). Intravenous remifentanyl PCA during labour was also available but there were no recorded users.

Epidural Rate

The department performed a total of 3,638 epidurals. Subtracting the number of mothers who had a 'pre-labour' caesarean section from total delivered gives us the closest approximation of mothers who commenced actual labour and thus potentially had an opportunity to request epidural analgesia.

Almost all received low-dose Patient Controlled Epidural Analgesia (PCEA) using 0.125% L-Bupivacaine and Fentanyl 2 mcg/ml with a 5 ml/hr background infusion, 5 ml patient bolus option with a lockout interval of 15 minutes. In certain circumstances, combined spinal epidural (CSE) or continuous spinal analgesia modalities were employed.

Anaesthesia for Caesarean Section

Unfortunately, the MN-CMS system still does not allow us to determine the mode of anaesthesia relative to whether the C-Section was elective or emergency, nor the proportion of neuraxial techniques converted to general anaesthesia. We hope to have this resolved for 2021 data.

- Not all patients who had accidental dural puncture developed PDPH.

- Not all patients who had PDPH had recognised dural puncture.
- Not all patients with PDPH had epidural blood patch.

High Dependency Unit (HDU)

There were 140 instances of patients requiring overnight stay in HDU in 2020 (ranging from 9-16 admissions per month).

The most common reasons for HDU admission were:

- Haemorrhage 60 (43%)
- Hypertensive disease of pregnancy 42 (30%)
- Sepsis 13 (9%)
- Other 24 (17%)

Some patients were admitted for more than one of the above reasons.

There were 4 patients transferred from HDU to St Vincent's University Hospital for further specialist care and 2 patients transferred into HDU from other hospitals in 2020.

Outpatient Clinics

The Anaesthetic High Risk Clinic was held three to four times per month and a variety of patients were reviewed for obstetric and gynaecology pre-assessment. In 2020 a total of 160 new patients & 25 return patients were reviewed. Some patients are also reviewed at the weekly multidisciplinary high risk meeting.

Chronic Pain Medicine Clinic

The chronic pain medicine service continued to welcome multidisciplinary referrals from within house, from consultant obstetric, anaesthetic and pain medicine colleagues, physiotherapists, midwives and from primary care physicians in the community. 61 patients attended for first time evaluation and 115 return patients were reviewed. Invasive interventions in the form of local anaesthetic, local anaesthetic and steroid injection and radiofrequency neuromodulation were provided in the operating theatre for 34 patients.

Data collated from MN-CMS & theatre database.

Epidural Rate

		%
Spinal	1663	74%
Spinal/Epidural	73	3%
Epidural	466	20%
General	77	3%
Total	2279	

Mode of Delivery after Epidural Analgesia

	SVD	Instrumental	C-Section
Nullip	1029 (47%)	684 (31%)	463 (21%)
Multip	1223 (84%)	136 (9%)	103 (7%)

Post Dural Puncture Headaches (PDPH) and Epidural Blood Patch

Accidental dural puncture recorded	12
Epidural blood patch performed	13

Mode of Anaesthesia for C-Section on MN-CMS

	Total Delivered	Pre-labour C-Section	Epidural	Rate %
Nullip	3201	427	2176	78% (2176/2774)
Multip	4062	1086	1462	49% (1462/2976)
Total	7263	1513	3638	63% (3638/5750)

The Maternal and Newborn Clinical Management System



Jill Bookless and Rafael San Martin, Midwives, adding patient data to the system.

The Maternal and Newborn Clinical Management System (MN-CMS) has been live in The National Maternity Hospital since January 2018. First introduced as a maternal and newborn record only, it has since expanded to cover gynaecology and colposcopy services thereby providing a paperless electronic health record for the whole hospital. The ethos of MN-CMS is 'patient centred, clinically led' and the MN-CMS team work closely with the HSE National MN-CMS Team and the other participating maternity hospitals to support, manage and upgrade the system.

Apart from patient documentation, MN-CMS enables medication prescribing and administration, ordering and viewing laboratory investigations and electronic communication with general practitioners. It also interfaces with other specialist systems such as fetal cardiotochograms, theatre and anaesthetic records, ultrasound, and patient administration system.

The ethos of the Maternal Newborn Clinical Management System is patient centred, clinically led

The MN-CMS Department provides the hospital with support to enable the continuous 24-hour use of the system and ensure the most efficient use of the electronic chart so both the patient and healthcare users get the maximum benefit from the system.

Continuous training and creating and maintaining user access to MN-CMS are essential pre-requisites to all the other support functions. MN-CMS training is provided in our state-of-the-art computer training facility. All new and returning users require training and in the last year the team has trained 375 doctors, midwives, nurses, allied health professionals, students and administration staff to use MN-CMS. COVID-19 has provided challenges as face-to-face training has had to be limited and strict COVID-19 protocols put in place, as well as extra training sessions required for staff who worked from home during the pandemic. COVID-19 has also given us opportunities to develop new teaching tools, such as online and video educational materials which have now been rolled out on HSE Land and the new NMH e-learning hub.

MN-CMS has been good for COVID-19: COVID-19 has enhanced and demonstrated the benefits of MN-CMS and also accelerated the understanding that an electronic health record is the future. Remote access has proved invaluable throughout the COVID-19 pandemic, enabling multi-disciplinary teams to access patient records immediately from anywhere with a Wi-Fi connection and appropriate security protocols. Staff members working from home

were able to continue working, providing a valuable resource for the hospital that would not have been possible without an electronic health record. While allowing clinicians to assess and record patient care and progress, the electronic health record also played a role in reducing infection transmission risk by facilitating: contactless patient notes handling, remote telephone clinics for numerous departments, remote postnatal follow up with earlier discharge from hospital, and the reduction of time spent face-to-face with COVID-19 patients due to access to central monitoring.

New clinic and ward builds within MN-CMS are essential in line with structural developments in the hospital and requires a significant amount of planning and hard work. In line with any changes either to the software of the system or the architecture of the hospital means extensive testing has to be carried out by the MN-CMS team prior to release, to ensure the Powerchart build matches the new structure and the software is working as designed.

The main support by the MN-CMS team is the phone and email support as well as the face-to-face support which are all essential parts of any large electronic system. It is that support that has enabled the acceptance of the system and gained the trust of the users even though at times any problems with access can be very frustrating to everyone. Pager and phone support is available Monday to Friday, while phone support, provided by AMS, is available out of hours. The local team also provide cover outside of core working hours for any planned downtime or upgrade to the system.

One of the great challenges of healthcare is routine data collection and concise but complete documentation. It is the first measure of quality of care and although we are improving we still have a long way to go. The challenge then will be to maintain it. Throughout 2020, the team have been involved in daily data quality monitoring and a significant amount of time continues to be taken up by first checking for and then following up on incomplete documentation.

At regular intervals upgrades are made to the MN-CMS software and in 2020 there were upgrades to the Maternity and Gynaecology summary pages, as well as an upgrade and optimisation of the Neonatal Summary pages, which adopted the actual workflow format. Both upgrades proceeded smoothly with minimal

disruption with the MN-CMS team in the background ensuring any issues were dealt with immediately. In 2021, in conjunction with Clinical Engineering, a planned upgrade is due to the iBUS environment. This is the platform that integrates bedside medical devices with Powerchart.

As far as the future is concerned, the MN-CMS electronic health record is continuously being optimised through a centralised national structure. As more and more users realise the benefits, more and more requests are made for enhancements. The ability to provide these will depend on clinical priorities, national agreement and available resources. The main national aim at the present time is to enable all maternity, neonatal and gynaecology hospitals in Ireland to have the same electronic health record and to be the first country to achieve that goal.

On a local level, MN-CMS Team continues to work with all areas of the hospital to get the most from our electronic health record. Our aim is to support and guide users on every aspect of MN-CMS to achieve the maximum benefit for our patients and us all as health care users and in return we appreciate the trust and support for us in trying to achieve this.

Jennifer McWilliams who was diagnosed with COVID-19 2 weeks prior to delivering the first newborn baby of the year, Brody McWilliams Brown.



Emergency Department

On the 31st January 2018, The National Maternity Hospital opened a dedicated Emergency Department, providing a 24 hour / 365 emergency service for pregnant, postnatal and gynaecology patients. This is a purpose built facility and replaces a service that had been spread across many clinics in many locations; the move is a very positive improvement in the care of these women who present to the hospital at a difficult time.

The new space consists of a triage room and four treatment rooms. Each room is equipped with diagnostics allowing for the full episode of care to be completed in the one room. This ensures that each woman has privacy while being assessed, examined and cared for.

Since January 2019, following the Health (Regulation of Termination of Pregnancy) Act 2018 this facility also provides 24 hour / 365 emergency service for women following termination of pregnancy.

The unit is now in operation for over two years and usually sees emergency presentations in excess of 1,000 women a month for a range of conditions including reduced fetal movements, hyperemesis, hypertension, early pregnancy pain/bleeding, postnatal complications and many gynaecological emergency presentations.

The staff in the Emergency Department also provide a telephone service for women and GP's. This service is an invaluable resource for women reassuring them and ensuring that they are cared for in the most appropriate setting at the most appropriate time for their complaint.

The COVID-19 pandemic had a dramatic impact on the service during the year. Structural changes involved converting all the rooms to negative pressure. At the peak of the first wave, all non-essential services ceased, which allowed use of the facilities in the adjacent Gynaecology Outpatient Clinic to carry out the service.

Lucille Sheehy Asst. Director of Midwifery and Nursing administering Emily Flynn, CMM2 Emergency Department, a COVID-19 vaccine.



This reserved the Emergency Department exclusively to care for COVID-19 cases. Division of staff between the two areas often proved difficult as staffing levels were diminishing at this time.

When services were reintroduced later in the year, all care had to revert back to the department which brought with it challenges to ensure the safe provision of care for all women attending the department. Strict adherence to local and national guidelines were essential regarding social distancing in waiting room areas and personal protective equipment.

All COVID-19 antenatal, postnatal and gynaecological women were cared for in the department during the crisis thus having an impact on the normal flow of women attending the department due to the necessary decontamination of each room after use many times throughout the day.

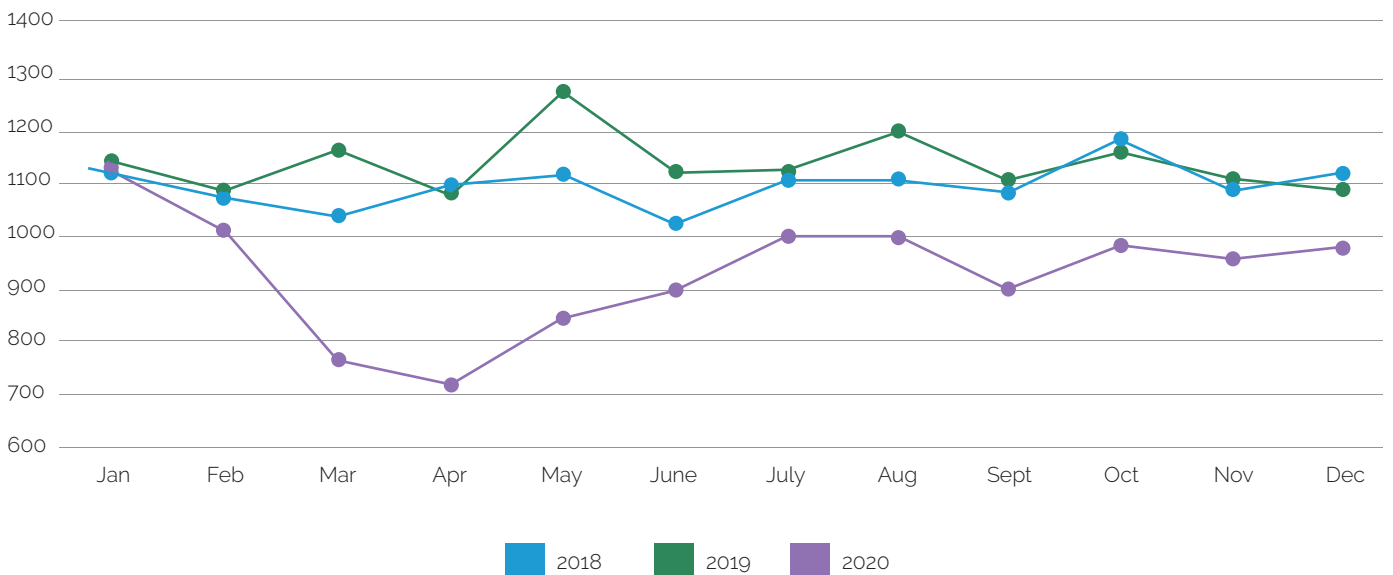
The Emergency Department staff also provided a staff swabbing service in association with the occupational health department during the year and are to be commended for their flexibility, cooperation and support throughout these difficult times.

Activity

The decrease in attendances is as a direct result of the pandemic.

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2020	1132	1003	749	709	840	887	994	998	888	989	956	970	11115
2019	1127	1074	1156	1074	1271	1132	1129	1207	1104	1155	1088	1080	13597
2018	1115	1076	1036	1079	1119	1010	1111	1108	1076	1181	1077	1109	13097

Emergency Room Attendances 2018 to 2020



Perinatal Mental Health



In November 2017, the National Specialist Perinatal Mental Health Model of Care was launched. This strategy document planned for the development of Specialist Perinatal Mental Health Services, (SPMHS) in all maternity units in the country. This would involve the development of specialist teams requiring funding and the recruitment and training of staff for these posts. A National Oversight and Implementation Group (NOIG) was then set up to oversee the roll out of this model of care. In The National Maternity Hospital, this has allowed for the development of the multidisciplinary team which in 2020 welcomed a new Clinical Nurse Specialist (CNS) and mental health midwife (MH Midwife). It is planned that the team will recruit an additional CNS and MH Midwife in 2021 and develop a new specialist post for a Senior Occupational Therapist. Dr McCarthy and Adele Kane are members of the NOIG. The Model of Care includes a plan to open the country's first Mother and Baby Unit as part of the Department of Psychiatry at St Vincent's University Hospital and Dr McCarthy is a member of the planning group for this.

The SPMHS provides for mental health care needs from the booking visit to up to 1 year after birth. We will also provide specialist pre-conceptual

advice. The expansion of the team has coincided with significantly increased referral to the team and attendance at clinics (see graph below). The COVID-19 pandemic posed particular challenges for patients and staff with a marked increase in demand for telephone consultations and online video calls. This was facilitated using the HSE's Attend Anywhere service and all of the team were provided with laptops for this.

The SPMH team provides support and training for the Mental Health Midwife appointed at Wexford General Hospital and are at an advanced stage of planning to provide a remote tertiary referral clinic for maternity patients attending the midwife at hospital. The team provide ongoing teaching for UCD and RCSI medical students, UCD midwifery students, and for Social Work and Psychology students also. Of note, the Charter Day speaker for 2020 was, for the first time, a Perinatal Psychiatrist, Dr Roch Cantwell from Glasgow who is the lead psychiatry assessor for the UK and Ireland Confidential Enquiries into Maternal Deaths. The team also provided key support to the Placenta Accreta Group Dr McCarthy is the Clinical Lead for Schwartz rounds which have been successfully continuing in the hospital throughout the pandemic.

Pathology and Laboratory Medicine



The laboratory service covers the scope of Pathology and Laboratory Medicine with Biochemistry, Blood Transfusion, Haematology, Histology and Microbiology laboratories. The service is provided 24/7 in accordance with clinical need. In addition, a microbiology service is provided for the Royal Victoria Eye and Ear Hospital. Our Endocrinology service has expanded over the past few years and this is a developing area. In addition to tests provided 'in house' the department manages specimens referred to reference laboratories. The histology service incorporates the perinatal pathology service.

Accreditation of the services to ISO 15186 was retained in 2020 through a virtual inspection. Extensions to scope were added and the accolade of flexible scope was retained. Following successful implementation of the MN-CMS system and its expansion to Gynaecology services we moved to paperless reporting for most of our work.

We gained and lost staff during the year. Bernadette O'Donovan left the Chief's role in Blood Transfusion and was replaced by Natalie Keogh. Damian Lally took on the role of Chief in Biochemistry while Catherine Doughty was on leave. David McMahon joined Histology as a Senior Medical Scientist, Mr Donal Noonan was appointed Locum Senior Medical Scientist and new graduates Sinead Corry, Hazel Reilly, Aisling Ross, Diane Fitzgerald and Rosanna Sheridan joined the team. Two additional posts were approved in Microbiology to support the molecular microbiology section and to deliver sustainable testing for COVID-19. Gráinne O'Dea was appointed Specialist Medical Scientist and Gwen Connolly appointed Senior Medical Scientist. Shannon Diggin was appointed to the new staff grade post.

Sadly during the year, we learned of the death of Austin Bourke, a well-known and much loved member of the Biochemistry staff for many years. May he rest in peace.

*Dr Roger McMorrow,
Consultant Anaesthetist
and Clinical Director
presenting a COVID-19
commemorative medal to
Edel Connolly, Laboratory
Admin (left) and Constance
Young, Medical Scientist.*

Clinical Activity

2020 was an unusual year with the challenges of responding to the SARS CoV-2 pandemic, reduced clinical activity within the hospital and the development of new services and testing capacity to meet the emerging clinical need. The Hospital Executive Management was very supportive of the department and its needs while developing new services as was the National Pathology Network and the HSE.

Laboratory medicine played a crucial role in diagnosis of infection and investigation of complications due to COVID-19. Many departments had an expansion of tests including SARS CoV-2 molecular testing, SARS CoV-2 antibody testing, D-dimers and diagnosis of SARS CoV2 placentitis. Surveillance of notifiable diseases changed from weekly to daily and our IT systems were re-configured for rapid public health access to our data. IT interfaces were created to facilitate reporting of PCR results. Before these interfaces were in place, staff ensured that results were sent to public health every day including weekends and bank holidays. Diagnostic tests are crucial during this pandemic; PCR tests were initially offered to patients, staff and students who were symptomatic, and later included all patients prior to elective surgery and all overnight admissions. By year end we had an open molecular platform and multiple rapid testing systems verified and operational. This occurred within the context of fantastic teamwork both on-site in NMH and across Irish laboratories in general.

The on-call staff have played a vital role throughout the pandemic – there was a rapid roll-out of urgent out-of-hours testing only a few days after on-site testing went live in microbiology. The impact of rapid testing 24/7 cannot be underestimated – a 'detected' or 'not detected' affected the type of PPE our clinical colleagues wore. Urgent testing was also important for isolation rooms, contact tracing and management of cases. We would like to thank our colleagues in the Rotunda for providing a testing service to NMH for about 1 month before we received GenXpert kits in NMH.

Successes and Achievements 2020

The major success and achievement is the development of our new molecular suite with facility for both rapid and batch analysis of molecular microbiology tests. In addition, we verified antibody tests for COVID-19 and offered testing for staff. The seemingly simple verification and introduction of spot

urine creatinine testing has brought major benefits for our patients and clinicians alike in management of pre-eclampsia. This is in addition to the introduction of PLGF and sFLT assays. New Blood Gas analysers were employed across the clinical areas of the hospital. Blood transfusion has verified the eCrossmatch which will be introduced in 2021.

The laboratory was very well represented at the inaugural NMH Research and Innovation Day with excellent presentations by Philip Clarke (PLGF and sFLT), Aoife Reynolds (eCrossmatch) and Damian Lally (COVID-19 Antibodies). Congratulations to Damian and team for best poster prize. Aoife Reynolds completed her Masters in Biomedical Science

Challenges 2020

The major challenge was to continue to provide a safe effective service meeting clinical need during a pandemic and to ensure staff safety. We are grateful to all our students who came to work in The NMH lab during the first wave of the pandemic when their studies came to an abrupt halt; the extra help was very welcome and facilitated new rosters at that time.

The infrastructure of the laboratory continues to be a challenge, particularly in histology, and this will need to be addressed in 2021.

The department provides a multidisciplinary 'on call' service which is staffed by 2 medical scientists every day. Training scientists to provide this service and ensuring that their competence is retained by 'update' training is a challenge particularly in a period of pandemic with space restrictions and staff working flexible rosters.

Plans for 2021

Many initiatives are expected in 2021: some well underway

- Plans to reconfigure the histology laboratory and perinatal pathology service
- New analysers to be verified in histology and haematology
- Rollout of point of care testing for glucose
- Introduction of eCrossmatch
- Commissioning of new chemistry analyser
- Expansion of molecular microbiology services
- Commissioning of a new instrument interfacing system for analysers permitting greater flexibility and rule based functions.

- The department purchases a significant range of consumables for the hospital. These will move to an ordering system for improved security and governance.

QUALITY MANAGEMENT

The Department of Pathology and Laboratory Medicine is committed to promoting and providing the highest quality diagnostic and consultative services for all its users. The department is committed to the implementation of the The NMH mission statement. These commitments are defined within the laboratory quality policy.

The department defines and audits the quality management system to ensure compliance with the ISO 15189 standard.

Activity

The Department of Pathology and Laboratory Medicine maintained accreditation across all disciplines to ISO15189, in addition to being awarded an extension to scope for additional tests. By successfully retaining the flexible scope of accreditation system, the laboratory was able to provide an uninterrupted accredited service as quality improvement initiatives were introduced. The laboratory submits an Annual Report for Blood Transfusion to the Health Protection Regulatory Agency (HPRA) documenting the activity for the previous year and reports of blood usage, wastage and planned changes within the department. The 2020 report was successfully submitted and accepted by the HPRA.

User Satisfaction Survey

The department regularly reviews its performance with end-users to continually improve the laboratory service provided. In 2020, a user survey was distributed to all laboratory users within the NMH to assess user satisfaction and identify opportunities for improvement. The user survey identified the vast majority of users are satisfied with the provision of laboratory testing in the NMH. User feedback identified a number of opportunities for improvement which have been incorporated into an Action Plan for implementation in 2021. (Figure 3)

Successes and Achievements

A number of service delivery improvements were implemented in 2020 which expanded the suite of accredited tests provided by the laboratory. This was

achieved by a combination of engagement with the flexible scope of accreditation system in addition to assessment of change management projects by INAB during our annual surveillance visit.

Additions to our scope, detailed in departmental reports, in 2020 included:

- The upgrade and verification of the Endocrinology analyser in the Biochemistry department.
- The introduction of the spot urinary protein/creatinine ratio test in the Biochemistry department.
- Flexible scope utilisation to introduce a new Kleihauer method.

The laboratory has a well embedded formal change management system. The Laboratory raises changes on Q-Pulse when an opportunity for improving the service and subsequently enhancing the quality of laboratory testing provided to the patient is identified. 2020 was an exceptional year for Change Management within the Laboratory with numerous changes implemented in response to the ongoing COVID-19 pandemic and other initiatives.

- The verification and introduction of a rapid GeneXpert assay to detect SARS-CoV-2 nucleic acid.
- The creation of an entirely new Molecular Microbiology section
- The verification and introduction of an accredited D-Dimer Testing service
- The POCT Blood Gas analysers were upgraded
- Verification and accreditation of the electronic cross-matching service

The laboratory is committed to providing a quality laboratory testing service to support excellent patient care. Internal and External audits of our service are completed to ensure all aspects of our service are compliant with relevant ISO standards, EU Directives and best-practice guidelines. Opportunities for improvement are identified and incorporated into follow up audits. All areas of the quality management system are audited on an annual basis. (Figure 4)

Plans for 2021

- Expand Flexible Scope of Accreditation system
- Update the Laboratory Risk Management Procedure in line with the Hospital protocol
- Implement User Survey 2020 Action Plan
- Standardise POCT Service.
- Monitor test turnaround times



BIOCHEMISTRY

The Biochemistry department provides an extensive range of Biochemistry, Endocrinology and specialised fetal monitoring for both the NMH and other hospitals.

Clinical Activity

The Endocrinology service continues to expand with increased in thyroid function testing and support for the diabetes clinics. The Introduction of Urinary Protein Creatinine ration testing has made a significant contribution to the assessment of proteinuria. The verification and introduction of PlGF and sFLT will permit better monitoring and triage of patients with pre-eclampsia

Successes and Achievements 2020

- Verification and introduction of new immunoassay analyser permitting improved turnaround times and increase in test repertoire.
- Introduction of Protein Creatinine Ratio
- Verification and introduction of new Gem Blood Gas Analysers
- Verification of Anti Sars CoV-2 antibody test
- Verification of PlGG and sFLT

Plans for 2021

- Transfer of 1st trimester biochemistry to new platform
- Verification and introduction of Point of Care Glucose meters across the hospital
- Verification and introduction of indices to standardise reporting of lipaemic and haemolysed specimens
- Prepare tender for replacement of chemistry analyser
- Standardise point of care testing and governance
- Seek a solution to offer HbA1c 'in house' to improve patient care for diabetics

BLOOD TRANSFUSION

Investigation of Blood Group and Antibodies. Provision of Blood and Blood Products. Supporting the prevention and management of Haemolytic Disease of the Fetus and the Newborn through detection and monitoring of antibodies, provision of routine Antenatal Anti D prophylaxis.

Clinical Activity

The introduction of the cell free DNA testing to establish fetal RhD status has led to a significant reduction in the administration of antenatal prophylactic Anti D both for potentially sensitising events and for the routine prophylaxis at 28 weeks.

Continued monitoring of obstetric haemorrhage by a multidisciplinary team has led to significant reduction in use of blood and blood products.

Successes and Achievements 2020

- Verification of the electronic crossmatch is now complete
- Compliant with falsified medicine directive
- Verification of automated Rh and K phenotyping
- Introduction of traceability for Fibrinogen
- Extension of shelf life for LG-Octaplas

Plans for 2021

- Implementation of automated Rh and K phenotyping
- Implementation of electronic issue
- Introduction of electronic reporting of Fetal Rh D screens from IBTS
- Verification of titre score to reduce referrals for Anti-D Quantitation
- Elimination of the compatibility report

HAEMATOLOGY

Service Overview

The haematology laboratory investigates blood disorders and is critical for the detection and management of anaemias, sepsis and coagulation disorders. In addition, Kleihauer tests are used to quantitatively estimate fetomaternal haemorrhage.

Clinical Activity

In response to the reported coagulopathies observed in patients with COVID-19, the D-Dimer assay was evaluated and introduced. D-Dimer was identified as a potential biomarker for disease severity for patients diagnosed with COVID-19 disease

Successes and Achievements

- The process of replacement of the Full Blood Count Analyser was initiated and the replacement analyser identified
- Rapid verification and introduction of a new testing kit for Kleihauer, via our flexible scope, following the abrupt withdrawal of existing method
- Verification and introduction of D-Dimer

Plans for 2021

- Install and verify the new Sysmex XN FBC analyser
- Seek options for provision of improved haemoglobinopathy screening to comply with guidelines and to link this with the Biochemistry plan for provision of HbA1c.

HISTOLOGY

The histology provides a diagnostic service examining tissues arising from surgical specimens taken in theatre, placentae and a perinatal pathology service. The department supports the cervical check programme and the gynaecology clinics

Clinical Activity

During 2020 the department worked closely with the bereavement team to provide rapid reports for placental examination post stillbirth and this has been very well received.

Successes and Achievements

- Transfer of 'in house' special stains to a standardised process using commercial CE marked kits.
- Modification of work practices in response to pandemic and maintenance of agreed reporting deadlines
- The process of replacement of both the staining machine and the Immunohistochemistry analysers was initiated and the replacement analysers identified

Plans for 2021

- Install and verify the new staining machine
- Install and verify the Immunohistochemistry analyser and its detection methods for a range of antibodies
- Optimise the Sars-CoV2 antibody for the identification of Covid Placentitis
- Work with Executive Management Team and Ireland East Hospital Group to provide a regional perinatal service. This is contingent on a reconfiguration and relocation of the department into appropriate premises.

MICROBIOLOGY

The Microbiology laboratory provides a routine bacteriology testing and molecular microbiology service for both the National Maternity and Royal Victoria Eye and Ear Hospitals. Surveillance reporting is provided for both hospitals

Clinical Activity

In addition to provision of the routine service 2020 was dedicated to provision of testing for Sars-CoV-2. Initially tests were referred to the NVRL and then to the Rotunda. When the kits were available for our GeneXpert platform the testing was verified 'in house'. This testing was also added to our Biofire platform and finally the batch analyser AUS Diagnostics was commissioned. The department now supports all the

testing needs, patients and staff, for the 2 hospitals. Using agreed algorithms swabs are analysed from all in patients and prior to planned surgery via pre assessment clinics. In addition, the use of a single swab for microbiology improved workflows in clinical and laboratory areas.

Surveillance reports for MRSA colonisation, rectal screening, influenza rates and blood stream infections are provided to guide infection control. Daily reporting of Sars-CoV-2 testing and infection rates is supplied to the HSE.

Successes and Achievements

- Relocation and reverification of equipment after delivery suite building works
- Verification of antibiotic susceptibility testing for resistant organisms
- Implementation of EUCAST 2020 breakpoints
- Verification and introduction of Sars-CoV-2 testing on 3 platforms using 4 assay configurations.
- Interfacing of both GeneXpert and AUS Diagnostic platforms to LIMS.
- Verification of Maldi-TOFF analyser for rapid identification of microbes.

Plans for 2021

- Seek accreditation for molecular testing on the GeneXpert platform
- Seek accreditation for the Maldi-TOFF
- Verify the Film Array
- Expand the molecular testing repertoire on the AUS Diagnostics

HAEMOVIGILANCE

The main aim of Haemovigilance is to promote safe transfusion practice in our hospital. The haemovigilance service participates within the overall Laboratory Quality Management system. It undergoes annual inspection and is accredited by the Irish National Accreditation Board.

Successes and Achievements 2020

- INAB Accreditation achieved – ISO 15189
- 100% Traceability of blood components and products
- European Blood Directive 2002/98/EC
The Directive governs the activities of Blood Transfusion Service and Hospital Blood Banks (*Blood Transfusion Dept. and Haemovigilance Dept.*) in all EU member states:
16 (*Mandatory and non mandatory*) reports were sent to National Haemovigilance Office

- Haemovigilance Education review in light of the COVID-19 Pandemic

Changes to delivery of education for clinical staff in 2020 from face-to-face to on line was successfully implemented by:

- Use of on line E-Learning system "Totara" for NCHD Induction
- Use of Blood Transfusion E-Learning (*learnprout*) system was introduced for Midwifery/Nursing staff and also for Midwifery Students
- No change to method of delivery of Haemovigilance education to other staff groups (MCA/Portering staff)

Plans for 2021

- Various policies to be reviewed/written and updated
- Maintain current Haemovigilance service
- To maintain ISO15189 (INAB Accreditation)
- To participate in the National Transfusion Advisory Committee (NTAG) working groups (Patient Blood Management, Life threatening Haemorrhage, Neonatal Components, Regional Transfusion Committees)
- To promote the appropriate use of blood and blood products and implement the new NTAG guidelines as they become available
- Continue to monitor transfusion practice
- Education of staff

Figure 1: Laboratory Requests Summary (Totals)

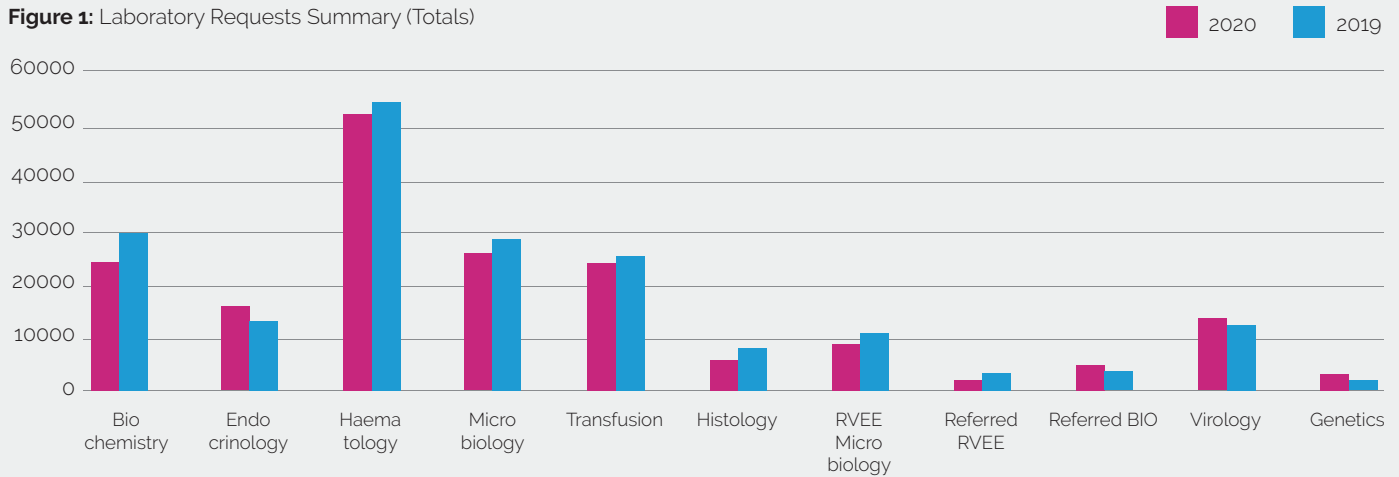


Figure 2: Change in workload (% variance) 2020 vs 2019

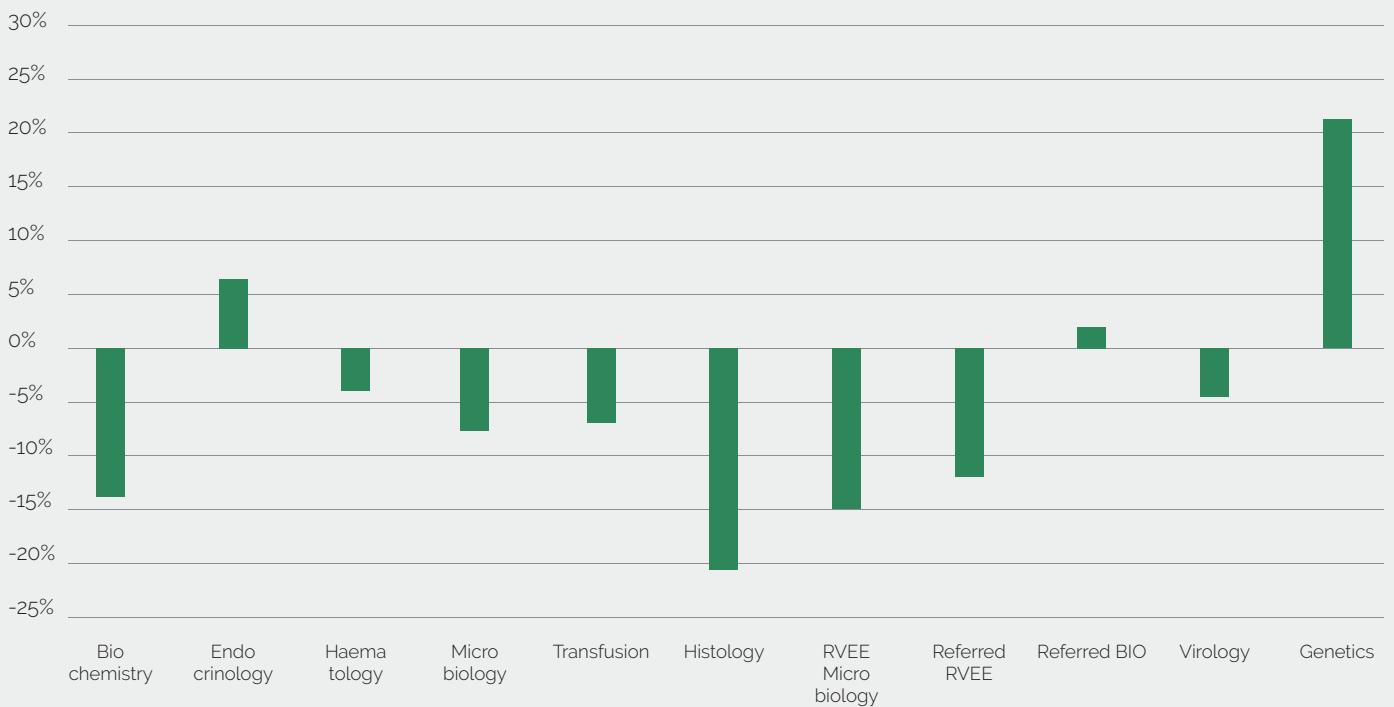


Figure 3: Department of Pathology and Laboratory Medicine User Survey 2020

Overall how satisfied are you with the service the laboratory provides?

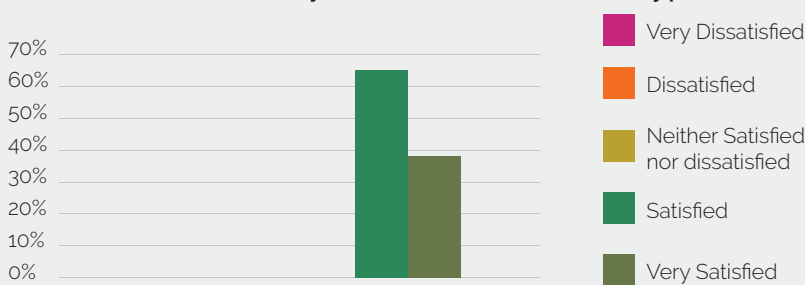
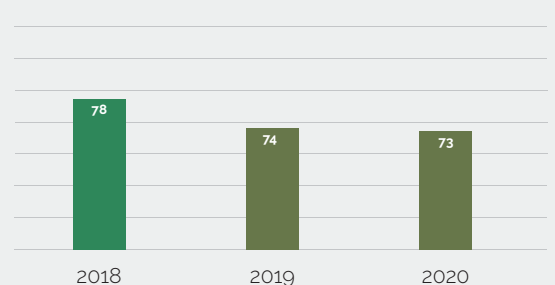


Figure 4: Department of Pathology and Laboratory Medicine Audit Calendar

Audits Performed



Pre-Assessment Clinic

The Pre-Assessment Clinic was established during the year to streamline the assessment of all gynaecology surgical patients on an outpatient basis. The clinic is Nurse-led with support from an Anaesthetic Consultant, an assigned Obstetric Senior House Officer and an Anaesthetic Registrar.

The objective is to enhance the clinical care of patients by conducting timely assessments, identifying health issues and arranging prompt treatment. This leads to a reduction of cancellations and a reduced bed occupancy prior to surgery.

The arrival of COVID-19 to Ireland accelerated the clinic rollout. Each patient now requires a swab for COVID-19 within 48 - 72 hours of their surgery. Timing of appointments are facilitated by administrative staff and the clinic opened with the following aims:

- To swab the patient for COVID-19
- To facilitate discussion about the surgical procedure and gain consent
- To improve patient education
- To improve safety and reduce risk by allaying any concerns

General checks of blood pressure, temperature, pulse, oxygen saturation and respirations are performed. Height and weight are recorded giving a BMI score. Blood tests are taken as necessary and an ECG tracing of the heart is performed if indicated. COVID-19 swabs and other screening swabs are taken as necessary.

Over 450 women have been seen for full surgical workup since June 2020 and those for elective caesarean section receive their COVID-19 swab 48 hours prior to surgery also. The table below gives the monthly activity of the clinic since its establishment in June.

In October, a dedicated Clinical Nurse Manager and administrative support were appointed which has proved a very successful addition to the service.

The Pre-Assessment Clinic has improved the efficiency of the Theatre and has reduced the number of patients who fail to attend for surgery or need their procedure cancelled due to lack of assessment. Work is also continuing to support a virtual assessment of patients who undergo small procedures who do not need general anaesthetic. The clinic is provided on a Monday, Tuesday, Wednesday and Friday each week.

*Samantha Sweeney,
Health Care Assistant.*



	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Pre-op assessment	64	59	66	77	78	83	31
COVID-19 swab (C-Section)	86	117	95	94	103	88	94
Total	150	176	161	171	181	171	125

Hospital Sterile Services



The Hospital Sterile Services Department (HSSD) is committed to the highest level of quality in the decontamination (cleaning, disinfection and sterilisation) of Reusable Invasive Medical Devices (RIMD). Sterility assured reprocessing of RIMD is achieved through adherence with Decontamination Policies, Procedures and Guidelines.

Activity levels continue to remain high year on year. In total 32,207 packs were sterilised in 2020. COVID-19 restrictions and the cancellation of some elective theatre cases did not have much impact on the productivity in HSSD. Non-conformance / complaints were 2% of production.

There was 543 hours downtime for the year, mainly due to the aging Autoclave equipment.

The department needs to be relocated to replace aging decontamination equipment and to comply with decontamination standards.

All staff are up to date on mandatory training and manual handling. Due to COVID-19 pandemic restrictions, no Irish Decontamination Training Days took place.

Quality/Risk

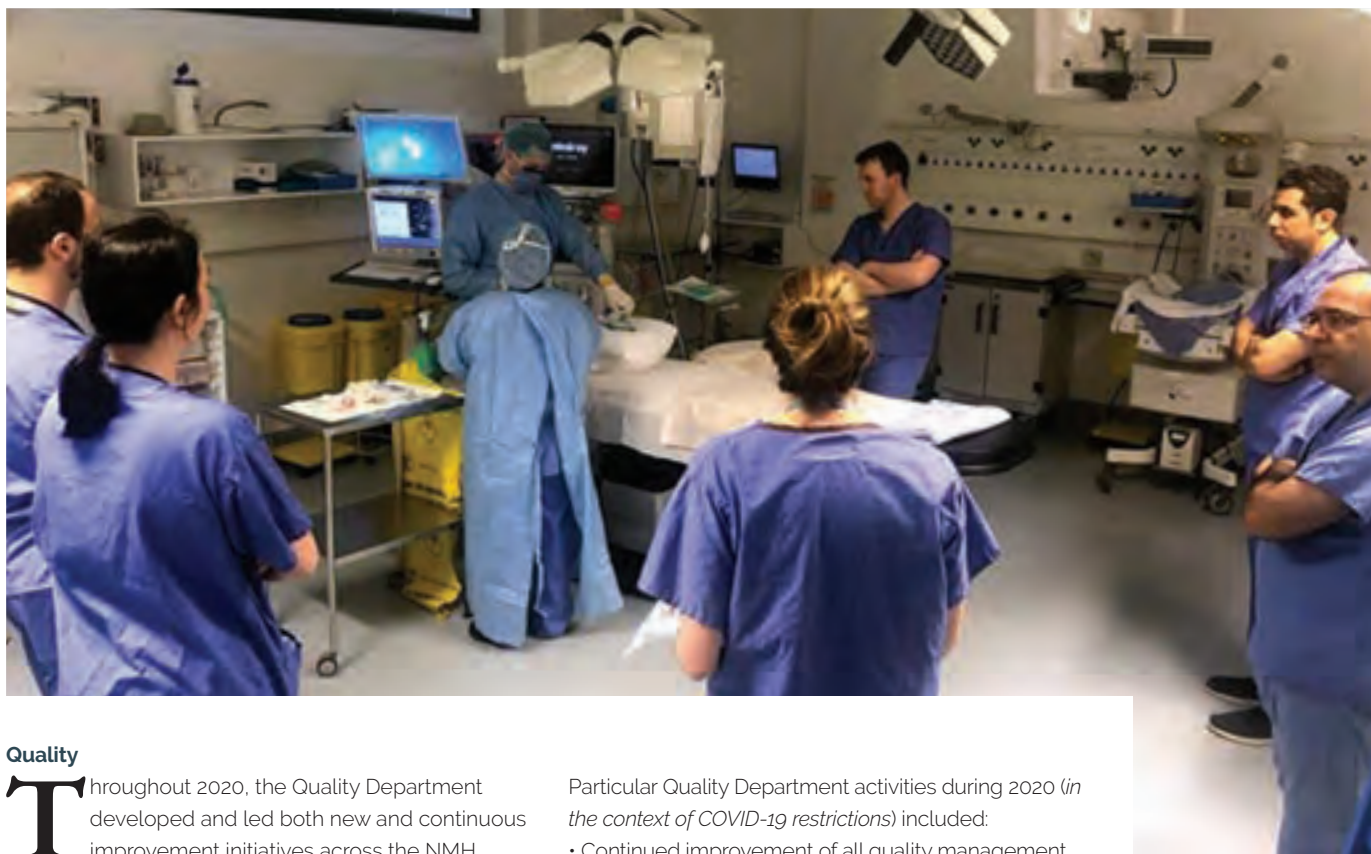
A departmental risk register is in place and there are escalation procedures should this be necessary. The following audits took place during the year: Daily Quality Control Audit, Weekly Automatic Control Test, Monthly Key Performance Indicators, Quarterly Hygiene Audits and Annual Infection Control Audit.

Infection Control

Four Environmental Monitoring audits took place in 2020 where we sampled the air and surfaces from all rooms and water from the reverse osmosis water treatment unit. The results were discussed at the quarterly Infection Control meeting

Audits were also carried out in Fetal Assessment on the manual and automated cleaning of 'Semi-Critical' probes. Hygiene services conducted monthly audits of HSSD.

Quality, Risk and Patient Safety



Quality

Throughout 2020, the Quality Department developed and led both new and continuous improvement initiatives across the NMH in conformance with departmental and hospital objectives. This was achieved through day-to-day operational activities and underpinned by the following governance entities:

- Clinical Governance Executive Committee: meeting monthly to review and approve the identification and implementation of evidence-based standards, policies, procedures and guidelines and assure compliance with all statutory and regulatory requirements.
- Quality, Risk and Health and Safety Committee: meeting monthly to assure operational quality and patient safety through continuous monitoring, evaluation and improvement.

The services of the Quality Department are data-driven and underpinned by three core data management systems:

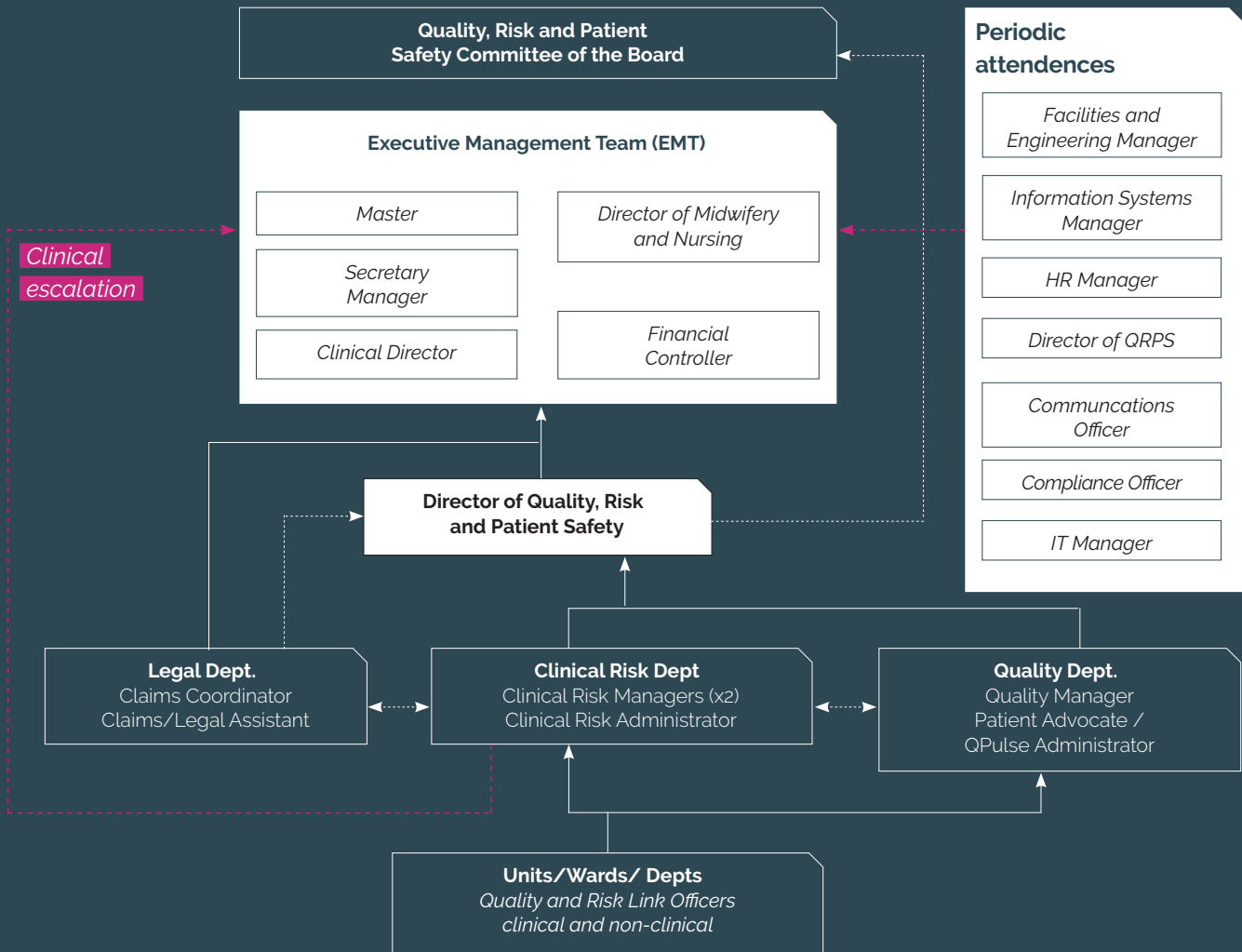
- Patient Feedback Management System (*supporting excellence in Patient Advocacy*).
- Quality Improvement Registry.
- Audit Management System.

Externally, the Quality Department continued to represent the hospital at the Ireland East Hospital Group (IEHG) Quality and Patient Safety Forum.

Particular Quality Department activities during 2020 (*in the context of COVID-19 restrictions*) included:

- Continued improvement of all quality management systems.
- Completion of the new Patient Safety Complaints Advocacy programme (*all team members*).
- Facilitation of *Managing Difficult Complaints Training* workshop for clinical staff.
- Proactive involvement with community partners to enhance integration, coordination and seamless delivery of care. This included GP Liaison Committee meetings (x3) and Patient Voice Group meetings (x2).
- Coordination and management of NMH's GP Study Day (*virtual*).
- Information Day for Community Partners (*PHN's, Practice Nurses, Doulas*).
- Contributions to Patient Safety Awareness Week.
- Management of all Patient Feedback (*129 written complaints - 34 Level 1, 95 Level 2; 20 direct patient meetings*)
- Implementation of Quality and Safety Walk-rounds.
- Implementation of online NMH and NICU Patient Experience Surveys.
- Management of the NMH's participation in the first National Maternity Experience Survey for patients who attended during October 2019. The NMH had the highest response rate (*56%, n=361*) with 85% respondents indicating their care was "Good/Very Good".

Figure 1: NMH Functional Clinical Governance Structures.
 (Please note: the dashed lines indicate critical sharing of information rather than reporting)



Key positive themes included: Midwives, labour and birth, Consultants and Doctors and treatment with dignity and respect. Resulting from the survey, the Quality Department developed 19 x Quality Improvement Plans (QIPs) to reflect that we listen to our patients, respond and improve.

- Ongoing document control and management through continuous updating and use of the Q-Pulse system.

Many thanks to all colleagues across the hospital for contributing to the development and implementation of these QIP's.

Clinical Governance

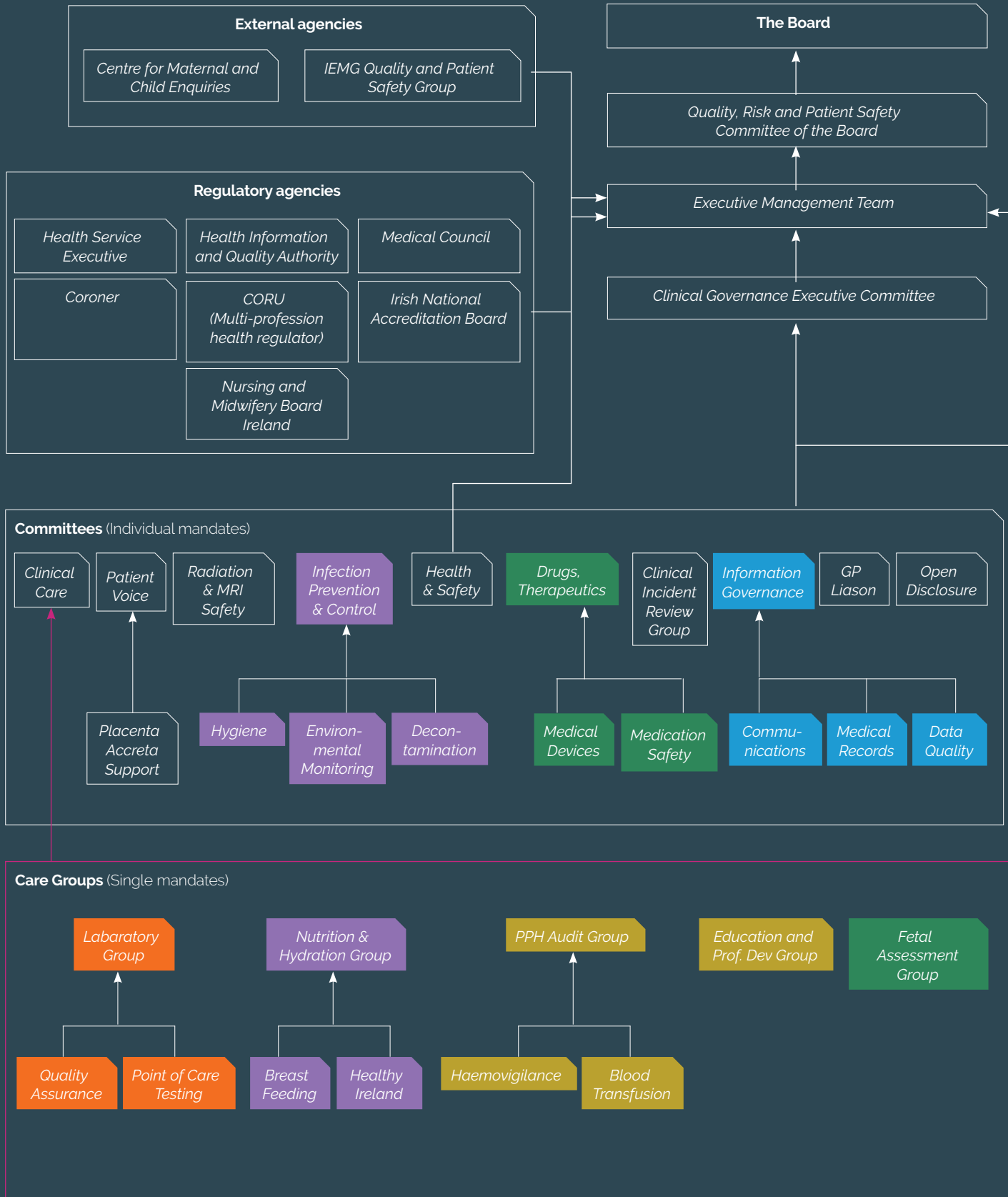
Clinical governance, a component of healthcare governance, continues to be the framework through which we are accountable for continuously improving the quality and safety of our services and safeguarding

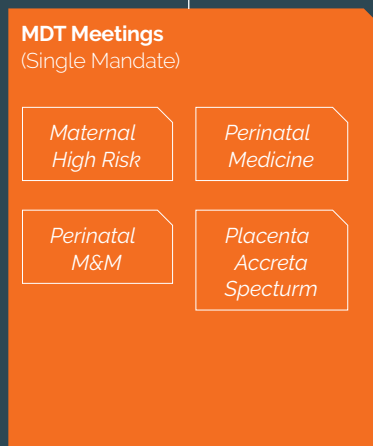
high standards of care by creating an environment in which clinical care will flourish. This requires the implementation and management of the "pillars" of clinical governance - effective service provision, risk management, patient experience, communications, resource management, strategy and learning - all underpinned by the solid foundations of systems awareness, team working, ownership, leadership and collaborative team working of staff, patients, patient families and members of the public. Such implementation and management is evolving towards an effective patient-NMH professional partnership.

Figure 1 presents the functional clinical governance structures of the NMH with Figure 2 presenting committee/group governance structures.

Within the Committee/Group Clinical Governance structures (Figure 2), a key component is the Clinical

Figure 2: Clinical Governance Structures





Clinical Governance Executive Committee

(CGEC) which is responsible for:

- The continuous monitoring and management of the quality and safety of our services by ensuring the integration of evidence-based clinical governance practice into frontline clinical practice.
- Increasing awareness of our key clinical challenges (*risks and opportunities*).
- The dissemination of key learning experiences.
- Critically encouraging and fostering a culture of quality, safety and excellence.
- Providing critical leadership and management oversight of clinical governance in the NMH.
- Determining the strategic development of clinical governance in alignment with broader NMH strategies.
- Ensuring continuous quality improvement through audit, review and management of "lessons learned".

we are accountable for continuously improving the quality and safety of our services and safeguarding high standards of care by creating an environment in which clinical care will flourish.

The CGEC, chaired by the Master, meets on a monthly basis with membership including the Clinical Director, Director of Midwifery/Nursing, Secretary/General Manager, Directors of Paediatrics & Anaesthetics, Consultant Histopathologist, Consultant Microbiologist, Consultant Obstetricians and Gynaecologists, Clinical Risk Managers, Assistant Directors of Midwifery and Nursing, Director of Quality, Risk and Patient Safety, Quality Manager, Information Officer and Clinical Practice Development Coordinator. During 2020 within our clinical governance structures, our Clinical Governance Executive Committee met monthly (n=11) and was supported by our Clinical Incident Review Group, meeting fortnightly with responsibility for on-going, multi-disciplinary, critical review of reported clinical events to underpin high standards of care.

Clinical Incident Management

The Clinical Incident Review Group (CIRG), reporting into the CGEC and chaired by the Clinical Director, is responsible for the on-going critical review of a range of clinical incidents which meets HSE Category 2 triggers (*as defined by the HSE Incident Management Framework 2020*) to facilitate the development of strategies for

continuous quality improvement, maximise learning and to create and foster innovative changes to enhance patient care and safety. The Group meets fortnightly with a core membership including the Director of Midwifery/Nursing, Labour Ward Fellow, Paediatric Registrar, Clinical Risk Managers, ADOM/Ns, Director of Quality, Risk and Patient Safety, Quality Manager and Clinical Practice Development Coordinator (*other expert members are invited to attend as is determined by the incidents under review*). During 2020, the CIRG met on 25 occasions reviewing 225 Category 2 incidents out of a total of 2,012 clinical incidents reported.

[Note 1: An additional 578 Category 2 incidents were reviewed by CIRG delegation (*to Consultants, Assistant Masters and PPH Review Group - formerly PPH Audit Group*) plus 74 Category 1 incidents were reviewed by the Perinatal Mortality and Morbidity meeting.]

[Note 2: The remaining 1,135 incidents were classified as Category 3 incidents and reviewed by our Clinical Risk Managers.]

Clinical Risk Management

The Clinical Risk Department manage operational risk and contributes to the management of corporate risk in full compliance with the HSE Risk Management Policy leveraging our cloud-based Risk Management System (RMS). Table 3 presents summary data for clinical risks managed during 2020.

Table 3: Overall Summary data for risks managed during 2020

Activity	Numbers
Operational risks recorded	137
Corporate risks recorded	16
Risks escalated within governance structures	66
Risks accepted by the EMT without further control	3
Risks which became inactive as the activity has ceased	1

Claims Management

It is not always possible to reduce claims and litigation, and it is therefore the aim and objective of the Legal Department to effectively and efficiently co-ordinate claims that arise.

In close collaboration with the State Claims Agency (SCA), the Legal Department manages the following types of claims - where clearly related to an incident:

- Clinical.

- Coroner's cases (*from initial notification through to final resolution ensuring all claims/Coroner's cases are managed in a thorough and timely fashion in order to facilitate early decision-making in relation to liability and strategy - in close collaboration with, and support from, the Clinical Risk Department*).

The Legal Department coordinated 22 new claims during 2020 out of a total of 79 on-going cases.

Clinical Governance Collaboration and Other Activities

As part of the Clinical Governance function, the Clinical Risk Department and Legal Department, work collaboratively to provide integrated, high quality clinical risk and legal management services delivered with understanding, compassion, integrity and respect. Together the departments also provide integrated day-to-day operational management of all NMH risks and incidents in compliance with appropriate legal and regulatory requirements (*e.g. the State Claims Agency (via NIMS), HIQA, the HSE and the IEHG*) as well as the critical support and management for staff involved in Coronial and legal processes. This includes the management and reporting of HSE Serious Reportable Events (SREs) on a quarterly basis (*n=18*). Additionally, the Clinical Risk and Legal Departments also significantly contributed to both external and internal professional development and training during 2020.

Other related clinical governance activities during 2020 included:

- COVID-19 infection prevention and control evidence-based conformance audit report (*carried out March-June: 151 criteria; 97.2% compliant with 4 x partial compliant findings subsequently addressed*).
- Design and ongoing management of the NMH COVID-19 Action Log.
- Continuation implementation of hospital-wide TeamSTEPPS 2.0 framework (*Team Strategies and Tools for Enhanced Performance and Patient Safety*). **67** additional staff were trained (*clinical staff 62 and non-clinical 5*), as well as the continuous improvement of all aspect of our Clinical Risk and Legal services.
- Course content evolution for online NCHD TeamSTEPPS training (*due to COVID-19 pandemic*).
- Completion of migration of clinical risk and legal management systems from existing "local" systems to the "Cloud" (*facilitated by Zoho Creator*) by July 2020.
- Success pilot of direct electronic incident reporting via the Clinical Incident Management System (*facilitated by Zoho Creator*) by Pharmacy (*July 2020 onwards*).

Many thanks to all colleagues across the hospital for contributing to the management of clinical risk, incidents and claims.



Health & Safety

The National Maternity Hospital Health and Safety Department is dedicated to ensuring the safety, health and wellbeing of all our patients, staff, visitors and contractors. This is achieved by promoting and facilitating a safety conscious culture to ensure a safe environment and place of work in line with best practice.

The impacts of the COVID-19 pandemic has been felt across the hospital and many activities were restricted to mitigate against the threat. At the start of the pandemic, there were daily COVID-19 task force meetings and as the year progressed, this reduced to thrice weekly. Attendances at the twenty Health and Safety Training sessions were favourably received by two hundred and seventy individuals during the year. The induction program for staff is further complemented by the mandatory study day which is open to both clinical and non-clinical staff. This runs online regularly throughout the year and ensures all staff has an opportunity to refresh their health, safety

All staff are engaged in working proactively with managing these risks to ensure a safe working environment for all our patients, visitors and staff.

and emergency procedures awareness. In addition, online training is also available for staff.

The hospital liaises closely with the Dublin Fire Brigade; Fire Safety Consultants provided training for forty-six of our fire wardens in 2020. There were two hundred and seventy-two staff involved in the mock evacuations conducted on a rolling basis. Ski sled awareness training is also provided during manual handling.

Contractor Management remains a key focus area especially in light of COVID-19 and additional controls were introduced to manage the risk. Additional minor capital projects undertaken improve site facilities and patient safety in the long term. These additional construction activities including the 'Internal Building Team' require the effective implementation of contractor management controls. Managers in control of the workplace and our contractors work together to ensure safe systems of work are in place and working effectively.

The Annual Accident Review was conducted and there were a number of initiatives during the year to raise staff awareness of these hazards. All staff are engaged in working proactively with managing these risks to ensure a safe working environment for all our patients, visitors and staff.

Sincere thanks to all employees proactively working as a team to improve the safety culture within the Hospital. Thanks also to all members of the Quality, Risk, Health and Safety Committee which met on eleven occasions during 2020, to the Safety Representatives and Lead Worker Representative, Bronwyn Redmond, Support Services Teams, Nursing & Midwifery and clinical teams.

While 2020 has been a busy year it is likely that 2021 will be even more challenging given the current COVID-19 constraints, scheduled complex and challenging projects and current financial environment.

Occupational Health



Alison Leddin with her newborn baby boy Alex.

Twenty twenty saw another very busy year in Occupational health which continues to provide a proactive service to all staff to maintain health and wellbeing within the workforce.

Key services include pre-employment health assessments, sickness absence reviews, vaccinations, pregnancy, ergonomics and first aid assessments.

There were 226 consultations with the Occupational Health Physician and 385 with the Occupational Health Nurse as well as many drop-ins.

We have annual intakes of both BSc Midwifery and HDip Midwifery students as well as the bi-annual intake of Non-Consultant Hospital Doctors (NCHDs). The NCHD's now have a national training and planning programme (NDTP) from the HSE which links in with an Occupational Health module for their medical forms and vaccination records which works really well.

Bodily fluid Occupational Blood Exposures (OBE) continue to be monitored and updated algorithms for OBE exposure are sent to all clinical departments. Due to COVID-19 restrictions, we have added separate folders with the relevant documentation in key high risk areas of Delivery Ward, Neonatal Intensive Care Unit and Theatre.

We continue to liaise with Ballsbridge Physiotherapy Clinic for our muscular-skeletal issues with staff and are happy with the continuity of service.

We have had an increase in our Ergonomic assessment service and many departments have had re-configuring of offices with new chairs, and desks plus improved lighting.

The flu vaccine uptake has further increased for 2020/2021 season to 83% a big jump and thanks to the education department and peer vaccinators for massive input in reaching this figure which is the second highest in Ireland East Hospital Group group.

Occupational health continues to provide a proactive service to all staff to maintain health and wellbeing within the workforce.

COVID-19 has had a huge impact on the service and early spring we set up a separate COVID-19 Occupational Health Department with separate staff which dealt with contact track and tracing, helpline, swabbing, database, guidelines etc. In late summer, it reverted back to our department and with now 2 part-time nursing staff plus administration full-time, we have consumed it into our working day.

The Employee Assistance programme (EAP) has seen a significant increase uptake this last year and has been a great asset to our drop-in, telephone service that has supported staff during this challenging time.

COVID-19 Occupational Health

In March 2020 a separate Covid Occupational Health Service was set up specifically to support staff and meet the challenge of managing increasing staff absence related to COVID-19 leave. This was led by Pauline Treanor and Gillian Carty who were redeployed from the NMH at Elm Park Project Office and supported by a team of nurses and administration staff redeployed from the Gynaecology Services which had been temporarily suspended at this time. The NMH Microbiology laboratory as well as Consultant Microbiologist Dr Susan Knowles and Consultant Obstetrician and Gynaecologist Dr Orla Sheil were also part of this service.

The main functions of the department were to screen symptomatic staff, arrange swabs where necessary (which were carried out on site), carry out contact tracing in the event of a COVID-19 detected staff member or patient, monitor close contacts including those who returned from international travel, provide an advice helpline for staff, provide support to those staff who were diagnosed with COVID-19, arrange accommodation for staff who had difficulties isolating within the home. The team worked closely with Infection Control and the Consultant Microbiologist Dr. Knowles.

A database was set up by Emmet Travers which greatly assisted with the recording of cases and complying with the multiple reporting requirements. As information about the virus evolved rapidly, it proved challenging to keep abreast of the changing medical advice and update hospital guidelines and workflows. Updated advice and information was communicated to staff via the staff newsletter.

The team liaised with the NMH COVID-19 task force to advise on changes to work activities and the implementation of infection prevention and control measures in the workplace in response to investigation of staff COVID-19 cases.

Hospital staff were at the front line of the COVID-19 outbreak response and understandably they became increasingly anxious and worried for the safety of not just themselves but their families as cases of COVID-19 increased daily. Feedback from staff indicated that having a dedicated COVID-19 occupational health service provided them with the reassurance and confidence of being supported by the hospital through the pandemic. During this crisis, in particular during the first wave, the Covid Occupational Health team played a key role in managing staff safety thus making sure that critical services kept running.

In late summer as the number of COVID-19 cases dropped the Covid Occupational Health service was subsumed back in to the Occupational Health Department with a surge capacity plan for further outbreaks.

Approx. 437 staff availed of Covid related leave usually for an average of 2 days following a 'not detected' COVID-19 swab result in NMH, taken for symptoms of COVID-19 or while awaiting swab results from Public Health of a symptomatic household contact. A further 169 staff availed of Covid leave as they were required to restrict their movements for 14 days following a close contact with a COVID-19 detected case or following return from travel.

NMH Staff Covid- 19 Detected Cases	Total Number of Staff COVID-19 Detected	Staff with COVID-19 Detected in NMH swab	Staff with COVID-19 detected by community swab
Mar-Dec 2020	54	42	12

Reason for 14 Day Restricted Movements	Total Number of Staff	Community Contact	Patient Contact	Staff Contact	Return from Travel
Mar-Dec 2020	169	58	44	36	31 (24 in March)



Mary Brosnan, Director of Midwifery and Nursing, Dr Susan Knowles, Consultant Microbiologist and Prof Shane Higgins, Master at the vaccine clinic.

Infection Surveillance, Prevention and Control

The infection Prevention & Control (IPC) team works with colleagues across all areas of the hospital to ensure that the risk of a patient, visitor or staff member acquiring a healthcare associated infection is minimised. The team closely monitors infection rates, including device associated infections, caesarean section surgical site infection, maternal and neonatal sepsis and multidrug resistant organisms. Antimicrobial stewardship and minimising development of antimicrobial resistance is a key goal of the IPC team.

The team contributes to multi-disciplinary committees including Infection Prevention and

Control Committee, Drug & Therapeutics Committee, Quality Risk & Patient Safety Committee, Decontamination Steering Group, Hygiene Committee, Sepsis & iMEWS (*Irish Maternity Early Warning System*) Committee, and the COVID-19 Taskforce.

In February 2020 Simon Tokatly joined the team as maternity leave locum for Louise Delany and we are very grateful to Simon for his incredibly hard work during the first wave of the COVID-19 pandemic. We are grateful to the Executive Management Team for approving an additional IPC specialist post and welcomed Bincymol Cyriac to the team in November.

Clinical Outcomes

Sepsis and Septic Shock

- Six women developed maternal sepsis in 2020 (0.83 per 1000 maternities compared to 0.51 in 2019 and 0.88 in 2018).
- One woman developed septic shock and five had sepsis.
- Four infections were antenatal pyelonephritis, one was antenatal COVID-19 septic shock and one was postnatal COVID-19. All women recovered.
- The organisms identified were *E. coli* (3), SARS-CoV-2 (2) and no organism identified (1).
- There was one gynaecology patient who developed sepsis. No organism was identified in this case and the patient recovered.

Blood Stream Infection (BSI) and Meningitis:

- The rate of neonatal early onset group B streptococcal (GBS) disease (culture or PCR positive) was 0.27 per 1000 births in 2020 compared to 0.62 in 2019. The rate of all cause early-onset sepsis was also 0.27 per 1000 births in 2020.
- There were 13 neonatal late onset sepsis cases in 2020. Five coagulase negative *Staphylococcus*, 1 *S. aureus*, 6 gram negative bacilli and 1 polymicrobial BSI.
- No infant was diagnosed with meningitis in 2020.
- There were 30 BSI in adult patients of which 10 occurred during the antenatal period, 5 intrapartum, 14 postpartum and 1 occurred in a gynaecology patient. The organisms identified were *E. coli* (12), GBS (4), anaerobic bacteria (3), *Streptococcus* species (3), *S. aureus* (2), *K. pneumoniae* (2), *E. faecalis* (2), *Listeria monocytogenes* (1) and *S. pneumoniae* (1). Nine of these BSI were healthcare associated infections (HCAI).

Device Associated Infection, Surgical Site Infection and Clostridium difficile

- The central line associated blood stream infection (CLA-BSI) rate in the NICU was 2.9 per 1000 catheter days in 2020 compared to 3.0 in 2019.
- There were no cases of ventilator associated pneumonia in the NICU compared to a rate of 4.3 per 1000 ventilator days in 2019.
- Caesarean section surgical site infection rate was 5.4%, 3.5% following elective CS and 9.3% emergency CS. This compared to 5.7% in 2019 (5.5% elective CS and 5.9% emergency CS).
- There were no cases of *Clostridium difficile* infection compared to a rate of 0.2 per 10,000 bed days in 2019.

Multi-Drug Resistant Organisms (MDRO)

- There were two MRSA blood stream infections (BSI) in 2020; one was associated with a peripheral venous catheter associated infection in a patient transferred

from another hospital and the other was secondary to a skin and soft tissue infection.

- MRSA was detected in 19 infants in the neonatal unit from 2,404 patient screens. Of these 19 infants, 6 were hospital-acquired colonisation, four of which were associated with an outbreak. There was one BSI following maternal transmission and a further 11 were detected colonised on admission.
- MRSA was detected in 23 adult patients from 886 patient screens. Six developed an MRSA infection and 17 patients were colonised. Eighteen were community-acquired MRSA, two were HCAI and three were of undetermined source.
- No patient was colonised or infected with carbapenemase-producing enterobacterales (CPE) from 1,660 patient screens tested in 2020.
- There was no vancomycin-resistant *Enterococcus* (VRE) BSI. VRE was detected in two adult patients. In the neonatal unit, one infant was colonised with VRE and 13 were colonised with gentamicin resistant gram negative bacilli.

COVID-19

- 2,541 PCR tests for SARS CoV-2 were performed in NMH in 2020, of which 72 were positive.
- Twenty-seven positive results were adult patients, no neonates, 42 staff and 3 other. A further 12 staff and many other patients were detected positive at community testing during 2020.
- No Healthcare Acquired Infection (HCAI) patient infection occurred during 2020.
- One staff outbreak occurred in December 2020.

IPC Audits and Education

- Hand Hygiene
- 505 clinical staff (86%) received hand hygiene training.
- Hand hygiene audit showed 98% compliance with hand hygiene task and 8% non-compliance with barrier to hand hygiene.
- Alcohol gel use for 2020 was 3465,58L (2019 = 1892.88L). As anticipated, there was an increase in alcohol gel use during the pandemic compared to previous years.
- Compliance rate for Peripheral Vascular Catheter care bundle is 87% and for Urinary Catheter care bundle is 98%.
- Social distancing and PPE audits revealed 93% compliance overall.

Antimicrobial Stewardship

- Due to COVID-19, HSE reporting on hospital antimicrobial consumption for Quarter 3 and Quarter 4 2020 has not been returned to us. Consumption for Quarter 1 and 2 was 29.9 Defined Daily Dose (DDD) /100 Bed Days Used (BDU) which represented a 10% decrease on 2019 figures (Total 2019 = 33.2

DDD/100BDU). A reduction of 15% was seen on overall use of IV Co-amoxiclav. This could be due to COVID-19 and decreased infections and also reduced admission for gynaecology patients for first half of 2020.

- Antimicrobial app for adults and neonates has been updated on an ad hoc basis, based on changes in national and international recommendations.
- Neonatal antimicrobial guideline on Q-Pulse was updated.
- Prevalence survey 2020: 14% prevalence of antimicrobial prescribing, which represents a reduction from 17% in 2019. Compliance with guidelines was 93%. Compliance with documentation of indication and allergy status was 100%.
- Seventeen patients were prescribed meropenem, a controlled antibiotic, of which 15 (88%) were approved by microbiologist or in line with hospital antimicrobial guidelines.

Achievements

COVID-19

All patients, visitors and staff were significantly affected by the COVID-19 pandemic. A COVID-19 taskforce was convened in February 2020 and met regularly. Many COVID-19 related initiatives occurred and this infection dominated every aspect of life in NMH during 2020. The challenges were great and many initiatives were rolled out across the hospital including: increased purchasing and availability of Personal Protective Equipment (PPE) including surgical masks, respiratory masks, gowns, gloves and face visors; multiple new care pathways; creation of a 'hospital within a hospital' during the first wave; segregation of a COVID-19 and non-COVID-19 emergency department during the first wave; additional negative pressure ventilation in the emergency department, delivery suite, some hospital wards and the Special Care Baby Unit; training in nasopharyngeal swabbing; daily public health notifications; training in donning and doffing PPE, respiratory mask fit testing; limited re-processing of gowns for selected re-use; additional hand hygiene sinks; additional alcohol gel stations; COVID-19 cleaning team; laboratory PCR testing on-site; 24/7 urgent PCR testing on-site; dedicated helplines for patients and staff; updates on emerging therapies; social distancing; perspex screens; cocooning; contact tracing; close contact leave; carpark testing for staff; restricted visiting guidelines; virtual clinics; virtual meetings; clinical risk COVID-19 report, responses and actions; additional IPC education for all staff; new signage and posters; communication bulletins for staff; eLearning hub for patients; on-line education for staff. This list is not exhaustive as many more initiatives took place in NMH, too numerous to document all in this report!

Chlamydia Trachomatis Screening for Antenatal Women <25 Years Old

In January The NMH began offering screening for *Chlamydia trachomatis*, *Neisseria gonorrhoeae* and *Trichomonas vaginalis* to antenatal women <25 years of age. An audit of the first 6 months of screening revealed that 56% were swabbed and 5.1% of those screened had *Chlamydia* detected.

Operative Vaginal Delivery Prophylaxis

Following a review and consultation process, including MN-CMS care plans, it was agreed that a single dose of antimicrobial prophylaxis would be administered as soon as possible following an operative vaginal delivery, if deemed appropriate by an Obstetrician. This will commence in 2021.

Chlorhexidine Wipes Prior to Elective LSCS & Major Gynaecology Surgery

Following a review of the international literature, disinfectant wipes were introduced for all patients undergoing elective major abdominal surgery. This initiative should reduce surgical site infection.

Automated High Level Disinfection for Semi-Critical Ultrasound Probes

Following a multi-disciplinary review and consultation, the Executive Management Team approved the purchase of 10 automated machines for high level disinfection of transvaginal probes using hydrogen peroxide (Trophon®).

Service Development Plans for 2021

- COVID-19 vaccination for staff and patients
- Commencement of operative vaginal delivery antibiotic prophylaxis
- Commencement of automated disinfection of semi-critical ultrasound probes
- Infection control monitoring during internal building works including new operating theatres
- Re-audit of *Chlamydia* screening in antenatal women <25 years' old
- New central decontamination unit and autoclaves

Clinical Nutrition and Dietetics



The Department of Clinical Nutrition and Dietetics provides a dietetic service for Maternity (including Diabetes in Pregnancy) and Neonatology Services. There is a limited service for gynaecology patients.

The most significant theme of 2020 was a rapid adaptation of our service to meet patient's needs under the restrictions of the COVID-19 pandemic. The flexibility of all members of the team and their generous move to new ways of working was key to ensuring continuity and extension of services. Since 2018, we had a 'Digital Transformation Strategy' for the department and had established telehealth clinics for women with hyperemesis, gestational diabetes and for parents of neonates. This helped us to quickly adapt all of our group education to be delivered via webinar and to migrate all outpatient appointments to telehealth. The team supported this service adaptation and also assisted other multi-disciplinary teams with the technical changes needed. One of the team was temporarily redeployed to help develop the NMH e-learning hub. The work of our administrator was central to the success of telehealth. In line with the NMH COVID-19 response, the team also changed working hours and days to accommodate safe working.

As the year progressed, face-to-face consultations were re-introduced alongside continued use of digital tools. Initial engagement with telehealth was very high, and women and parents reported a high degree of satisfaction with remote consultations. Although engagement decreased somewhat towards the end of the year, the majority of dietetic consultations continued to be via telehealth, and a 'blended' mix of face-to-face and telehealth consultations will continue according to patients' need and preference.

The department facilitated clinical placement of two MSc dietitian students in October and one for a catering training placement in September. Despite COVID-19 restrictions, a very effective learning environment was achieved by our student coordinator with the support of the whole team. The team also supported significant changes to practice in delivery of the diabetes service and worked closely with the diabetes specialist midwives throughout.

For the neonatal dietitians, the focus remains babies born very preterm or very low birth weight (VLBW) admitted to the Neonatal Unit. These continue to increase in complexity. Other babies with nutritional concerns requiring dietetic input were also followed-

Hilary Devine, Clinical Specialist Dietitian delivering online education for women with diabetes.

The flexibility of all members of the team and their generous move to new ways of working was key to ensuring continuity and extension of services.

up including those with sub-optimal growth, feeding issues and dietary intolerances.

Optimising maternal milk and breastfeeding amongst babies born preterm remained a key priority. The impact of initiatives associated with this as well as other activities to optimise nutrition and growth amongst babies in the neonatal unit, is assessed as part of an on-going dietitian led audit. Details are included in the Neonatal Clinical Report published separately.

2020 was a year like no other, and we are most grateful to all members of the team who contributed both within the department and to supporting other colleagues and services at the NMH.

New developments and quality improvement initiatives

- A Hydration Clinic for assessment and treatment of women with hyperemesis was introduced on the dayward with extensive dietetic input in response to qualitative research.
- Weekly Lifestyle Class for women newly diagnosed with GDM converted to an interactive live webinar delivered with diabetes midwives from March
- Monthly Tus Maith Class for women with a high BMI/ weight concerns developed as a live webinar delivered with antenatal education midwife

Baby Leo enjoying some quality time with his Mam Holly Ingram while he spends some time on the Neonatal Intensive Care Unit.



- Development of e-learning hub for antenatal education and well-baby care on the NMH website.
- Development of Holleistic App tool for healthy eating in pregnancy completed.
- Full nutritional analysis and revision of Hospital menus and food photography for digital menu.
- Neonatal nutrition references added to NMH Guides App for hospital staff.
- Introduction of an improved method to assess length of babies in the neonatal unit involving the use of a new length rod that can be used in incubators as well as cots. This was developed as a Quality Improvement Initiative (QII) with neonatal colleagues.
- Nourish & Nurture class for young mothers attending the multi-disciplinary Teenage 'Daisy' Clinic. This novel nutrition and parenting program is coordinated by dietetics in close collaboration with Medical Social Work. The program is generously supported by the Linen Guild and features practical cookery demonstrations, nutrition tips and psychosocial support. The roll out of the program was delayed by the pandemic.
- Dietetic phone clinics for parents of babies in the neonatal unit was introduced from the start of the pandemic restrictions. The neonatal dietitian contacted parents by phone to update them on their baby's nutrition and growth.
- A dietitian-led class on nutrition post-discharge was established for parents of babies born preterm.
- A once weekly dietitian-led neonatal outpatient clinic takes place in addition to on-going dietitian support for patients attending the Baby Clinic. This switched to a telehealth clinic as a result of the pandemic.
- The multi-disciplinary initiatives to optimise maternal milk and breastfeeding amongst babies born preterm in the neonatal unit. PRIME (PReterm Infants need Milk Early) and PRIME-B (Breastfeeding), were ongoing.

Other activities

- Education including contribution to the BSc Midwifery (UCD), MSc Nutrition & Dietetics (UCD), Post-graduate Diploma Neonatal Nursing (RCSI), public health nurse training at NMH. Further details on education activities and other presentations delivered by dietetic staff is included in the Multidisciplinary Education and Continuing Professional Development report.
- Membership of professional groups including the Diabetes Interest Group (INDI), Neonatal Dietitians Ireland Group, Maternity Dietitians Ireland and Knutston Ireland Diabetes Counselling Course.
- Representation on national groups including the HSE Neonatal and Paediatric Parenteral Nutrition Advisory Group, the HSE Baby Friendly Initiative

- Standards Group, the National Clinical Program for Diabetes, the Folic Acid Advisory Group and the National Women and Infants Health Program.
- Contribution to Hospital committees including the Nutrition and Hydration Committee and Healthy Ireland Group. Our administrator coordinates health promotion campaigns for the NMH Healthy Ireland program.
 - Contribution to the hospital Telehealth Group and the NMH eLearning Hub Development Group.
 - Presentation as part of HSE National Breastfeeding Week on 'PRIME, the journey to breastfeeding in the neonatal unit' – joint presentation with lactation specialist.

Maternity Services, Diabetes in Pregnancy and Gynaecology Services Activity

Maternity Services	2015*	2016**	2017**	2018	2019	2020
Inpatient & Day Case (all)	213	284	320	212	481	948
(Day Case)	-	-	-	-	(246)	(334)
Outpatients	137	240	260	250	371	108
Telehealth	-	-	-	-	292	900
Classes & groups	-	-	660	577	765	557†
Total	350	524	1,240	1039	1969	2139

†In person classes Jan- March. E-learning hub available on www.nmh.ie. Early Pregnancy Class reinstated via live webinar from July.

Diabetes Service	2015*	2016**	2017**	2018	2019	2020
One to one (new & review)	484	935	793	713	802	507
Telehealth	-	-	-	-	254	921
GDM Group (new)	284	219	466	436	462	524‡
Total	768	1154	1229	1149	1518	1952

‡via live webinar from March

*1 WTE **2.69 WTE 3.5 WTE

Overall Activity	1118	1678	2469	2188	3487	4091
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Neonatal activity	2015	2016	2017	2018	2019	2020
Total first time admissions to neonatal unit - based on year of admission ^a	1948	1830	2029	1424	1579	1183
Babies with birth weight ≤1.5 kg or ≤31/40 weeks gestation - based on year of birth ^b	143	155	180	160	140	152
Inpatients – unique patients ^c	n/a	n/a	n/a	n/a	n/a	256
Outpatient contacts^d	263	326	230	171	n/a	199

Neonatology Activity

^aNeonatal Information System (NIS) data for the years 2015-2017 and Maternal and Newborn Clinical Management System (MN-CMS) data for the years 2018-2020.

^bDietetic data – each unique patient involves multiple dietitian contacts throughout their stay.

^cMN-CMS data – each unique patient involves multiple dietitian contacts throughout their stay.

^dDietitian data for the years 2015-2018 and Integrated Patient Management System (iPMS) data for 2020. There have been challenges ensuring accuracy and so data was omitted for 2019 and should be interpreted with this in mind for 2020. We are working to ensure the reliability of future data.

Clinical Engineering

The Department of Clinical Engineering continue to provide a designated, coordinated approach to the management of Medical Devices and Equipment (MDE) throughout the NMH. The department's objective is to ensure a safe, high quality service for its service users to enable better outcomes for patients.

2020 saw further hospital and HSE investment in MDE with the procurement of over 500 new and replacement medical devices, bringing the total number of in-service devices to 2697. This was in large part due to the COVID-19 pandemic and the increased demand to equip patient isolation facilities. The department continued to maintain its high level of in-house preventative maintenance with 76% of medical devices maintained internally. The department's integration with HSE guidelines and policies with respect to MDE continues, as the national implementation of the Medical Devices / Equipment Management Policy is rolled out including the anticipated introduction of the Medical Device Equipment Quality Assessment and Improvement Tool (QA&I Tool).

Eoghan Hayden, Chief Clinical Engineer.



The department continued to maintain its high level of in-house preventative maintenance with 76% of medical devices maintained internally.

With the on-going redevelopment of the hospital on its current site, and its proposed relocation to St Vincents University Hospital, Clinical Engineering participated on several committees providing advice on all aspects on the management of Medical Devices including risk assessment and cost effectiveness. Some projects include the expansion of the Delivery Suite and Operating Theatres and the redevelopment and upgrade of the Radiology Department. Other committees and projects that required departmental involvement include the National Maternal-Neonatal Clinical Management System (MN-CMS), the implementation of the NMH Strategic Plan and participation in the development of National Framework / Tendering documentation. The department also represents the hospital on several external committees such as the BEAI (Biomedical / Clinical Engineering Association of Ireland) and the Health and Social Care Professions Expert Group and has continued its close working relationship with the National Neonatal Transport Program.

Department members continue to keep up to date professionally in order to maintain an appropriate level of competence by participating in many internal and external lectures / presentations and by furthering their academic qualifications with the completion of a Higher Diploma in Computer Science and the commencement of the Graduate Diploma in Healthcare Informatics in order to up skill due to the rapidly evolving nature of medical technology and the ever increasing risks in cyber security.

I would like to take this opportunity to thank Mr Dara Keeley, Mr Vasanth Pillai and Ms Maighread Gallagher for their on-going commitment and dedication to the NMH and its service users.

Social Work



Activity levels were significantly impacted in the Social Work Department (SWD) by COVID-19 for various reasons including reduced footfall in the hospital and reduced face to face contact.

A total of 649 new referrals were received in the SWD in 2020 with a carryover of 231 open/active cases from 2019. Total workload for 2020 = 880 cases.

Social work activity ranges from task focussed/limited intervention to complex psychosocial/high risk intervention. Complex intervention accounts for approximately 30 – 50 % of overall departmental activity.

Consistently high volumes of activity were recorded for both diagnosed foetal anomaly referrals as well as referrals for neonatal admissions. However, the highest areas of risk remain parental substance misuse, parental mental health and domestic violence.

COVID-19

The Social Work Department developed a highly agile pandemic response to ensure that the service would be consistently available as needed.

The priority for our service was to be able to offer direct social work intervention to high risk cohorts of patients within the parameters of COVID-19 risk management. Staff demonstrated consistent commitment to flexibility in relation to service delivery by adapting working hours, working patterns

and service pathways. In doing so the Social Work Department was required to distribute its workforce across 6 days from 0800 – 20:00 hrs.

This extended service configuration provided the SWD with adequate facilities for social distancing to be able to meet with women directly who required a face to face service (complex psychosocial/high risk). Other interventions were provided telephonically or across virtual platforms.

Highlights

The SWD engage in the annual international '16 days of action' campaign to raise awareness of violence against women. This year the campaign was particularly relevant given the dramatic increase in domestic violence within the community triggered by the pandemic. The SWD provided ward based staff information sessions and an organised an awareness campaign throughout the hospital. Patient information packs were developed and made available throughout the hospital.

Sinead Stakelum, Senior Medical Social Work and Karen McCormack, Medical Social Worker hosting Women's Aid awareness day.

Pharmacy



*Laura Delany,
Antimicrobial Pharmacist
and David Fitzgerald
Chief Pharmacist
preparing COVID-19
vaccines for staff.*

The overall aim of the Pharmacy Department is to ensure safe, effective and economical use of medicines and to support education, training and research in NMH. The department purchases, supplies and dispenses medicines for inpatient and outpatient use. The department consists of pharmacists, as well as pharmacy technicians, who work together to ensure patients receive the highest quality pharmaceutical care possible. Pharmacists provide a clinical pharmacy service for the NICU, antenatal and gynaecology wards, Maternal Medicines Clinic and antimicrobial stewardship, to ensure safe and effective use of medications. This is achieved through review of patients' charts using the Maternity Newborn Clinical Management System (MN-CMS) along with the performance of medication history checks and reconciliation at ward level. Pharmacists play a central role in the continuing development and optimization of the electronic prescribing module of the MN-CMS, devoting a significant amount of resources to the provision of induction and ongoing training for clinical staff.

The Chief Pharmacist plays a central role in providing the Drugs and Therapeutics Committee with up to date information on drug expenditure, new products,

and medication policies, procedures, protocols and guidelines, while notifying the committee of cost implications associated with changes in clinical practice. The Chief Pharmacist is also a member of the Research Ethics Committee. The NMH medication safety programme is led by a Senior Pharmacist who chairs the multidisciplinary medication safety committee. This committee is responsible for developing and implementing a 5-year strategy, along with an annual workplan. Activities include dissemination of medication safety newsletters and alerts, performance of audits and quality improvement initiatives, along with an extensive programme of induction and ongoing training for all clinicians. Senior pharmacists are members of multi-disciplinary teams for the Maternal Medicines Clinic, NICU and Infection Control.

Pharmacy Activity

Pharmacy adapted to the unprecedented demands during the first wave of COVID-19, splitting into two teams in March to ensure continuity of critical services. Hit by temporary staff shortages due to the pandemic, the service was maintained with help from retired pharmacist Noreen O'Callaghan and from Louise Delany who briefly returned from maternity leave. Pharmacy staff led efforts to mitigate the shortage

of alcohol hand gel in the face of greatly increased demand, requiring the team to think outside the box in securing supplies from a variety of sources. Faced with a serious run on medications due to uncertainty regarding global supply chains, NMH pharmacy staff ensured patients and hospital staff had continued access to their regular medications, working with suppliers to obtain adequate stocks to meet demand, all while operating in the context of continuing supply chain uncertainty due to Brexit.

Pharmacy performed clinical review of patient charts 21,232 times in 2020, performing activities in 14% of these reviews. This high level of clinical pharmacy activity was facilitated through remote review of patients' charts using the MN-CMS, demonstrating the value of the electronic healthcare record during the pandemic.

Drugs and Therapeutics / Medication Safety Committees

Medication Safety

Where possible and taking into consideration the demands placed on NMH by the COVID-19 pandemic, the medication safety programme continued to implement the 5-year (2019-2023) medication safety strategy through use of the annual workplan.

Eight medication safety or medication-related audits were conducted in 2020:

- "Red Tasks" on MN-CMS Drug Chart for Postnatal Analgesia
- Documentation on MN-CMS of Booking and Actual Weights
- Re-audit of Pharmacy Out-of-Hours Supplies
- Postnatal Prescribing and Administration in the setting of the MN-CMS
- Point Prevalence Survey of Antimicrobial Prescribing
- Patient's own Medication and Opinion of Self-Administration in Hospital
- Audit of Insulin Prescribing and Documentation on the electronic healthcare record (MN-CMS)
- Incidence of Pyelonephritis in the National Maternity Hospital

Medication safety training sessions held: 28 for medical staff, 26 for midwifery/nursing, and 7 multidisciplinary.

Quality improvement initiatives performed included: medication specific patient information leaflets for trimethoprim, zidovudine, lamivudine, misoprostol/mifepristone, Ferinject®, and omeprazole suspension; Access to "Medicines Complete" online compendium; Online NCHD induction in medication safety and Antimicrobial Stewardship training; Insulin prescribing

– rapid improvement exercise; MN-CMS complex medication notification, Direct-acting Oral Anticoagulant notification, Epilepsy and Pethidine rule; Gentamicin prescribing flowchart; First trimester miscarriage prescribing, documentation and communication to patients; Online early pregnancy educational classes for patients; Online medication education for patients on NMH website's E-Learning Hub including the Epilepsy Medication in Pregnancy Information Leaflet

Medication policies, procedures, protocols, guidelines: 9 new were approved, 26 were updated

Antimicrobial Stewardship

- Antimicrobial consumption was 29.9 DDD/100 BDU for Q1/Q2 2020, a 10% decrease of the index value since 2019 and the lowest figure since 2012. Due to redeployment of staff in the HPSC as a result of COVID-19, figures for Q3/Q4 consumption were not available at the time of writing
- Prevalence of antimicrobial prescribing during national Point Prevalence Survey was 14%, in line with the steady decline in antimicrobial consumption in recent years
- 17 patients prescribed carbapenems, 88% in line with guidelines or received Microbiology approval

Medication Incident Reporting

Pharmacy began online reporting of medication incidents in July 2020. Since then, the online portal for reporting has been expanded to a number of clinical areas with the aim of eventual removal of paper-based reports. High incident reporting rates are associated nationally and internationally with a strong patient safety culture. A significant improvement in incident reporting was observed in 2020, with 442 medication incident reports (419 incidents, 23 near misses) received by the Clinical Risk and Legal Departments (CRLD). The majority of reports came from clinical pharmacy review of patients' charts (83.2%), followed by midwifery/nursing (15.6%), and medical (0.7%). Despite this success in improving incident reporting rates, medication-related near misses are still likely under reported. The reporting of incidents is of value as the data collected can be analysed to identify trends or patterns in relation to risk, and resulting recommendations for improvement can be shared with frontline staff.

Analysis of incident reports found that:

- Incidents most commonly occurred at the point of prescribing (32.7%) followed by administration (24.0%)
- "Policy not conformed to" was by far the most common primary contributory factor at 58.3%, followed by 'Checking Procedure Not Followed' at 11.3% and 'Calculation Error' at 7.5%

• Diclofenac was the medication involved in the highest percentage of reports (14.8%), followed by Antimicrobials (13.6%), Dinoprostone (10.5%), Home Medications (9.8%), and Paracetamol (5.8%)

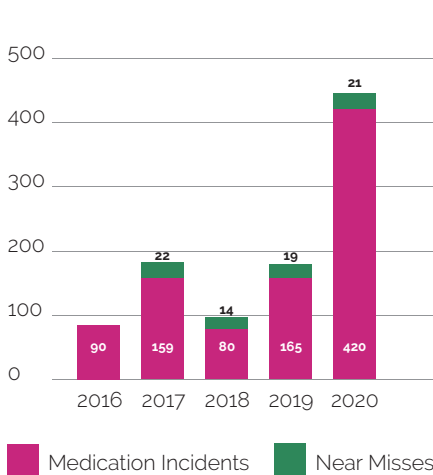
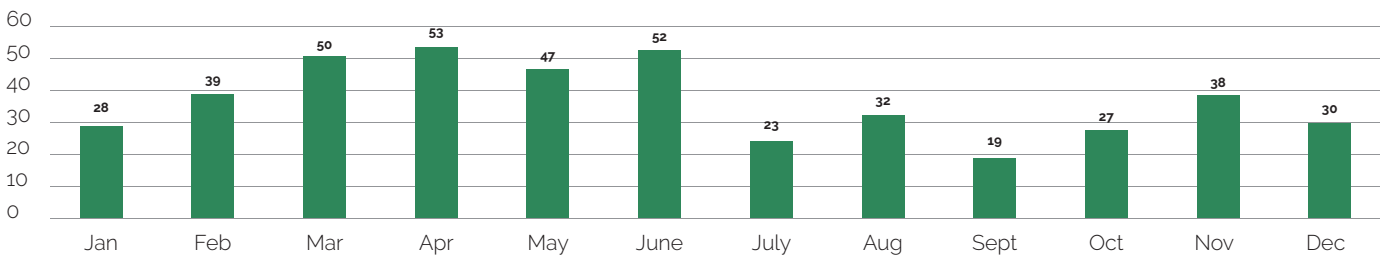
This analysis of trends will be used to inform areas for targeted improvement.

Number of Medications Dispensed	2016	2017	2018	2019	2020
Inpatient	22098	23466	22193	21996	20928
Outpatient / Staff	2560	3241	2723	3276	3570
Outpatient / Staff as % of total	10.4	12.1	10.9	13.0	17.1
Total	24658	26707	24916	25272	24498

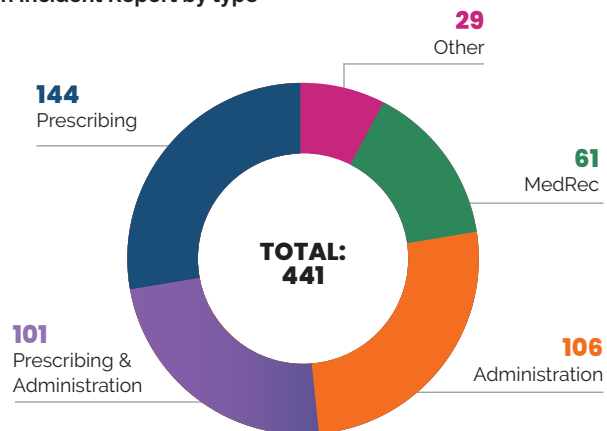
Clinical Pharmacy Activity	Unit 3 (ANW)	Unit 4 (Gynae)	Fitzwilliam Wing (PNW)	Merrion Wing (PNW)	Holles Wing (PNW)	Maternal Medicine Clinic	NICU	Antimicrobial Stewardship	Total
Clinical Pharmacy Reviews Performed	4157	843	910	1038	5528	1269	6337	1150	21232
Pharmacy review Activities	1116	243	222	227	833	273	677	381	2972
Activity Rate per review (%)	27	29	24	22	15	22	11	33	14

Clinical Pharmacy Reviews Performed	2018	2019	2020
Number	15587	13548	21232

Medication Incident / Near Miss Reports 2020 by Month



Medication Incident Report by type



Physiotherapy

The Physiotherapy Department had an increasingly busy year in 2020 with over 3,370 new patient referrals. This continues to reflect a pattern of increased demand for physiotherapy services observed with the introduction of the Maternal Newborn Clinical Management System (MN-CMS). This demand drives the shape of our service leading to our increased provision of group classes to try and reach our service users in a timely way. We began the year with a whole time equivalent of 4.6, with one member of staff commencing a career break. We received news in early 2020 that funding was received to recruit two Clinical Specialist Pelvic Health Physiotherapists to support the NMH Gynaecology Services. During the year Aoife Cullen and Ciara Ryan were appointed in these posts. We recruited a Neonatal Senior Physiotherapist, Eithne Lennon, to fill the post of the member of staff on career break. This increased our whole time equivalent to 7 and improved our gynaecology and neonatal services. We continue to provide a 0.4 service to the Pelvic Floor Centre located in St. Michael's Hospital. Over the course of the year, Sarah Mullins and Aoife Magner also joined the team to backfill vacancies.

The Physiotherapy Team provide:

- A referral based Physiotherapy service to all inpatients Monday - Friday.
- An outpatient clinic offering appointments Monday-Friday for musculoskeletal conditions and issues relating to pelvic floor dysfunction.
- A neonatal service five days weekly.
- Ongoing delivery of the hospital antenatal and postnatal education programme alongside our colleagues from Midwifery and Nutrition and Dietetics.
- A range of education sessions to facilitate early assessment and timely access to physiotherapy services e.g. Pelvic Girdle Pain Class, Pelvic Floor Care Class & Healthy Bodies after Birth Class.
- A service to the multidisciplinary Pelvic Floor Centre team based in St. Michaels Hospital every Monday and Wednesday.

The Impact of COVID-19

The arrival of the COVID-19 pandemic impacted the immediate delivery of our services. A decision was made to cease all face-to-face services from March - May while we awaited further guidance. This allowed us to develop an on-line learning portal which replaced the regular antenatal classes and to develop educational resources for our patients e.g. new improved and comprehensive information and video resources. Our service expanded to provide telehealth via phone



Ciara Ryan, Clinical Specialist Physiotherapist, Womens Health and Continence.

calls and video consults. With appropriate Personal Protective Equipment (PPE) provisions in place and a reconfiguring of our department, we reestablished face-to-face appointments from May. Our services now involve an immediate triage upon referral, email contact with the relevant resources, telehealth and if required a face-to-face consult. This process change has meant a safer, more efficient and timely service for patients.

There were 3,370 referrals to the Department during the year. Department activity is reviewed under 3 headings: Obstetrics, Gynaecology and Neonatology. Patients are seen either as inpatients on the obstetric (antenatal and postnatal), gynaecology or neonatal wards, or as outpatients in the Physiotherapy Department. Some patients may require just one visit whilst others may require a number of treatment sessions. Our Physiotherapy Department is located on the 2nd floor of 65 Mount St.

Physiotherapy in Obstetrics

Obstetric Assessment and Treatment: We offer outpatient physiotherapy to all of our obstetric patients as well as providing an inpatient physiotherapy service. We treat a range of musculoskeletal and pelvic floor conditions across the childbearing year.

MN-CMS Consult Reason	Obstetric New Patients (n=2633)	% breakdown
Pelvic Girdle Pain	1146	43%
Other	569	22%
Urinary Incontinence	245	9%
DRAM	191	7%
Coccyx pain	107	4%
OASIS	105	4%
Carpal tunnel syndrome	95	4%
Respiratory	13	1%
Pelvic floor pain/dyspareunia	55	2%
Urinary Urgency	26	1%
Pelvic Organ Prolapse	28	1%
Faecal Incontinence	16	1%
C-section complications	7	.5%
Thoracic/rib pain	13	1%
Faecal Urgency	6	.5%
Urinary Retention	11	1%

The above table shows the bulk of our obstetric patients are referred with back and or pelvic pain. In order to facilitate reaching these patients in as timely a way as possible, we ran 'Back & Pelvic Care' classes every Tuesday evening at 5pm and switched to offer a weekly webinar for this service.

Physiotherapy in Gynaecology

We run an outpatient gynaecology physiotherapy clinic treating patients with pelvic floor dysfunction. In 2020 we continued to have a 2 day out posting of staff to the Pelvic Floor Centre in St Michaels Hospital.

	New Gynae Patients (n=278)	% breakdown
Bladder & Bowel Dysfunction	101	36%
Prolapse	27	10%
Routine Post Op Advice	24	9%
Pelvic Pain/Dyspareunia	17	7%
Mobility Assessment	4	1%
Respiratory Assessment	4	1%
Pelvic Floor Centre	101	36%

Physiotherapy in Neonates

2020 allowed the newly appointed Clinical Specialist, Joanne Egan, spend more time working within the NICU as we recruited a Senior Neonatal Physiotherapist, Eithne Lennon, to assist with the neonatal outpatient caseload.

	New Neonatal Patients (n=459)	% breakdown
Neurodevelopmental	302	65%
Talipes	79	18%
Upper Limb Assessment	18	3%
Upper limb fractures	5	2%
Developmental Dysplasia of Hip – requiring Pavlik harness	21	5%
Head & neck Assessment	34	7%
Pelvic Floor Centre	101	36%

Psychosexual Therapy

The Psychosexual Therapy Clinic continues to be very active with the main source of referrals from General Practitioners and Oncology services throughout the country as well as clinics from within the National Maternity Hospital including gynaecology, infertility, oncology, physiotherapy and postnatal clinics. There were 90 new referrals in 2020: 30 referrals came from a waiting list from 2019 and 12 cases continued therapy from 2019.

Vaginismus continues to be the main problem presenting to the clinic. It continues to affect women and partners who have always had the problem during their relationship to those who develop it post cancer treatment, post childbirth or following other traumatic life experiences.

Adjustments to working under COVID-19 restrictions meant that all counselling work was carried out remotely either via Zoom or by telephone. In preparation for this the Psychosexual Therapist completed training courses with the Tavistock Institute of Medical Psychology, 'Online Therapy: How to Make the Transition to Working Online and to Develop Best Practice' and with the College of Sexual Relationships, 'Providing Therapy and Services Online'. This helped to ensure that all considerations

were put in place to provide a professional, ethical and confidential service to clients.

Some clients have chosen to wait for face to face appointments to recommence either due to a discomfort of using technology or to a lack of privacy at home. Others have stated a preference for online therapy as less time is given to travelling to appointments and childcare does not have to be arranged for those with young children. As there can be much discomfort around talking about sexual problems, some clients find that doing so in the comfort of their own homes can be more relaxing and allows them to engage easier in the process.

Research is being compiled in other countries as to the effects of the pandemic on sexual functioning and already there are concerns of sexual problems post COVID-19 treatment or for those suffering with long term COVID-19. Also there are concerns regarding the negative impact that lockdown has had on some relationships and the negative effects on individual mental and physical health.

Due to a large number of new referrals in 2019 and an initial adjustment to online therapy during the pandemic, there is a lengthy wait for clients to be seen in the Clinic.

Dysfunctions Presenting

Female	
Vaginismus	70
Dyspareunia	16
Inhibited Sexual Desire	17
Anorgasmia	4
Male	
Erectile Dysfunction	9
Unconfirmed	16
Total	132

Referral Sources

Consultant/NMH Staff	67
General Practitioners	35
Other Agencies/Hospitals	30
Total	132

Outcome

Engaged in weekly/fortnightly therapy (mostly online)	38
Cancelled or did not attend initial appointment	24
Placed on waiting list for 2021	43
Referred to private clinic	15
Referred to external/local Psychosexual Therapy Services	12
Total	132

Radiology



Paediatrics

The Department of Paediatric Radiology was established in 1984 and has evolved over the years to provide a range of ultrasound and radiographic services to the hospital's paediatric patients.

Services Provided for Paediatric Patients

General radiographic examination on neonates admitted to the Intensive Care Unit and the nursery and for infants attending the outpatient clinics if required. The majority of this work is portable radiography.

- Fluoroscopic gastrointestinal contrast studies.
- Ultrasound and doppler service.
- Ultrasound examinations for developmental dysplasia of the hip.
- MR examinations for infants up to one year of age.
- Fetal MR examinations in pregnant patients.
- CT examinations via The Children's University Hospital, Temple Street, D1.

In 2020 the National Women and Infants Health Program funded the NMH Radiology Department to provide the National Fetal MRI Program under the leadership of Dr Gabrielle Colleran. This service represents a significant service development for pregnant women in Ireland.

In late 2020, the fluoroscopy suite was upgraded which is a significant improvement for our patients.

Services Provided for Adult Patients

- General radiographic examinations.
- Hysterosalpingograms and selective fluoroscopic examinations.
- Limited ultrasound service. Referrals are currently limited to patients referred by National Maternity Hospital consultants. The types of examinations are limited to upper abdominal examinations and transabdominal and transvaginal pelvic examinations. Emergency ultrasound (including doppler ultrasound) examinations are performed at St. Vincent's University Hospital.
- Elective and emergency CT examinations via The Radiology Department, St. Vincent's University Hospital.
- MR examinations via the Department of Radiology, St. Vincent's Private Hospital. Examinations include staging of cervical cancer and uterine cancer, MR characterization of ovarian masses and MR urography.
- Interventional radiology procedures via the Department of Radiology, St. Vincent's University Hospital. Procedures include emergency nephrostomy and abscess drainage.

A total of 6,513 examinations were performed in 2020.

Adult services: 1283 adult examinations were performed of these 125 examinations were hysterosalpingograms and 901 ultrasounds were performed. 116 other adult examinations were performed including x-rays and gynae MRI.

5,230 paediatric examinations were performed. 1,559 were hip ultrasound and 490 cranial ultrasounds were performed. 868 other examinations were performed including x-ray, fluoroscopy and other ultrasounds, (renal, abdominal, chest, soft tissue, vascular). 284 MRIs were performed of which 165 were fetal MRI examinations.

Compliance & Data Protection

Compliance

For the National Maternity Hospital, being a Section 38 hospital, the regulatory environment has increased over the last few years. Annual compliance reporting is required both to our main funder, the HSE, as well as to the Charities Regulator among other authorities. Governance issues are essential elements for the Executive Committee (Board) of the Hospital. Together with staff members the sub-committees are following compliance issues closely and reporting on a regular basis to the Executive Committee making sure that we are compliant with all relevant regulations.

The governance arrangements, including Board arrangements and responsibilities, are in compliance with the HSE Code of Governance and the Core Standards for Governance. In addition all the members of the Executive Committee have participated in refresher seminars on governance issues.

In an Annual Compliance Statement, we furnish our compliance status to the HSE in areas such as governance, finance, procurement, risk management, taxation and remuneration. Since October, we also have to report to the Charities Regulator our compliance with the Charities Governance Code.

Data Protection

The Data Protection department is responsible for implementing and maintaining a Data Protection Management System (DPMS) with a framework for ensuring that the Hospital meets its obligations under the General Data Protection Regulation (GDPR) and all associated legislation. We have a Data Protection Management System in place that is in compliance with GDPR and our staff are 'data privacy/GDPR' aware with knowledge and understanding of how it affects their day-to-day role as well as the need to ensure that data protection is considered in all our planning.

Subject Access Request (SAR)

An individual has the right to access any electronic or manual information that the NMH holds about them. The hospital will provide them with a copy of their personal data held by the hospital on request free of charge within 30 days from the date the request is made. A system is in place to ensure that all SARs are actioned, quality checked and sent out within the 30 days' period allowed by the law. There has been a significant increase in the number of SARs received over the last two years with over 50% of requests



coming from solicitors on behalf of their clients. Less than 50% of requests are now coming directly from data subjects or their relatives.

Penny Mitchell, Midwife.

Training

Staff training is a crucial part of protecting data privacy and is required under Article 39 of the GDPR. Data protection training is part of the mandatory training for all staff, this is in addition to data protection training for all incoming staff during induction. Staff are also encouraged to take the HSELand online training provided by the HSE. The data protection mandatory training, data protection induction training and the online data protection training on HSELand are all measures put in place to help us comply with the law.

Breaches

Most of the data breaches are as a result of increased awareness of what constitutes data breaches and the various data protection courses available to staff. NMH staff are more than aware of the need for transparency and the need to ensure due process in reporting and in dealing with data breaches. There is an internal on-line system to report data breaches to make it easy and transparent.

Hospital Inpatient Enquiry



In 2020 a total of 15,959 discharges were coded.

Dr Siobhan Corcoran, Consultant Obstetrician and Gynaecologist and Dr Ingrid Browne, Consultant Anaesthesiologist at a training exercise for the COVID-19 pandemic.

The Hospital Inpatient Enquiry (HIPE) system collects information on hospital day cases and inpatient activities in Ireland. The HIPE system and associated coding will determine the invoicing and future budget of the hospital.

In 2020 a total of 15,959 discharges were coded. HIPE staff review the entire medical record contents and extract principal diagnosis and procedures. Medical classification codes are then assigned as per ICD-10-AM 10th Edition or Turbo Coder (e-book). A principal

diagnosis and up to 29 additional diagnosis as well as a principle procedure and up to 19 additional procedures. These are then grouped into a DRG (Diagnostic Related Group) which categorizes patients into groups based on clinical similarities and resource consumption. They are then exported monthly to the Healthcare Pricing Office with a strict 30 day deadline. The hospital budget will be set based on agreed/commissioned Activity Based Funding target levels and monies will only be provided when activity is carried out and invoiced i.e. coded.

Human Resources

The Human Resources Department (HR) continues to provide human resources corporate services across the Hospital for all staff. HR is also involved in several corporate initiatives across the Hospital.

HR had a very challenging year in 2020 with the COVID-19 pandemic. The HR workload increased to support the Executive Management Team and COVID-19 Taskforce communicating new policies, issuing guidelines from various bodies recording COVID-19 absences on a daily basis and recruiting at short notice. HR adapted to the new environment and implemented agile working within the Department to conform with social distancing and safety recommendations. COVID-19 triggered many changes in how HR operate.

The recruitment portal 'Rezoomo' was introduced to streamline and automate the recruitment process. An online induction for NCHD's induction was developed at very short notice in July which was an exciting achievement for HR to facilitate all new doctors commencing at the hospital. This was well received and was further developed for the January 2021 intake.

'As part of the operational readiness workstream for the co-location to St Vincent's University Hospital on the Elm Park Campus, 'Accenture' transferred the workforce planning knowledge to the Hospital in May and HR will continue to project this plan as required.

HR is heavily involved in Goal 2 of The National Maternity Hospital strategy which runs from 2019 to

Lisa Murray Human Resources (Midwifery and Nursing).

All training was transferred online in 2020 due to social distancing guidelines.



2023: "Being the employer of choice and recognising that our staff are our greatest asset"

HR provide a quarterly performance report to the Finance Committee and the highlights of the key metrics for 2020 are as follows:

Recruitment competitions: 110

Staff wholetime equivalent (December 2020): 916.25

Average absence: 3.9% (COVID-19 related absence recorded separately)

Retirements: 15

It is evident that the biggest challenge for HR professionals continues to be recruitment and retention of talent. Monitoring and analysing employee turnover will help identify areas for improvement. HR will position itself within the Hospital to take the lead to examine how best to enhance the hospital employee value proposition and ensure it is well communicated.

In terms of staffing levels, numbers have increased by 36 WTE and this is due to a phased recruitment of development posts and COVID-19 pandemic related posts.

The average absence rate increased slightly in 2020 with an absenteeism rate of 3.9%. The HSE target for absenteeism with all organisations was at 3.5% for 2020 but this was exacerbated by COVID-19. In general, overall sick leave figure continues to come in line with the HSE average and this is due to our dedicated staff and management of attendance.

Employee/Industrial Relations

Nationally, Industrial Relations (IR) activity was suspended for approximately 6 months in 2020 due to the COVID-19 pandemic and the necessity to respond to the pandemic which led to a backlog of IR activity later in the year. Due to social distancing guidelines and some staff working remotely or cocooning, communications was challenging. However, a Communication's Group was established and a newsletter was produced on a weekly basis to update staff on COVID-19 and other matters and the Hospital had various competitions to engage staff. HR is part of this Communication group.

During the COVID-19 pandemic, staff showed great flexibility and collaboration and adapted quickly as required by patient needs. The Partnership Committee continue to meet monthly with various stakeholders represented to promote communications and work together. The National Maternity Hospital continue to explore all avenues to inform and consult with

staff on a daily basis in conjunction with the Hospital Information and Consultation Agreement.

Training

All training was transferred online in 2020 due to social distancing guidelines. Mandatory Training is managed locally by Department Heads to ensure that at a minimum, staff comply with mandatory training requirements. Online training in 'QQ1 Level 6 Leadership Training', 'Train the Trainer' and 'Project Management' were offered during the year. A working group of relevant stakeholders with HR are developing the e-learning platform 'Totara' and this project will continue into 2021.

Service Developments

A number of service development posts were approved. A key focus for the future will be planning for the proposed co-location to St Vincent's University Hospital on the Elm Park Campus. The National Maternity Hospital strategic plan for 2019 to 2023 is under way. HR is leading Goal 2 which is to "be the employer of choice and recognising that our staff are our greatest asset". This goal has 4 objectives which will involve our staff and will be people driven.

David Fitzgerald Chief Pharmacist who appeared on the Late Late Show in relation to the introduction of Vaccines to Ireland.





Challenges for 2021

There are a number of challenges that the Hospital is considering so it is important to have a workforce planning group to put an action plan in place to address current and future recruitment and retention issues. HR will introduce more agile forms of working and work on building a high performance team for the future. HR are in the process of upgrading the HR Softworks system and further developing Rezoomo and E-learning Totara to ensure we adapt to continuous changes in technology. Nationally agreed performance achievements will be rolled out in partnership with Management and Union groups. HR will evaluate training needs and continue staff engagement following the results of a planned staff questionnaire.

Pensions

Department of Public Expenditure and Reform rolled out the process for submitting member's data for the Single Pension Scheme (SPS) since it was introduced in 2013. The NMH was identified as one of the relevant authorities in 2019 that had a very robust system in place which allows the Hospital to successfully submit the required data. Benefit statements are up to date and issued on a yearly basis. The National Maternity Hospital is one of the leading Hospitals in this regard.

Social Activities and Wellbeing

Due to the COVID-19 pandemic, social activities at the Hospital were very much curtailed. However, a number of competitions were run through the newsletter such as designing a mask, painting competitions etc. Wellbeing is a HR priority and we work with the Healthy Ireland committee to arranged talks on various topics. Several online videos and supports were provided by IEHG, HSE and VHI to assist staff with topics such as Stress Management, coping with trauma and burnout, fitness and wellness.

Retirements

Fifteen members of staff retired this year and each and every one of them is missed by their colleagues and friends; we will also miss the expertise and knowledge these staff take with them. We wish all our former colleagues a long, healthy and happy retirement. Several retirees postponed their retirement plans or came back to work at the Hospital during the COVID-19 pandemic this was very much appreciated by the Hospital. A retiree's coffee morning was introduced in October 2019 and it takes place on the 2nd Friday of every month; this is a great opportunity for staff who have retired from the Hospital to meet up and keep in touch. The meeting was moved online during the year due to the Covid-19 pandemic.

Ronan Power (RIP), Delivery Suite Porter died suddenly on 2nd April 2020 after 24 years' service at the Hospital. The following former staff passed away in 2020: Francis Carberry, Austin Bourke, Mary Nolan and Sylvia Ward (RIP). They will all be remembered for their valuable contribution to the hospital and will be dearly missed by their colleagues, friends and NMH family.

*Laura Delancy,
Antimicrobial Pharmacist.*

Information Technology



*Dr. Noemi Pellegrino,
Neonatal Registrar.*

Twenty twenty started with 50 new HP ProDesk 400 Personal Computers (PC) being installed throughout the hospital as part of the on-going PC refresh. This refresh will allow us reduce the number of Windows 7 PCs and retire old PCs that are not suitable for the current applications. At the start of 2020, the number of Windows 7 PCs was 360 and this was down to 250 at the time of writing. Another batch of 50 PCs was acquired in November 2020. Number of laptops was increased from 112 to 175 during 2020.

The SAN Expansion project started in February resulting in extra capacity being added to the system including extra storage and processing power.

The COVID-19 pandemic had a substantial impact on the Department; a major network installation was undertaken to provide data points in a COVID-19 designated ward. This work was completed in 3 to 4 days.

Surface Pros and laptops were issued to many staff working remotely. Other network jobs completed were to an adjacent building and additional network points in Medical Records.

In addition to the work generated by the pandemic, a computer virus affected many PCs in the hospital in April. This took several weeks to resolve.

The graph shows the workload trends for the IT Department since Dec 2016 based on the **IT Infrastructure Library** model.

- Blue line represents Category 1 (break /fix) items.
- Green line represents Category 2 (password reset) items.
- Red line represents Category 3 (requests for assistance) items.

The impact created by the COVID-19 pandemic can be seen at the 6th April mark whilst the high

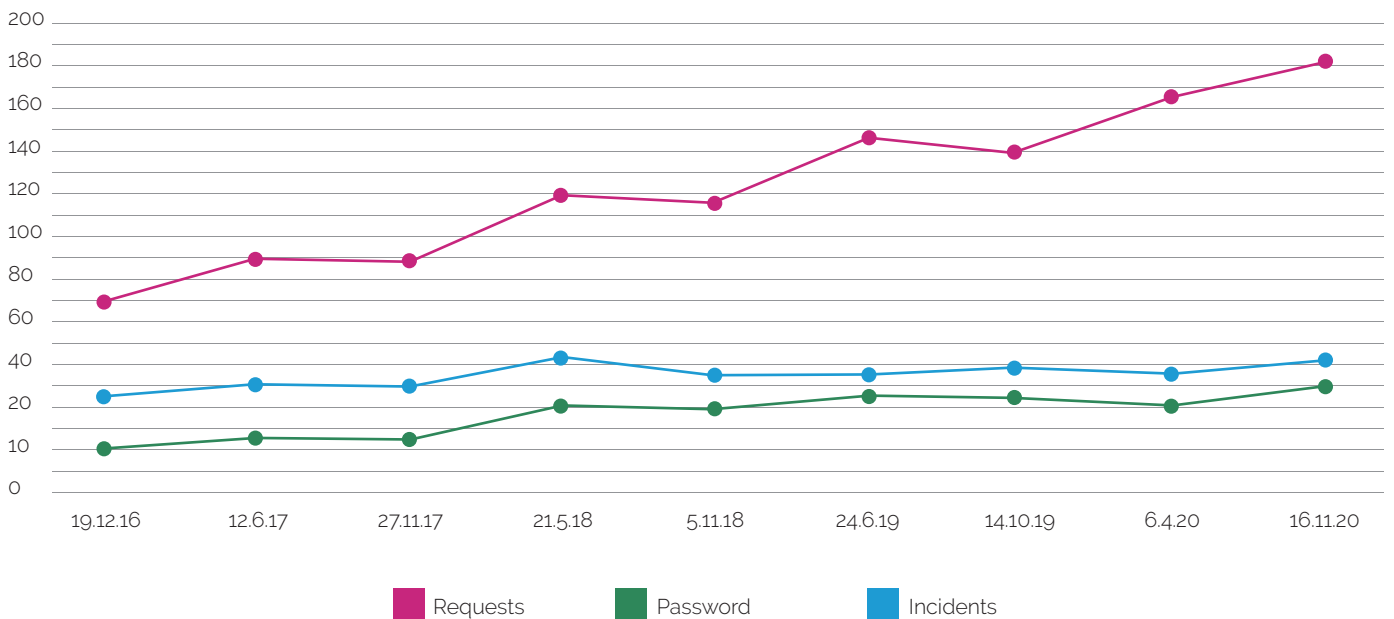
value for November was caused by problems with an Integrated Patient Management System (iPMS) upgrade in September and problems with a Firewall Upgrade in November.

A security audit by internal auditors highlighted some issues that are currently being addressed. The main issue is an upgrade of the Virtual Private Network (VPN) infrastructure to address some security concerns.

IT staff members Con Grimes and Declan Corrigan also attended many meetings on the move project for NMH to the proposed co-location with St. Vincent's University Hospital on the Elm Park Campus.



	Requests	Incidents	Password
19-Dec-16	69.17	25.67	11.50
12-Jun-17	89.88	31.63	16.00
27-Nov-17	88.88	29.75	14.75
21-May-18	119.50	43.50	20.13
05-Nov-18	116.50	30.00	18.25
24-Jun-19	148.00	31.88	25.88
14-Oct-19	140.63	37.50	24.25
06-Apr-20	166.25	35.50	21.75
16-Nov-20	183.50	43.00	28.00



Information Management

Information Management is the collection and management of information from one or more sources and the relevant distribution of that information. Health Information Management is an increasingly important and essential resource: Hospital data from various clinical and administrative systems is analysed, validated and manipulated in order to produce meaningful reports that are essential both internally and externally to aid and support decision making, clinical audit, research publications, medical coding and billing.

The recording of electronic data in The NMH has increased substantially with the introduction of the national Maternal and Newborn Clinical Management System (MN-CMS). However, MN-CMS reporting provides the most substantial challenge for the role as there continues to be difficulties in developing and rolling out reports from the system. We continue to work with the National MC-NMS Team to maximise our use of reliable reporting from MN-CMS.

Improving information management practices is a key focus for many organisations across both public and private sectors and we are no exception. Generating interest in reporting and outcomes plays a significant role in improving practices and can provide motivation to ensure high quality data is recorded in order to return high quality reporting. However, it is not always simple: daily, weekly, monthly and annual validation checks undertaken on data across many systems takes time and requires the expertise of busy staff in particular the MN-CMS Team, Delivery Ward Manager, Clinics Supervisor and iPMS Administrator. Efforts become all the more worthwhile as the uses of good quality reporting are seen.

The Information Management Department consists of Information Officer, Fionnuala Byrne and Clinical Data Analyst, John Geoghegan who work closely with IT, Patient Services and Administrative Departments as well as Allied Health Professionals, Nursing & Midwifery and Medical Staff in the hospital. The prime responsibilities of the role are:

- Extracting and analysing information from hospital information systems to assist local management decisions and highlight changing/emerging trends across all departments.
- Organising Health Service Executive returns.
- Producing hospital activity reports for the Central Booking Committee, Clinical Governance Executive Committee, Executive Management Team, Finance Committee, Quality Risk and Safety Patient sub-committee of the Board as well as the Executive Committee (The Board).
- Coordinating the NMH Irish Maternity Indicator System (IMIS) returns.
- Publishing online the monthly Maternity Safety Statement.
- Coordinating the completion and submission of all eligible perinatal death notification forms to National Perinatal Epidemiological Centre (NPEC).
- Publishing the now combined (corporate and clinical) Hospital Annual Report and the Annual Neonatal Report.
- Submitting all eligible babies to the Vermont Oxford Network.
- Fulfilling ad-hoc, audit and research requests for all staff and students.

Patient Services

The Patient Services Department is a source of information and channels patient queries in relation to Hospital services to the relevant areas. Service Users needs are constantly changing and we are determined to meet these challenges.

The Patient Services function aims to support the hospital's care systems by providing professional and effective support to both clinical and non-clinical areas within the hospital. In 2020 the department continued to provide administrative services across the hospital in the following frontline areas:

Admissions, Antenatal Education, Baby Clinic, Bereavement, Birth Notification, Central Booking, Central Dictation, Chart Retrieval, Colposcopy, Community Midwives, Diabetics & Dietetics, Early Transfer Home, Fetal Medicine Unit, Gynaecology Clinic, Medical Records, Neonatal Unit, Outpatients Clinics, Physiotherapy, Radiology, Satellite Clinics, Social Work Department, Wards.

In April 2020, the Hospital introduced some virtual clinics for our patients in line with social distancing restrictions during the pandemic. This saw many changes for the Patient Services Department and patient care. The new clinics have been a great success and we are looking at expanding them further in 2021 in line with our service user needs.

Freedom of Information and Access Requests

In 2020 there were over 1,400 written requests: 214 were received under the Freedom of Information Act as well as 1,131 Routine Access and 84 Subject Access Data Protection requests. 85% of the Administrative Access requests were for copies of medical records.

I would like to thank the staff for their dedication and hard work during a difficult 2020.

I would also like to thank the Executive Management Team for their continued support and we look forward to another challenging and rewarding year ahead.





Brian Byrne, (Left) and Paul O'Brien (Right) Supplies Officers with Damien McKeown Project Manager.

Purchasing and Supplies

Twenty twenty was an unprecedented year for all staff in the Purchasing & Supplies Department. We faced immense challenges to the supply chain as well as joining an exceptional worldwide demand on all Personal Protected Equipment (PPE) related products. We remained focused on the requirements of our hospital departments and clinics whilst also mitigating the impact of these unprecedented market conditions. Due to a massive collective work effort and tenacious approach, we were at all times able to meet the demands for not only our regular stock but also all stock relating to PPE. With the assistance of Unit Managers, we identified and secured a supply of critical items both COVID-19 and non COVID-19 related which were held in an off-site facility. This was a preventative measure in the event of a stock out situation which proved an invaluable exercise as we faced some very challenging supply related issues throughout the year. Due to a worldwide shortage of raw materials we were forced to seek alternative suppliers/products for our regular stock on a number

of occasions. The flexibility and understanding of our Unit Managers throughout the hospital was very much appreciated.

We would like to say a special thank you to the tendering team who not only liaised with the Ireland East Hospital Group and HSE but were invaluable in sourcing additional/alternative products. Their dedication, commitment and support were greatly appreciated during this period.

Our annual audit was undertaken remotely in March and as always our full co-operation was provided at all times.

We wish to extend a huge thank you to all the staff in this department for going above and beyond the call of duty. It is clear we could not have met the demands put upon us without their tenacity, flexibility and generosity of spirit. Unification of all members of the team got us through the most challenging year of our working lives and we are truly grateful.

Tendering

The objective of the Tendering Department, which works collaboratively with the Coombe Women and Infants University Hospital, is to ensure compliance with National and European procurement guidelines and expenditure throughout the National Maternity Hospital.

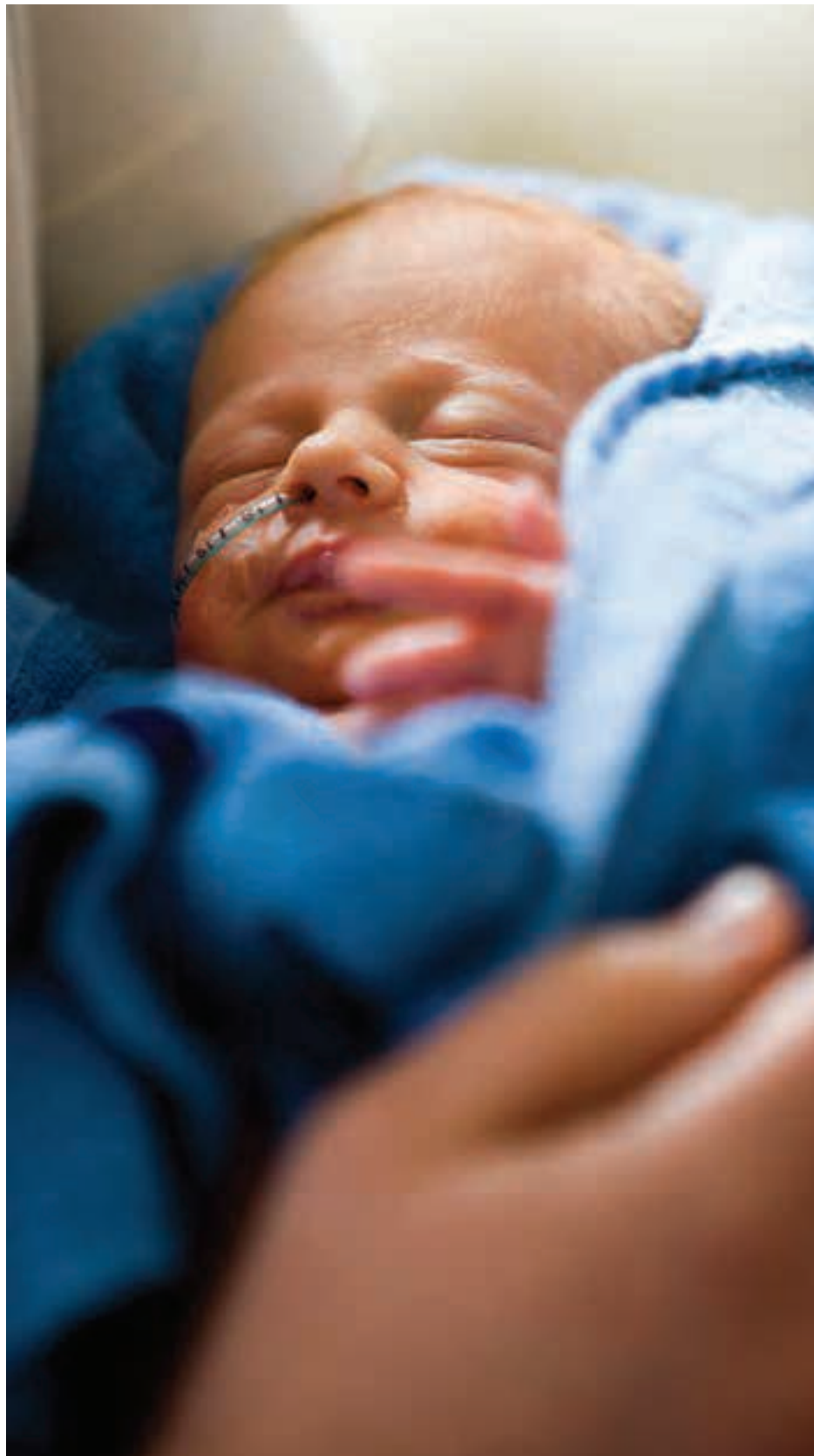
In 2020 the department grew and we welcomed a much needed new team member. Due to the onset of COVID-19 our work practices were challenged and our services were stretched as our team was focused on sourcing PPE supplies not only for the NMH but the Ireland East Hospital Group as a whole.

Activity and interaction between the Hospital, Health Business Services (HBS) and the Office of Government Procurement (OGP) continued and when financially advantageous, we benefited by utilising the national frameworks and contracts. A number of significant internal projects ran through 2020, none of which could not have been achieved without the forward planning of all staff involved.

2020 was a very challenging year... activity in the hospital continued at a very high level.

2020 was a challenging year in The National Maternity Hospital; activity in the hospital continued at a very high level. The requirements for non-contracted items increased, thus providing a challenge from a sourcing, pricing, processing and delivery point of view. Results could not have been met without the dedicated hard work by our colleagues in the Purchasing and Stores departments who supported us wholly throughout the year.

We wish to thank all the team for their continued commitment and hard work over the past year and look forward to a successful 2021 and all the challenges it will bring.



Catering

The Catering Department continued to improve on the many changes that have been introduced over the past years.

We retained our Distinction in Food Safety Assurance Award, achieving 100% for the second year. This was awarded by the Food Safety Professional Association.

In December 2020 the Department was successful in achieving ISO 22,000: 2018 'Food safety Management systems' thus becoming the first maternity hospital and public hospital to achieve this prestigious award. This certification involved two intensive audits on all aspects of our food safety system.

The Department continues its commitment to training with chef grade 1 completing QQI level 5 and two staff completing the online leadership course from Tallaght IT

The arrival of COVID-19 required us to liaise with other departments in the Hospital to protect our staff and patients. Numerous changes were made in JJs Bistro (staff canteen) to facilitate social distancing. Our seating capacity was dramatically reduced and our food and service offering had to be adjusted. We appreciate all the help and support we received from other departments.

We said goodbye to two members of the catering team this year: Christine Darcy and Natalie Malina worked in the catering department for many years and made a valuable contribution to the department. We wish them well in their retirement years.

2021 will see many new challenges for us and we will continue to improve in all areas. We would like to thank all departments in the hospital and especially our staff for their help and support throughout the year.

Suzanne Byrne, Catering.



Chaplaincy

The Chaplaincy Department provide spiritual, emotional, grief and bereavement support to bereaved patients / families who have experienced early miscarriage, mid trimester loss, stillbirth neonatal death and compassionate induction of labour.

Work practices have been adapted to ensure COVID-19 regulations are adhered to while at the same time ensuring that any further distress on bereaved parents and their families is minimised.

Spiritual/Religious and Practical Support

The Chaplaincy Department recognises and values all belief systems in a developing multi-cultural society through co-ordination of appropriate chaplaincy services with representatives and ministers of all faiths and those of none. All services being led by the Chaplaincy Department are viewed through a broad lens therefore delivering a 21st century model of spirituality through providing appropriate support.

Mortuary / Chapel of Rest

The Chaplaincy Department take full responsibility for the management / co-ordination of the mortuary chapel of rest services:

Activity

The table below shows the areas where we have provided support. The chaplaincy office is used as a quiet space providing spiritual, emotional, grief and bereavement support to bereaved families and to staff members. There is also other unspecified and unplanned support provided, this support often occurs informally with staff, patients and their families on corridors and other locations throughout the hospital.

Support is provided to families whose baby's death had not been acknowledged in any way in the past. Included in the undocumented support, is the support provided to staff: this often happens in the chaplaincy office or outreach situations.

Remembrance

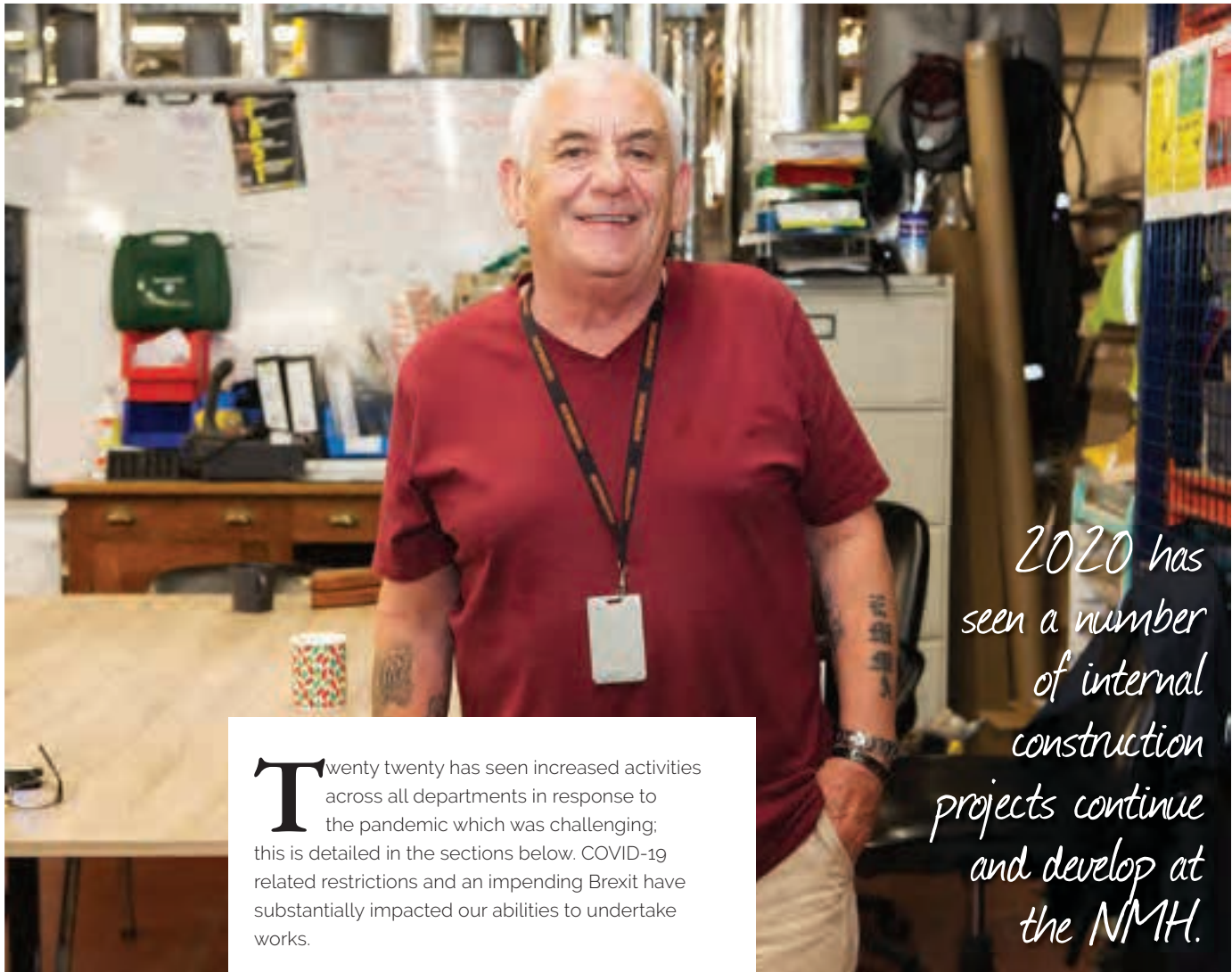
Prior to the COVID-19 pandemic, the Chaplaincy Department organized and led liturgies for significant events in the life of the hospital. This year's Remembrance Service did not take place, however we had a number of bereaved parents visit the Chapel of Rest to view the remembrance book. We provided support to a large number of bereaved families over



the phone and in the Oratory at the time leading up to, and after the remembrance candlelight procession. As in previous years, many bereaved parents and bereaved adult siblings, requested that baby's names be included in the Book of Remembrance which is on permanent display in the hospital oratory. We facilitated the transportation of the Remembrance Book externally for entries to be made.

	2018	2019	2020
Services - naming / Baptisms/ removals	85	151	213
Stillbirth	103	108	113
Undocumented support	50	50	70
Early miscarriage	30	8	57
Neonatal death	27	33	30
Termination of pregnancy	3	20	14

Facilities Engineering



2020 has seen a number of internal construction projects continue and develop at the NMH.

Twenty twenty has seen increased activities across all departments in response to the pandemic which was challenging; this is detailed in the sections below. COVID-19 related restrictions and an impending Brexit have substantially impacted our abilities to undertake works.

Shay Higginbotham, Maintenance, Chargeband, who retired in 2020 after 35 years service to the Hospital.

I would like to welcome Mr James McGovern who took up the post of Maintenance Supervisor and Mr Gearoid O'Toole who started as Internal Building Team Supervisor during the year. I wish them every success in their careers here at The National Maternity Hospital (NMH).

The Maintenance Department

The Maintenance Department is responsible for routine and planned preventative maintenance throughout the hospital campus. 2020 has not been without its operational challenges. COVID-19 and its associated restrictions provided operational challenges for safe systems of maintenance work. These were resolved and responded to in unique ways including solutions such as shift working hours to reduce even socially distanced contacts. Additional Infection Prevention and Control (IPC) measures in

line with NMH and national policies were essential in maintaining safety. Preventative maintenance activities were impacted during 2020 and efforts to redress this will extend well into 2021. I would like to thank all members of the Maintenance Team for their work during this most challenging time.

The Internal Building Team (IBT)

The IBT are tasked with undertaking minor-mid range construction projects within the NMH. 2020 has been an extremely busy year for the team but also a highly successful one. COVID-19 required unique engineering solutions specifically the requirement for negative pressure patient rooms and additional IPC facilities to 'make safe' the environments. Internal solutions were designed and implemented for

...an entire 'Hospital Within a Hospital' was created converting an entire ward to a negative pressure facility.

negative pressure facilities in the Operating Theatre (OT), Recovery area, Labour & Birthing Unit (LBU), Special Care Baby Unit and an entire 'Hospital Within a Hospital' was created converting an entire ward to a negative pressure facility. Additional IPC measures were installed at the front hall, upgrades to medical gasses were undertaken, and cough screens installed throughout the hospital. Solutions were identified and designed in-house and the IBT proved invaluable in undertaking the necessary works.

COVID-19 did not detract from other works undertaken by the IBT in 2020. The Gynae Clinic, Social Work and X-Ray Departments, including Labour & Birthing Unit (Phase 2A)

I would take this opportunity to acknowledge the incredible efforts made by the IBT and my Facilities Engineering management colleagues during this most challenging time.

Internal Project Management

2020 has seen a number of internal construction projects continue and develop at the NMH. There have been stoppages and supply line issues resulting from the pandemic but these have been managed and minimised as far as reasonably practicable.

The Labour and Birthing Unit (LBU) - Phase 1 of the LBU project completed during the Pandemic handing over 5 new rooms and support spaces. The IBT commenced Phase 2A in late 2020.

The new Operating Theatre (OT) - works commenced on this new development late 2019 and whereas lengthy stoppages occurred during COVID-19 lockdown periods, it recommenced later in the year. Similarly, this project has been impacted by supply line issues relating to Brexit and the COVID-19 pandemic. It has been challenging to coordinate this live, complex and noisy work adjacent to an OT whilst simultaneously working on the conversion of the Anaesthetic Induction room to an OT. Completion is expected Q2 2021

Environmental Department

The NMH are one of the few hospitals to achieve ISO 14001:2015 status. We have successfully retained

our prestigious ISO 14001:2015 again in 2020 despite the pandemic's restrictions and impacts to our operations and the staff shortages. I would

like to thank Graham Tucker, Rowena Creagh, Jennifer Connolly and Anne Dowling for their mammoth efforts during the summer to ready us so intensely for our audits.

Works have continued in the waste areas: Healthcare Risk Wastes, Non Risk Wastes and Recycling have all shown increases during 2020 due to increased Infection, Prevention and Control measures on site. This is essential in meeting IPC requirements and we will continue monitoring these activities on-going.

Energy usage on site has shown targeted progress. The use of Natural Gas and Electricity on site, whereas essential to maintain and delivering clinical services, is monitored carefully with an ambitious programme in place for reductions over the last few years. Our ISO environmental targets set during 2019 were met during 2020.

It only remains for me to thank the Facilities Engineering teams for their hard work during 2020, and to acknowledge the contribution and cooperation of the various departments throughout the hospital in which projects take place.

Carl Murphy, Carpenter.





The prime focus throughout 2020 was preventing COVID-19 contaminating the hospital.

Tommy Tucker, Porter.

General Services

The year 2020 will be remembered by everyone touched by the COVID-19 pandemic and the impact it has had on everybody's lives. In General Services, as with all other departments, Staff responded extremely well by supporting each other and going that extra mile to continue delivering excellent service to our patients and colleagues in very challenging times.

COVID-19 presented many challenges for staff; with the excellent planning, provision of Personal Protective Equipment (PPE), education and training, staff overcame their anxiety to deal with cases in the hospital. I want to take this opportunity to thank them for their commitment to our patients.

Hygiene Services

The Hygiene Services Department provides services

to all patient, visitor and staff areas of the hospital, maintaining clean and safe facilities by utilising the latest technology and cleaning methods in line with international best practices.

The prime focus throughout 2020 was preventing COVID-19 contaminating the hospital. New cleaning and disinfection regimes were introduced and expanded to prevent transmission from 'touch points' throughout the entire hospital. Extensive training programs and operating protocols were created to handle the demands of a newly configured COVID-19 ward and to keep pace with evolving infection prevention and control guidelines including PPE. A very proactive multi-disciplinary 'COVID-19 Response Team' was introduced to ensure consistent transfer protocols and rapid post-occupancy cleaning throughout the hospital on a 24-hour basis.

Once the department adjusted to the new operating requirements, annual skills training proceeded as normal, with all staff meeting external and internal compliance targets, resulting in the continued provision of cleaning services through a highly skilled workforce.

Portering Services

The Portering Services Department provides an essential frontline service throughout The National Maternity Hospital including the Labour and Birthing Unit, Theatre, Laboratories, Laundry, Front Hall and Stores.

The Portering Services Department also formed part of the multi-disciplinary 'COVID-19 Response Team'

The Department has continued to support education and training programmes and continue to undertake mandatory training on an annual basis developing a new essential 'Emergency Skills Training' course in conjunction with the Labour and Birthing Unit. Staff achieved 100% attendance in Manual Handling.

With the on-going redevelopment of the hospital on its current site, and its proposed co-location with St Vincent's University Hospital on the Elm Park Campus, the Portering Department participated on several committees providing advice on all aspects of the management of Portering Services including risk assessment and cost effectiveness. The Department is also represented on several committees such as the Goal 3 NMH Strategic Plan 2019 - 2023 and Goal 2 NMH Strategic Plan 2019 - 2023. Go Green Committee and Communications Group.

With the COVID-19 pandemic, the Portering Services Department evolved with new protocols being developed on a regular basis.

The Portering Services Department also formed part of the multi-disciplinary 'COVID-19 Response Team' used to handle patient transfers and deliver items to patients who could not receive visitors. All staff had to receive training in COVID-19 procedures, particularly with regard to patient transfers.

We give a warm welcome to Glenn Kynes, newly appointed Assistant Portering Services Manager: we wish Glenn the best of luck in his new role.

2020 has been challenging for everyone, but despite this, our staff have done extremely well in these circumstances and I wish to thank them from my bottom of my heart for the amazing work that they have done.

Switch/Reception

In 2020, despite an increase in calls, the Switch Team continued to provide a seamless customer focused link between the public and the hospital. The first point of contact the public have with the hospital is a welcoming smile or voice from the Switch Team and we take great pride and pleasure in delivering this in a very professional manner.

Andrew Hogan, Porter.



Hospital Education



Ann Rath, Assistant Director of Midwifery and Nursing.

Education is a priority for The National Maternity Hospital (NMH) as it ensures the provision of the best possible evidence based care to the women and infants attending. NMH is a busy clinical unit with a strong and proud history as a teaching hospital for both undergraduate and postgraduate students in all disciplines: medical, midwifery, nursing, physiotherapy, social work, laboratory science, dietetics and paramedics. As a teaching hospital for both University College Dublin and the Royal College of Surgeons of Ireland, nearly four hundred medical and midwifery students are trained every year; these range from lectures to clinical one medical students to the six-week placement in clinical two medicine through to the eighteen-month

Postgraduate Midwifery Programme and the four year Bachelor of Midwifery degree students.

Most of the non-consultant hospital doctor (NCHDs) are registered for training either under the auspices of the Royal College of Physicians, the College of Anaesthetists or the Irish College of General Practitioners. The NMH provides training to fulfill the criteria for basic and specialist training in the specialties of Obstetrics and Gynaecology, Anaesthesia, Paediatrics and Pathology. The fellowship programmes in Urogynaecology, Reproductive Medicine, Maternal Fetal Medicine, Labour Ward Management, Maternal Medicine, Laparoscopy, Neonatology and Obstetric Anaesthesia continue to be popular choices for highly trained and motivated trainees.

Similar to every other sector of society in general and the hospital specifically, the COVID-19 pandemic affected teaching within the hospital, both changing the format and the subject of education over the year. Within a very short time education changed from face to face meetings to virtual education to facilitate social distancing and meet public health guidance for possible infection control. Education rounds were provided through different virtual formats, meaning that not only did staff members have to learn differently but they also needed to become familiar in a short time with different platforms.

We were grateful that the Chief Medical Officer advised that midwifery, nursing and medical students be identified as essential workers, allowing students to return to where they often learn healthcare best – within the community of clinical care providers and from patients themselves. Students are an essential part of our team and it is wonderful having them return to practice.

Table 1: Weekly multidisciplinary teaching programme

Monday	Tuesday	Wednesday	Thursday	Friday
	Handover and MDT discussion twice a day on Labour & Birthing Unit, every week day and weekend day			
	Fetal Medicine	Maternal Medicine	Emergency care	Labour & Birthing care
			Grand Rounds	

Midwifery and Nursing Education and Practice Development

The Education and Practice Development Department is responsible for the organisation and coordination of ongoing education and the professional development of both qualified and student midwives and nurses at The National Maternity Hospital (NMH). We promote the philosophy of life-long learning and support staff to participate in educational programmes, conferences, seminars, and study days both internal and external. Several staff are pursuing education at Postgraduate degree, MSc and PhD levels.

In conjunction with the Centre of Midwifery Education, the NMH provides an ongoing continuous professional development strategy for nurses and midwives.

The NMH in partnership with the Higher Education Institutions, strive to maintain a high level of quality Midwifery and Nursing education to all students and qualified staff alike. The aim is to promote high standards of professional education, training and practice and professional conduct among nurses and midwives thus ensuring the safety and protection of the public.

In 2020 the NMH provided education and clinical placements for 20 BSc interns and 23 Higher Diploma Midwifery students. The Transition Year two-day midwifery programme took place again early March and this was very positively evaluated by those who attended. On the 1st April 2020 all clinical placements

for supernumerary midwifery and nursing student's years 1, 2 and 3 were suspended nationally due to COVID-19 pandemic. This will have an impact on their clinical placements going forward. Clinical Placements resumed in September 2020 for supernumerary students.

Initially all training and study days were cancelled due to COVID-19. The education team looked at different ways to facilitate education and training. The aim was to develop different teaching methods and the implementation of an adaptive response to the emerging education and training challenges. Classroom based learning was mainly paused and educationalists within the hospital developed an eLearning hub not only for staff but also for women attending the hospital. Virtual classes were run and on ward training and education was further developed. A decision was made to recommence face-to-face Mandatory training such as Basic Life Support, National Resuscitation Programme and Manual Handling in small groups in May 2020. Even during the pandemic over 64 study days and 191 teaching sessions were run with over 2,400 staff attending same.

Congratulations to the following midwifery students who were awarded prizes at the 2019 Charter Day: Gold Medal, Dawn Smyth (Higher Diploma) and Siobhan O'Doherty (BSc). The Elizabeth O Farrell Medal: Aisling Taylor (Higher Diploma) and Anna Mockler (BSc).

Front Row L-R: Lisa Courtney, Lauren Crowley, Anna Lyons. Back Row L-R: Katie O'Flynn, Annabel Murphy, all Midwives with Lucille Sheehy, Asst. Director of Midwifery and Nursing.



Royal College of Surgeons in Ireland



*Sam and Sorcha Hartigan
leaving the NMH with their
baby boy Eli in 2020.*

Forty-five undergraduates from the Royal College of Surgeons in Ireland (RCSI) attended The National Maternity Hospital for their seven weeks' rotation in Obstetrics and Gynaecology; twenty-three students in January/February and twenty-two in February/April. The programme for the second group was stopped in mid-March because of the COVID-19 pandemic but was recommenced and completed in August. The students learned a great deal during their time in the hospital and provided very positive feedback on their teaching.

The programme was co-ordinated by Professor Declan Keane and Dr Nada Warreth, Tutor. Dr. Nicola O'Riordan took over as tutor in August. Ms Miriam Shanley provided administrative support to the students. Teaching is provided by Consultants and various other members of hospital staff. In addition to the intensive obligatory e-learning programmes, the students, while rotating through all areas of the hospital, receive lectures, tutorials and 'hands on' demonstrations.

Thirty-one of our students achieved honours in their final Obstetrics and Gynaecology examination at the RCSI. Of these students, nine were awarded first class honours. Mr. Ryan Leon was awarded the NMH/RCSI medal for achieving the highest marks amongst the RCSI students who attended The National Maternity Hospital. This excellent performance reflects the enthusiasm of all those taking part in the teaching programme.

In addition, there were three RCSI medical students who attended for clinical electives during the summer, completing further education and research projects. The RCSI and NMH is also funding Dr. Nicola O'Riordan's PhD addressing lactate biochemistry and uterine muscle proteomics in dystocic labour.

University College Dublin

Obstetrics & Gynaecology

UCD Obstetrics & Gynaecology at National Maternity Hospital has a large and vibrant teaching programme delivered by Prof Fionnuala McAuliffe, Prof Colm O'Herlihy, Prof Mary Higgins, Prof Donal Brennan and organised by Ms Stephanie Begley, Tutors Dr Daniel Galvin, Dr Catherine Windrim and Dr Grace Ryan, provided excellence in teaching throughout the year. The John F. Cunningham Medal was awarded to Dr David O'Driscoll and the Kieran O'Driscoll Prize to Mr Ross Walsh.

We have an energetic and enthusiastic team of researchers ranging from MD to PhD students who are working on many projects outlined below.

In 2020 Dr Gillian Ryan was awarded MD on vaginal delivery following Caesarean Section. Dr Michael Wilkinson submitted his thesis on Obesity and Endometrial Cancer.

UCD Perinatal Research Centre

(www.ucd.ie/medicine/perinatal,
Twitter @UCDPerinatal)

The Centre's work aim is excellence in perinatal research to improve clinical outcomes for mothers and their infants. We are delighted that a smart phone app, developed by the Centre in collaboration with Dr Eileen O'Brien and Ms Sinead Curran at The NMH Department of Clinical Nutrition and Dietetics, is being developed. This app called '**Hollestic**' will be launched in 2021 for all pregnant women not only at The NMH but nationally and internationally; it will be free to download on the app store.

Research funding

Research is funded by Science Foundation Ireland, Health Research Board (HRB) Centre for Health and Diet Research, HRB Mother and Baby Clinical Trials Network, Perinatal Ireland, and by the National Maternity Hospital Medical Fund (Fionnuala McAuliffe).

AI-PREMIe

Science Foundation Ireland (Role: Society Champion) Concept Phase: €20,000 Mary Higgins, Prof Fionnuala NiAinle, Dr Patricia Maguire

AI PREMIe

Science Foundation Ireland (Role: Society Champion) Seed Phase: €200,000 Mary Higgins, Prof Fionnuala NiAinle, Dr Patricia Maguire

Irish Cancer Society Womens Health Initiative

"Development of a life after cancer clinic – a national pilot" - €300,000 direct costs, Principal Investigator Donal Brennan

Science Foundation Ireland - Precision Oncology Ireland

"Dynamic Modelling of T cell response to immune checkpoint inhibitors in high grade serous ovarian cancer" (€1,265,908 direct costs) Prof Donal Brennan Co-PI with Prof Walter Kolch

Irish Cancer Society 2020 Immuno-oncology Award

"The Role of TIGIT in ovarian Cancer" (€350,000 direct costs) Prof Donal Brennan Co-PI with Prof Lydia Lynch

Awards for Research

Prof McAuliffe received a UCD research impact award in recognition for the work of the UCD Perinatal Centre in translating clinical research into clinical care. Cara Yelverton received best student prize for fetal growth trajectories and maternal lipids at British Maternal and Fetal Medicine Society Meeting.

International Federation of Gynaecology and Obstetrics FIGO Pregnancy and Nutrition Initiative (PONI) published in a supplement of International Journal of Gynaecology and Obstetrics which included 7 articles on the importance of nutrition in fetal programming and health across the lifecourse.

Researchers working in Obstetrics & Gynaecology in 2020

- Dr Marie Conway, postdoctoral fellow
- Dr Anthony Rafferty, postdoctoral fellow
- David Byrne, research assistant
- Louise Curtain, research assistant
- Shauna Callaghan, research midwife and PhD student
- Cara Yelverton, PhD student
- Sarah Louise Killeen, PhD Student
- Dr Grace Ryan, MD student
- Dr Niamh Keating, MD student
- Mr Brendan Dempsey, PhD student

- Ms Anna Delahunt, PhD student
- Dr Kate Glennon, MD student
- Dr Michael Wilkinson MD student
- Dr Bobby O'Leary MD student
- Dr Fionan Donohoe, MD Student
- Romina Silva PhD student
- Martina Kriedal, PhD student – SBI
- Donagh Egan, PhD Student – SBI
- Dr Vadim Zhernovkov, Assistant Professor – SBI
- Mr Michael Metoudi, Research Assistant – SBI
- Ms Yvonne O'Meara, Project Manager – Survivorship
- Ms Aedin Roberts, CNS survivorship
- Ms Louise Comerford, CNS Survivorship

UCD Perinatal Research Group Projects

In 2017 the research group was awarded Centre status by UCD in recognition of the significant size, output and impact of the group. Ongoing research projects are listed below.

ROLO Kids

Randomised control trial of low glycaemic index diet to reduce recurrence of macrosomia.

This is a follow-up study at age 2, 5 and 9-10 years of mothers and infants from the ROLO study

Collaborators: Dr Sharleen O'Reilly, UCD School of Agricultural and Food Science

Dr Ciara McDonnell, Paediatric Endocrinology, Tallaght Hospital

Prof Cecily Kelleher, UCD School of Public health, Physiotherapy and Population Science

Dr Catherine Mooney, UCD School of Computer Science

Microbiome Mum

'role of maternal microbiome in influencing neonatal microbiome and impact of a probiotic on maternal and fetal health'

This study examines the inter-relation between mother and baby microbiome and whether a probiotic given to Mum can have positive impacts on maternal and infant health

Collaborators: Dr Paul Cotter, Teagasc

Dr Douwe Van Sinderen, University College Cork

Perinatal Endocrinology Research Group

A number of studies have been performed examining the interaction of vitamin D and lipids on maternal and fetal health

Collaborators: Dr Malachi McKenna, Endocrinology, St Vincent's Hospital, Dublin

Dr Patrick Twomey, Pathology, St Vincent's Hospital, Dublin

Dr Rachel Crowley, Endocrinology, St Vincent's Hospital, Dublin

Dr Ciara McDonnell, Paediatric Endocrinology, Tallaght Hospital

Latch-On:

Multicentre Randomised Control Trials across 5 Hospitals in Ireland East

This is an ambitious multicentre randomised controlled trial to support breastfeeding amongst women with BMI > 25 with includes intensive antenatal and postnatal support

Collaborators: Prof Mary Brosnan, The National Maternity Hospital

Dr Denise O'Brien, UCD School of Nursing, Midwifery and Health Systems

Dr Barbra Coughlan, UCD School of Nursing, Midwifery and Health Systems

Fetal Trajectories Group

We are exploring novel ways to assess fetal and infant growth

Collaborators: Dr Linda O'Keeffe, UCC

FIGO Pregnancy Nutrition and Obesity Initiative

We are developing clinical guidelines and a nutrition checklist that can be used globally to assist healthcare professionals caring for pregnancy women to advise them about appropriate nutrition before, during and after pregnancy

Collaborators: Prof Moshe Hod, Israel

Prof Mark Hanson, Southampton

HRB Mother and Baby Clinical Trials Network

National Maternity Hospital is one of the key clinical sites within this network, an all-Ireland research consortium which carries out clinical studies in pregnancy across seven academic maternity and neonatal units.

Collaborators: Prof Fergal Malone, Royal College of Surgeons of Ireland, Prof Sean Daly, Coombe Womens University Hospital, Prof John Morrison, University College Hospital Galway, Prof John Higgins, University College Cork, Prof Amanda Cotter, University of Limerick, Dr. Alyson Hunter, Queen's University Belfast

Virtual Reality (VR) Baby

We are developing a virtual reality model of pregnancy to enhance medical and midwifery students experience of learning

Collaborators: Prof Eleni Mangina, UCD School of Computer Science

Medical Student Teaching

Collaborative project with UCD Psychology studying women's and students' experiences of bedside teaching. Development and Validation of a questionnaire studying women's attitudes towards bedside teaching.

Patient as Expert by Experience

Qualitative research of women's lived experience of a diagnosis of Gestational Diabetes; development and validation of questionnaire studying women's attitudes towards a diagnosis of gestational diabetes.

Second Victim

To assess prevalence of second victim in maternity care in Ireland and the impact on clinical staff of adverse outcomes.

IRELAND study

Multicentre RCT in aspirin use to prevent pre-eclampsia in women with pre-gestational diabetes.

Diabetes

Role of fenugreek for breastfeeding in women with gestational diabetes.

Stigma in abortion care providers

Qualitative and quantitative study of service providers views of stigma related to their clinical work.

Ovarian cancer immunology

(co leads Prof D Brennan and Prof Walter Kolch)
Joint project with Astra Zeneca and Precision Oncology Ireland focused on improving response to immune checkpoint inhibitors in ovarian cancer and understanding novel immune checkpoints such as TIGIT funded by Irish Cancer Society in collaboration with Prof Lydia Lynch (TCD)

Obesity related carcinogenesis

Project focused on understanding the impact of intentional weight loss on endometrial biology in conjunction with Prof Donal Brennan, Prof Carel leRoux and Prof Helen Heneghan in UCD

Survivorship

Irish Cancer society funded project focused on development of evidence based survivorship programs for women living with and after cancer, Prof Donal Brennan

Placenta Accreta Spectrum (PAS)

Projects focused on aetiology and long term impact of PAS on maternal mental health, Prof Donal Brennan

Medical Education ("MedEd") Electives**Prof Mary Higgins**

We have now run three highly successful electives in Medical Education with 22 medical student participants. As well as students gaining increased knowledge in MedEd theories, student output includes the following

- A 100-page handbook for final year students reviewing Obstetrics and Gynaecology
- "Obscast" podcast
- Multiple MedEd infographics on subject's that students identified as relevant and under resourced in the standard curriculum
- A 300-question multiple choice question bank to allow for formative learning
- An 80-page handbook reviewing History Taking and Examination skills in Obstetrics and Gynaecology
- Presentations at the INHED, AMEE and ASME meetings

BMJ Opinion Pieces (BMJ Columnist officially from 2020) Prof Mary Higgins

<https://blogs.bmj.com/bmj/category/columnists/mary-higgins>

1. <https://blogs.bmj.com/bmj/2020/08/27/mary-higgins-the-return-of-medical-students-to-clinical-practice-is-filled-with-uncertainty/>
1. <https://blogs.bmj.com/bmj/2020/08/13/mary-higgins-reflections-can-be-quite-painful-to-complete-but-in-that-pain-comes-real-learning/>
1. <https://blogs.bmj.com/bmj/2020/05/22/mary-higgins-we-must-learn-from-the-experiences-of-people-who-have-had-COVID-19/>
1. <https://blogs.bmj.com/bmj/2020/04/09/mary-higgins-COVID-19-crossing-the-threshold/>

Publications from UCD Obstetrics & Gynaecology in 2020, 63 in total, are listed in the Appendices

Research Ethics Committee

The National Maternity Hospital Research Ethics Committee is both a Local and National Ethics Committee. It is approved by the Dept of Health to review National Perinatal Studies. It reviews Obstetric, Neonatal, Anaesthetic, Gynaecology and Perinatal Pathology research.

Monthly meetings are held with the exception of August. There is one quarter lay attendance and a quorum is required at each meeting.

Generally, the applications are approved at each meeting; if not approved the Chairman will request clarification on a particular issue. A final decision is always made at the second review of the Committee. The average length of time between receipt of an application and a final decision by the Committee is 4-8 weeks

In 2020 the Research Ethics Committee received 47 new research application proposals, 6 of which were COVID-19 related. 38 of the applications were approved at first review, 8 needed further clarification. 1 proposal did not meet ethical criteria and therefore was rejected.

We also approved 6 audits within the National Maternity Hospital.





Development Project Office:

for the proposed co-location to St Vincent's University Hospital on the Elm Park Campus

The Operational Readiness (OR) Programme has had a very productive year, with the NMH moving into a new planning stage, Operational Readiness. The OR programme was established in 2019, including a NMH Programme Management Office (PMO) and Pillar structures (see below). This group has worked with St Vincent's University Hospital, HSE Estates and Accenture staff, to complete the Final Business Case (FBC) for the project. The FBC was approved by the Project Board in May 2020 and submitted for approval to the HSE in June achieving a major milestone in NMH's move to Elm Park.

Early in 2020, the NMH was faced with the COVID-19 pandemic. The operational changes implemented by the NMH in response to COVID-19 were considerable and undertaken rapidly and effectively by the NMH team. The challenges experienced in implementation of social distancing and patients requiring isolation

have demonstrated the requirement for the new hospital. During this time the NMH PMO and Pillar staff were redeployed providing support to other NMH department's in the response to COVID-19.

In December 2020, Pauline Treanor, Programme Manager departed NMH having completed Phase 1 of the Operational Readiness work. The team wish to thank Pauline for all her work, dedication and knowledge on this phase and wish her the best for the future.

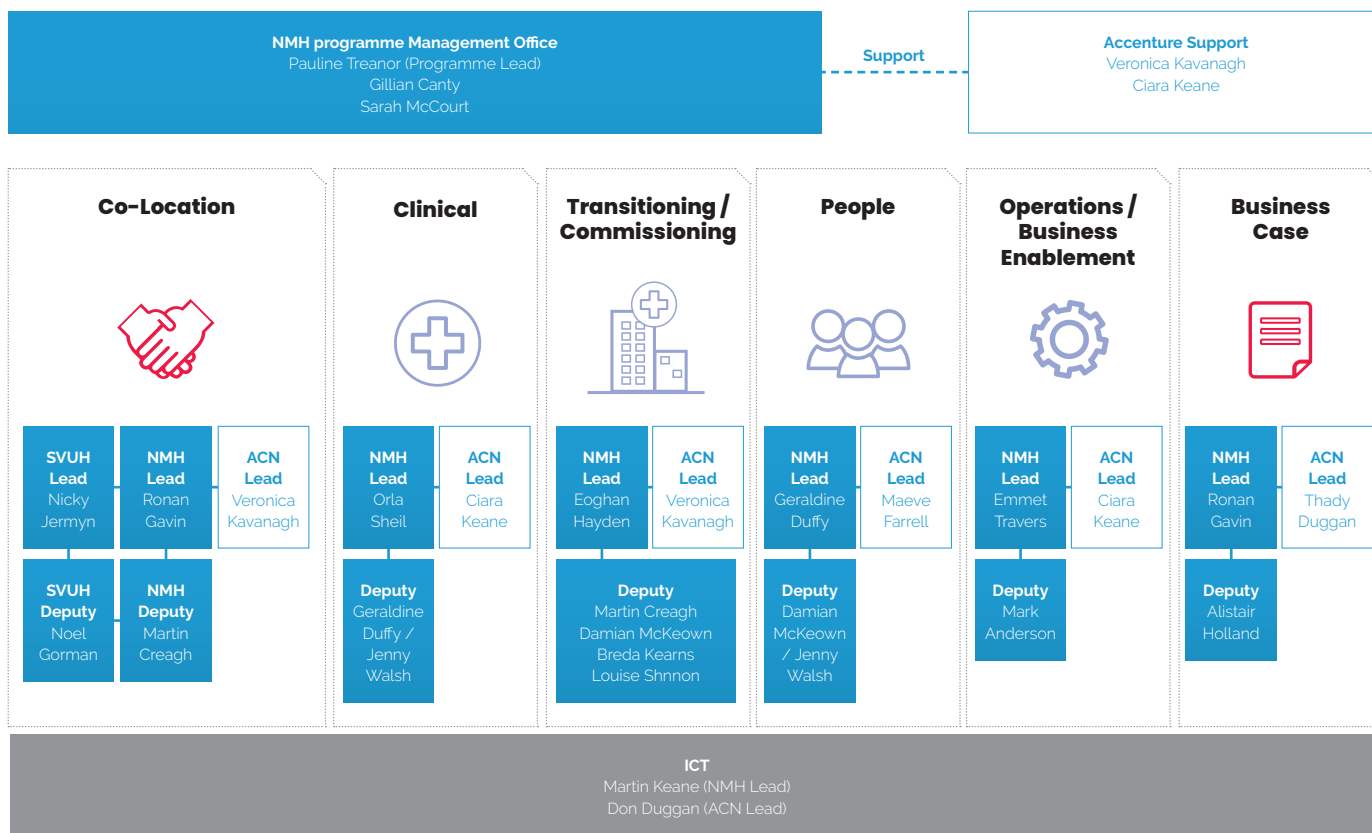
The Operational Readiness Programme has made substantive progress completing phase 1 of the programme. The following activities were completed with inputs from the Pillars:

- Final Business Case completed and submitted for approval process.
- Operational Readiness Workforce Plan and knowledge transfer completed.

- Development of Functional Policies completed.
- User Requirement Specifications were identified and completed for services.
- Development of Service Level Agreements completed.
- Draft Operational Readiness Implementation Plan completed.
- Validation of equipment schedules for the NMH @ Elm Park to reflect the end users requirements.
- ICT group completed the Digital Health Implementation Plan. Key decisions were progressed in relation to the network and the most effective procurement process for NMH @ Elm Park. 2020 culminated with the delivery of a high-level network design for the new building, produced by a leading network company that will inform the construction tender and serve as a very practical guide for the detailed network design that will be developed as the project progresses.

Members of the Development Project Team & Operational Readiness Team are, Shane Higgins, Ronan Gavin, Mary Brosnan, Orla Sheil, Jennifer Walsh, Pauline Treanor, Gillian Canty, Martin Creagh, Martin Keane (IEHG), Geraldine Duffy, Emmet Travers, Eoghan Hayden, Mark Anderson, Alistair Holland, Damian McKeown and Sarah McCourt

Operational Readiness Programme Pillar Structure



Note: Pillar structure will be revised as required and may be changed to ensure it is operating optimally
 ACN = Accenture

The NMH eLearning Hub

To complement and support antenatal education needs during the COVID-19 pandemic, a multidisciplinary team led by Professor Gráinne Flannelly developed an eLearning Hub.

This multidisciplinary team is composed of NMH healthcare professionals including midwives, physiotherapists, lactation consultants, dieticians, paediatricians, obstetricians and psychologists.

This multidisciplinary team is composed of NMH healthcare professionals including midwives, physiotherapists, lactation consultants, dieticians, paediatricians, obstetricians and psychologists. Each resource contains a series of educational modules to help patients on their journey through pregnancy and beyond. This resource is designed to complement and supplement virtual antenatal education classes.



The NMH education module series



Healthy Ireland



The Healthy Ireland (HI) Group at The National Maternity Hospital (NMH) is co-ordinated by Mary Brosnan (Director of Midwifery), Sinéad Curran (Dietitian Manager) and Eoghan Hayden (Clinical Engineering). Helen McCrimmon provides all admin support, liaises with national health promotion campaigns and organises HI activities and programs within the NMH. Representatives to the group include Occupational Health, HR, Senior Managers, Laboratory Services, Physiotherapy, Non-Consultant Hospital Doctors and the Diabetes Team.

The unprecedented and varied stresses on NMH staff as a result of the COVID-19 pandemic was the instigator of the HI 'Work Buddy' campaign. A checklist to help staff transition from work to home was developed and posters created and displayed throughout the hospital. During the first phase of pandemic restrictions, with staff redeployed to testing and co-ordination of the COVID-19 response, Sinead Curran co-ordinated a cross-disciplinary Well Being Support Group including Sarah Cullen, John Geoghegan, Lisa Courtney, Mark Anderson, Joanna Murphy, Helen McCrimmon, Kaylene Jackson and Ciara Ryan to produce a weekly blog, HI posters and emails. NMH staff contributed delicious recipes, practical wellbeing and self-care tips, quizzes, competitions and book reviews. As the year progressed, contributions were incorporated into the staff newsletter in collaboration with NMH Communications Officer, Jennie Cotter.

In June, our Mental Health Liaison Advanced Nurse Practitioner (ANP) Deirdre Madden, put together a beautiful audio visual piece to help NMH staff access the power of a connection with nature to support wellbeing. It was shown throughout the day at timed intervals in the Midwives Sitting Room and made available to view on the staff blog. It was a lovely parting gift from Deirdre and we wish her well for the future.

The HI Group acknowledges the extraordinary innovation and resilience of NMH staff throughout 2020 and is especially grateful to Helen McCrimmon for her ongoing work to support staff wellbeing.

Other HI Activities in 2020

January to March: Free Staff Healthy Lifestyle program with weekly weight management support provided by Grace Airey

February: Staff talk on sleep hygiene from Sleep Therapist Deirdre McSwiney

March- July: Weekly Staff Blog & online supports

April: HSE Stress Control Program

May: IBEC National Workplace Wellbeing Day run by HR

June: Nature Connection Day

October: NTA 'Walktober' Challenge

November: NTA Light up your Bike (with thanks to Damian McKeown)



COVID-19 Commemorative Medals

All staff who worked at The National Maternity Hospital through 2020 have been awarded an exclusively designed, Commemorative Medal in recognition of their vital work during the Coronavirus Pandemic. The medal is a symbol of gratitude for all staff who have helped keep the hospital's patients and each other safe through Covid-19.

Speaking about the special medals, Prof Shane Higgins, Master at The NMH said, 'Late last year, our Executive Management Team came together to discuss how we could say a sincere, tangible thank you to our staff who continue to show up each and every day with unfailing dedication and incredible strength, despite the pandemic. It was at this meeting that the idea of a bespoke, commemorative medal was born.'

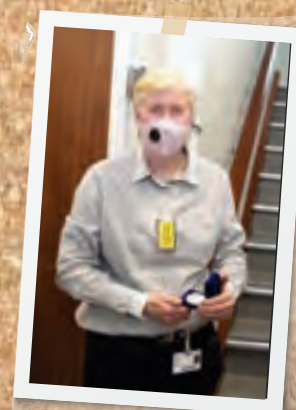
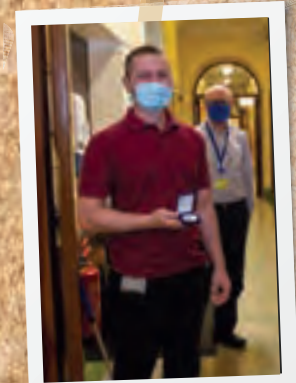
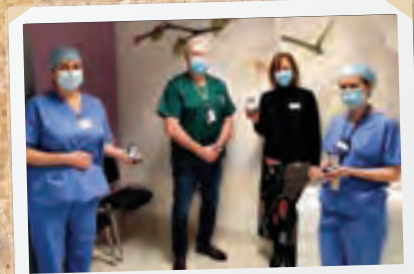
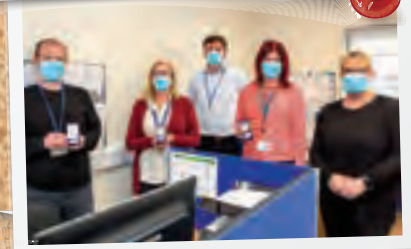
"Roger McMorrow, Clinical Director at The NMH commissioned the medal and led its design" continued Prof Higgins. "Our staff are essentially the beating heart of The NMH and we will be forever in their debt for their continued, unwavering support and service. We hope that it will have a strong symbolic value for every person for many years to come."

One side of the medal displays an engraved picture of the hospital building surrounded by the words, **Trusted, Responsive** and **Inspiring**, with each word separated by a coronavirus symbol.

The other side has the Hospital Crest in the centre with the words "For your dedication and service during the Coronavirus Pandemic 2020".

The medals were presented in March 2021, one year after the onset of the pandemic in Ireland. Emotion was palpable as staff received them with many saying it was "something special to keep for the grandkids."

The images show some staff across various departments with their medal; other images are scattered throughout the report.



Financial Statements

Extracts from the Hospital Income & Expenditure Account For the Year Ended 31 December 2020

Income And Expenditure	€000	€000
	€000	€000
Ordinary Income		
Miscellaneous	319	454
Treatment Charges	11,706	13,978
	12,025	14,432
Ordinary Expenditure - Pay		
Medical NCHD's	6,118	5,704
Consultants	9,492	9,012
Nursing	27,841	26,406
Para-Medical	5,992	5,472
Housekeeping	2,457	2,369
Catering	2,049	2,065
Porters	1,221	1,073
Maintenance	936	593
Administration	7,652	7,323
Pensions	2,670	2,611
	66,428	62,268
Ordinary Expenditure - Non Pay		
Medicines, blood and gas	2,132	2,214
Laboratory expenses	2,016	2,349
Medical and surgical appliances	3,805	3,844
X-ray expenses	659	379
Provisions/catering	681	645
Heat power and light	549	501
Cleaning and washing	952	879
Furniture, hardware and crockery	14	64
Bedding and clothing	107	86
Maintenance	314	557
Transport and travel	125	145
Finance	319	809
Bad debt provision	(303)	(716)
Office expenses	702	639
Education and training	214	169
Computer expenses	605	512
Miscellaneous	1,295	1,383
Depreciation	3,257	3,127
Amortisation	(3,257)	(3,127)
	14,186	14,459
Deficit for Year		
Net expenditure	68,589	62,655
Annual Allocation	72,812	66,557
less amount deferred in respect of fixed asset additions	(2,726)	(2,438)
(Deficit)/Surplus	1,497	1,464

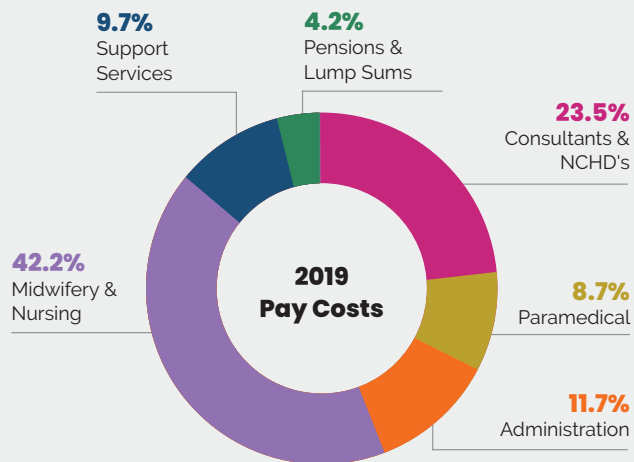
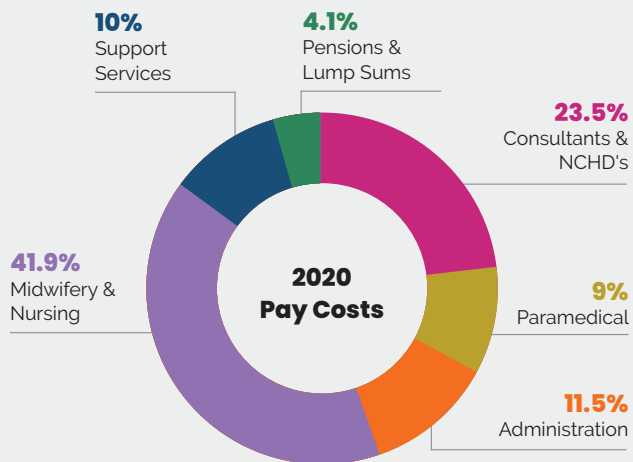
Extracts from the Hospital Income & Expenditure Account For the Year Ended 31 December 2020

Cumulative Figures	2020	2019
	€000	€000
Surplus / (Deficit) Brought Forward	3,035	1,571
Surplus / Deficit transferred from Income & Expenditure	1,497	1,464
Surplus / Deficit Carried Forward	4,532	3,035

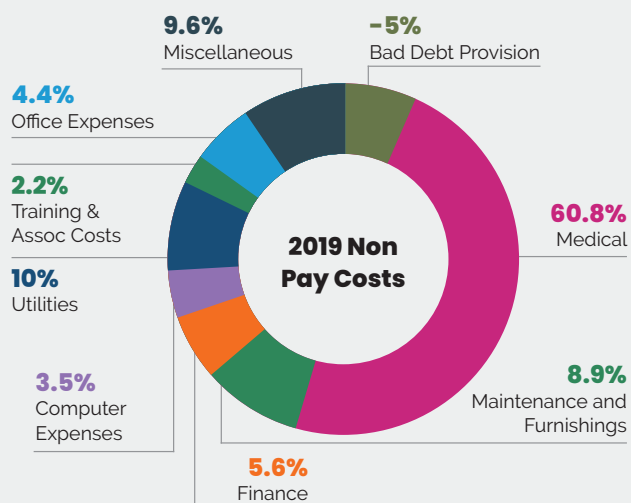
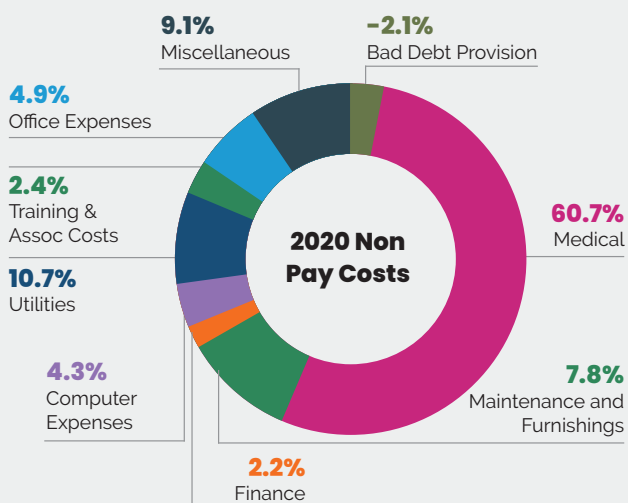
Extracts from the Hospital Balance Sheet as at 31 December 2020

Balance Sheet	2020	2019
	€000	€000
Fixed Assets	75,442	70,868
Current Assets		
Stocks	789	564
Debtors	15,527	9,773
Cash & Bank	-	3,393
	16,316	13,730
Current Liabilities		
Creditors	11,105	10,015
	11,105	10,015
Net Current Liabilities	5,211	3,715
Creditors (<i>amounts falling due after more than one year</i>)		
Deferred Grant	(31,359)	(26,786)
Loans from Funds	(2,187)	(2,187)
Net Assets	47,107	45,610
Represented By:		
Revaluation Reserve	42,533	42,533
Accumulated Surplus / (Deficit) at end of year	4,532	3,035
Other Funds	42	42
	47,107	45,610

Pay Costs	2020	2019
Consultants and NCHDs	15,610	14,716
Paramedical	5,992	5,472
Administration	7,652	7,323
Midwifery and Nursing	27,841	26,406
Support Services	6,663	6,100
Pensions and Lump Sums	2,670	2,611
	66,428	62,628



Non Pay Costs	2020	2019
Medical	8,612	8,786
Maintenance and Furnishings	1,102	1,288
Finance	319	809
Bad debt provision	-303	-716
Computer Expenses	605	512
Utilities	1,515	1,444
Training and Assoc. Costs	339	314
Office Expenses	702	639
Miscellaneous	1,295	1,383
	14,186	14,459



Clinical & Administrative Activity Analysis

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Mothers Delivered (inc. < 500g)	10805	10302	10088	9855	10026	10092	9790	9357	8671	8700	8158
Mothers Delivered (>= 500g and/or 24 wks)	9756	9250	8978	8755	9106	9186	8851	8433	7774	7871	7263
Para 0	4704	4274	3918	3810	4034	4052	3878	3684	3271	3415	3201
Para 1+	5052	4976	5060	4945	5072	5134	4973	4759	4503	4456	4062
Nulliparous %	48.2	46.2	43.6	43.5	44.3	44.1	43.8	43.7	42.1	43.4	44.1
Maternal Mortality	0	2	1	0	0	0	1	0	0	0	0
Babies Born (>= 500g)	9957	9459	9142	8960	9309	9389	9037	7914	7914	8009	7402
Perinatal Mortality	71	67	51	64	55	59	53	60	60	74	66
Perinatal Mortality Rate	7.1	7.0	5.6	7.1	5.9	6.3	5.9	7.6	7.6	9.2	8.9
Congenital Anomalies	31	29	19	22	22	21	23	18	26	32	19
Corrected Perinatal Mortality Rate	4.0	4.0	3.5	4.7	3.6	4.1	3.3	5.3	4.3	5.3	6.4
Caesarean Section %	20.7%	21.4%	22.8%	23.1%	23.5%	25.9%	26.0%	27.2%	28.9%	30.3%	31.4%
Operative Vaginal Delivery %	13.4%	11.9%	11.1%	14.0%	11.1%	12.7%	14.2%	13.0%	13.7%	12.5%	12.7%
Normal Delivery %	65.9%	66.7%	66.1%	65.9%	65.4%	61.4%	59.8%	59.8%	57.0%	57.2%	55.9%
Induction %	24.8%	24.9%	26.4%	26.5%	27.1%	27.6%	28.6%	29.8%	27.8%	31.0%	34.0%

Activity Analysis

Table 1: Patients Attending

Mothers Delivered >= 500g	7263
Mothers Delivered < 500g	798
Hydatidiform Moles	31
Ectopic Pregnancies	66
	8158
Table 2: Maternal Deaths	0

Table 3: Babies Born (24 wks EGA and/or >= 500g)

Singletons	7130
Twins	266
Triplets	6
Quadruplets	0
Total Births	7402

Table 4: Obstetric Outcome

	%
Spontaneous Vaginal Delivery	55.9%
Forceps	2.3%
Ventouse	9.4%
Ventouse/Forceps	1.0%
<i>Total Operative</i>	<i>12.7%</i>
Caesarean Section	31.4%
	100.0%
Induction	34%

Table 5: Perinatal Deaths

Antepartum Deaths	35
Intrapartum Deaths	0
Total Stillbirths	35
Early Neonatal Deaths	12
Congenital Anomalies (SBs and ENNDs)	19
Total Perinatal Deaths	66

Table 6: Perinatal Mortality Rates

Overall Perinatal Mortality Rate per 1000 births	66/7402	8.9
Perinatal Mortality Rate corrected for lethal congenital anomalies (19)	47/7383	6.4
Overall Perinatal Mortality Rate including late neonatal deaths (6)	74/7408	10.0
Overall Perinatal Mortality Rate excluding external referrals (12)	54/7390	7.3
Perinatal Mortality Rate corrected for lethal congenital anomalies (19) and excluding early deaths and stillbirth external referrals (5)	42/7378	5.7

Late Neonatal Deaths: 6 Early Infant Deaths: 8

External referrals: 7 anomalies, 5 normally formed

Table 7: Age of Mothers Delivered

	Nullip	Multip
< 20 yrs	42	5
20 - 24 yrs	220	99
25 - 29 yrs	464	378
30 - 34 yrs	1371	1157
35 - 39 yrs	881	1869
40 + yrs	223	554
Total	3201	4062

Table 8: Parity of Mothers Delivered		
	Total	%
Para 0	3201	44.1%
Para 1, 2, 3	3932	54.1%
Para 4+	130	1.8%
Total	7263	100.0%

Table 9: Body Mass Index (WHO ranges)		
	2020	%
Underweight: <18.5	93	1.3%
Healthy: 18.5 - 24.9	3488	48.0%
Overweight: 25 - 29.9	2014	27.7%
Obese class 1: 30 - 34.9	795	10.9%
Obese class 2: 35 - 39.9	320	4.4%
Obese class 3: >40	143	2.0%
Not Recorded	410	5.6%
Total Deliveries	7263	100.0%

Table 10: Ethnicity of Mothers Delivered		
	Total	%
Irish	5065	69.7%
Any other White background	1333	18.4%
Any other Asian background	355	4.9%
Any other Black background	111	1.5%
Other including Mixed Background	126	1.7%
Irish Traveller	22	0.3%
Not Known	251	3.5%
Total Deliveries	7263	100.0%
<i>National Census classification</i>		

Table 11: Birthweight of Babies Born				
	Nullip	Multip	Total	%
<500g	4	4	8	0.1%
500 - 999g	33	26	59	0.8%
1,000 - 1,499g	30	32	62	0.8%
1,500 - 1,999g	53	42	95	1.3%
2,000 - 2,499g	117	106	223	3.0%
2,500 - 2,999g	413	398	811	11.0%
3,000 - 3,499g	1062	1130	2192	29.6%
3,500 - 3,999g	1123	1553	2676	36.2%
4,000 - 4,499g	385	701	1086	14.7%
4,500 - 4,999g	44	128	172	2.3%
5,000g +	5	13	18	0.2%
	3269	4133	7402	100.0%

Table 12: Sex of Babies Born				
	Nullip	Multip	Total	%
Male	1653	2086	3739	50.5%
Female	1616	2047	3663	49.5%
Total Babies Born	3269	4133	7402	100.0%

Table 13: Gestational Age of Babies Born				
	Nullip	Multip	Total	%
< 26 weeks	18	16	34	0.5%
26 - 29 + 6 days	29	34	63	0.9%
30 - 33 + 6 days	63	57	120	1.6%
34 - 36 + 6 days	162	171	333	4.5%
37 - 41 + 6 days	2859	3800	6659	90.0%
42 + weeks	138	55	193	2.6%
Total Babies Born	3269	4133	7402	100.0%

Table 13: Perineal Trauma after Spontaneous and Operative Vaginal Delivery (SVD & OVD)			
	Nullip	Multip	Overall
Episiotomy	1028	292	1320
<i>Incidence % of SVDs</i>	47.3%	10.4%	26.5%
First Degree Tear	207	607	814
<i>Incidence % of SVDs</i>	9.5%	21.6%	16.3%
Second Degree Tear	707	998	1705
<i>Incidence % of SVDs</i>	32.5%	35.5%	34.2%
Third Degree Tear	59	24	83
<i>Incidence % of SVDs</i>	2.7%	0.9%	1.7%
Fourth Degree Tear	3	0	3
<i>Incidence % of SVDs</i>	0.1%	0.0%	0.1%
Intact	170	889	1059
<i>Incidence % of SVDs</i>	7.8%	31.6%	21.2%
Total Vaginal Deliveries (SVD and Operative)	2174	2810	4984

Table 13(a): Perineal Trauma after Spontaneous Vaginal Delivery (SVD)			
	Nullip	Multip	Overall
Episiotomy	562	99	661
<i>Incidence % of SVDs</i>	74.6%	58.9%	71.8%
First Degree Tear	23	10	33
<i>Incidence % of SVDs</i>	3.1%	6.0%	3.6%
Second Degree Tear	131	40	171
<i>Incidence % of SVDs</i>	17.4%	23.8%	18.6%
Third Degree Tear	29	2	31
<i>Incidence % of SVDs</i>	3.9%	1.2%	3.4%
Fourth Degree Tear	1	0	1
<i>Incidence % of SVDs</i>	0.1%	0.0%	0.1%
Intact	7	17	24
<i>Incidence % of SVDs</i>	0.9%	10.1%	2.6%
Total Spontaneous Vaginal Deliveries (excl. Operative)	753	168	921

Table 13(b): Perineal Trauma after Operative Vaginal Delivery (OVD)

	Nullip	Multip	Overall
Episiotomy	466	193	659
<i>Incidence % of OVDs</i>	32.8%	7.3%	16.2%
First Degree Tear	184	597	781
<i>Incidence % of OVDs</i>	12.9%	22.6%	19.2%
Second Degree Tear	576	958	1534
<i>Incidence % of OVDs</i>	40.5%	36.3%	37.8%
Third Degree Tear	30	22	52
<i>Incidence % of OVDs</i>	2.1%	0.8%	1.3%
Fourth Degree Tear	2	0	2
<i>Incidence % of OVDs</i>	0.1%	0.0%	0.0%
Intact	163	872	1035
<i>Incidence % of OVDs</i>	11.5%	33.0%	25.5%
Total Operative Vaginal Deliveries	1421	2642	4063

Table 14: Severe Maternal Morbidity (SMM)

	Major SMM only*
Major Obstetric Haemorrhage	33
Uterine Rupture	1
Peripartum Hysterectomy	3
Eclampsia	4
Renal / Liver Dysfunction	7
Pulmonary Oedema	0
Acute Respiratory Dysfunction	0
Pulmonary Embolism	2
Cardiac Arrest	0
Coma	0
Cerebral Vascular Accident	0
Status Epilepticus	1
Septic Shock	6
Anaesthetic Problems	1
ICU/CCU admission	0
Other	3
Interventional Radiology	0
Total	61

Some women had more than one SMM – in this table only the major SMM is reported

Table 15: Neonatal Encephalopathy

	Inborn	Outborn
Neonatal Encephalopathy - with HIE	8	4
Neonatal Encephalopathy - no HIE	0	2
Seizures – No Encephalopathy	4	0
<i>Therapeutic Hypothermia</i>	8	5

Statistical Analysis Expressed as Percentages Over 10 Years

Age	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
< 20 years	13	11	10	0.7	1.0	0.8	1.8	0.7	0.6	0.6
20 - 24 years	74	6.6	6.3	5.3	5.1	5.5	4.0	4.1	4.2	4.4
25 - 29 years	20.7	18.3	16.7	15.3	14.7	15.8	12.0	12.0	12.6	11.6
30 - 34 years	38.5	39.9	40.1	39.9	38.4	40.9	36.8	33.5	34.5	34.8
35 - 39 years	26.3	28.1	29.5	31.9	33.1	32.9	36.8	37.9	38.5	37.9
40+ years	5.8	6.0	5.9	6.9	7.7	7.1	8.6	8.2	9.6	10.7
Not available	0.0	0.0	0.5	0.0	0.0	0.0	0.0	3.6	0.0	0.0

Parity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0	46.2	43.6	43.5	44.3	44.2	43.8	44.0	42.0	43.4	44.1
1,2,3	51.9	60.6	60.5	60.8	60.0	60.4	60.2	56.3	55.0	54.1
4+	1.9	1.8	2.0	1.9	1.8	1.8	1.8	1.7	1.6	1.8

Percentages of total mothers delivered \geq 500g and/or EGA \geq 24 wks (2020 n=7263)

Birthweight	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<500g	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.1	0.0	0.1
500 - 999	0.5	0.6	0.7	0.6	0.4	0.6	0.6	0.7	0.8	0.8
1000 - 1499	0.9	0.6	0.7	0.7	0.7	0.7	1.0	0.6	0.7	0.8
1500 - 1999	1.4	1.0	1.2	1.2	1.4	1.4	1.3	1.6	1.0	1.3
2000 - 2499	3.1	3.1	2.8	3.1	3.1	2.6	3.1	2.9	2.7	3.0
2500 - 2999	9.9	9.5	10.2	10.3	10.6	10.5	10.3	10.1	10.5	11.0
3000 - 3499	28.3	30.5	29.0	29.5	30.0	30.3	30.1	30.1	30.8	29.6
3500 - 3999	35.6	35.0	36.5	35.6	35.3	36.2	35.7	35.2	35.0	36.2
4000 - 4499	16.5	16.0	15.8	15.8	15.3	14.9	15.0	14.9	15.7	14.7
4500 - 4999	3.5	3.4	2.8	2.9	2.9	2.6	2.7	2.8	2.5	2.3
5000+	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2
Not available	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0

Gestation	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
20 - 27 weeks	0.5	0.5	0.6	0.5	0.4	0.6	0.6	0.7	0.7	0.6
28 - 31 weeks	0.9	0.8	0.9	0.8	0.9	0.9	1.1	1.0	0.9	1.0
32 - 36 weeks	5.3	4.6	5.3	5.3	5.7	5.3	5.7	5.4	4.9	4.9
37 - 41 weeks	87.3	88.0	88.0	88.7	88.8	89.3	88.9	88.4	90.2	90.9
42+ weeks	6.0	6.1	5.2	4.6	4.2	4.0	3.8	3.9	3.2	2.7

Percentages of total babies delivered \geq 500g and/or EGA \geq 24 wks (2020 n=7402)

Comparative Table of Pre-Viable and Hydatidiform Moles

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mothers delivered <500g	1052	1027	999	920	834	842	828	808	809	798
Hydatidiform moles	10	23	19	23	11	27	27	29	14	31
Ectopic pregnancies	101	82	82	92	61	70	69	60	65	66

10 Year Analysis of Perinatal Mortality

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Perinatal Deaths	66	51	64	55	59	60	60	60	74	66
PNMR per '000 Births	7.0	5.6	7.1	5.9	6.3	5.9	7.6	7.6	9.2	8.9
Antepartum Deaths	21	20	29	23	24	19	26	27	29	35
Percentage of Total	31.8	39.2	45.3	41.8	40.7	35.8	43.3	45.0	39.2	53.0
Intrapartum Deaths	0	1	0	0	0	0	0	0	0	0
Percentage of Total	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Early Neonatal Deaths	16	11	13	10	14	11	9	7	13	12
Percentage of Total	24.2	21.6	20.3	18.2	23.7	20.8	16.7	11.7	17.6	18.2
Congenital Anomalies	29	19	22	22	21	23	19	26	32	19
Percentage of Total	43.9	37.3	34.4	40.0	35.6	43.4	35.2	43.3	43.2	28.8

Infants whose birthweight was >=500g and/or with EGA >=24 wks and liveborn infants who died within 7 days.

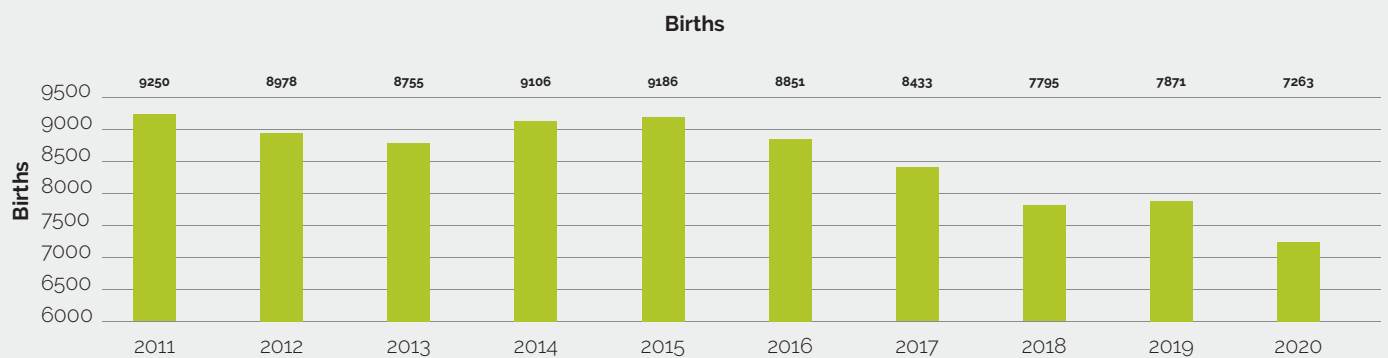
10 Year Analysis of Perinatal Mortality Excluding Congenital Anomalies

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Births >=500g and/or >=24 wks	9459	9142	8954	9309	9389	9037	8619	7914	8009	7402
Births >=500g and/or >=24 wks less lethal congenital anomalies	9430	9123	8932	9287	9368	9014	8600	7888	7977	7383
Stillbirths	21	21	29	23	24	19	26	27	29	35
Stillbirth rate per '000 births	2.2	2.3	3.2	2.5	2.6	2.1	3.0	3.4	3.6	4.7
Early Neonatal Deaths	16	11	13	10	14	11	9	7	13	12
ENND rate per '000 births	1.7	1.2	1.5	1.1	1.5	1.2	1.0	0.9	1.6	1.8
Total Perinatal Mortality	37	32	42	33	38	30	34	34	42	47
Corrected Perinatal Mortality Rate	3.9	3.5	4.7	3.6	4.1	3.3	4.0	4.3	5.3	6.4

Perinatal Mortality Analysis

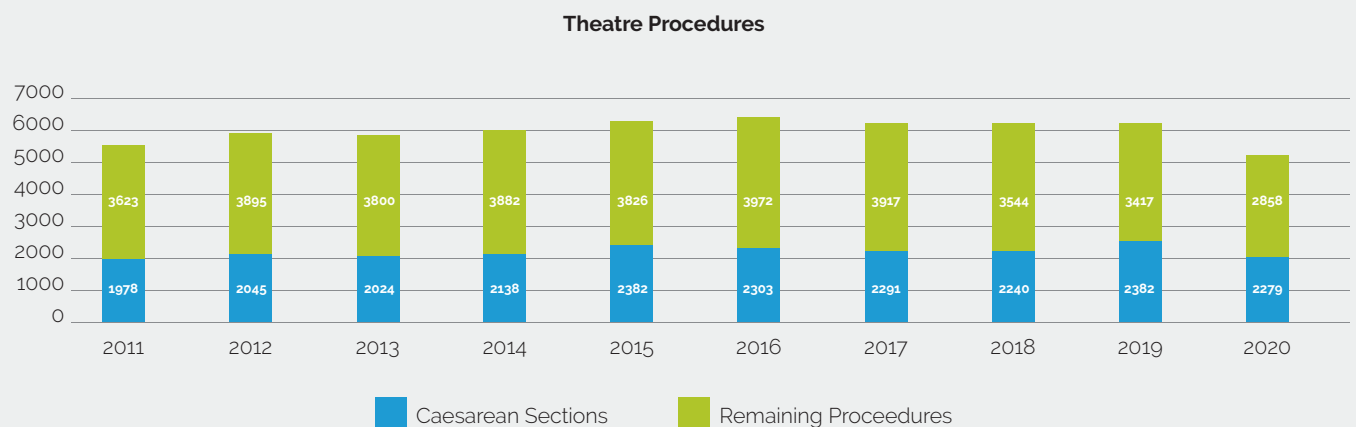
Births by Mothers' Age on Delivery				
	Perinatal Deaths	PNMs %	Rate per '000 Births	Total Births
< 20 years	1	1.5%	20.8	48
20 - 24 years	4	6.1%	12.4	322
25 - 29 years	12	18.2%	14.1	850
30 - 34 years	16	24.2%	6.2	2567
35 - 39 years	23	34.8%	8.2	2811
40 + years	10	15.2%	12.4	804
<i>Total</i>	66			7402
Births by Parity				
0	30	45.5%	9.2	3268
1,2,3	35	53.0%	8.7	4001
4+	1	1.5%	7.5	133
<i>Total</i>	66			7402
Birthweight				
<500	6	9.1%	107.1	56
500 - 999g	24	36.4%	3428.6	7
1000 - 1499g	4	6.1%	66.7	60
1500 - 1999g	2	3.0%	22.2	90
2000 - 2499g	6	9.1%	25.9	232
2500 - 2999g	7	10.6%	8.7	805
3000 - 3499g	7	10.6%	3.2	2199
3500 - 3999g	7	10.6%	2.6	2674
4000 - 4499g	3	4.5%	2.8	1089
4500 - 4999g	24	36.4%	139.5	172
5000g +	0	0.0%	0.0	18
<i>Total</i>	90			7402
Gestation				
< 26 weeks	17	25.8%	500.0	34
26 - 29 + 6 days	15	22.7%	238.1	63
30 - 33 + 6 days	3	4.5%	25.0	120
34 - 36 + 6 days	12	18.2%	36.0	333
37 - 41 + 6 days	19	28.8%	2.9	6659
42 + weeks	0	0.0%	0.0	193
<i>Total</i>	66			7402

Births	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nullip	4407	4704	4276	3919	3810	4037	4056	3878	3708	3300	3415	3201
Multip	4754	5052	4974	5059	4945	5069	5130	4973	4725	4495	4456	4062
Total	9161	9756	9250	8978	8755	9106	9186	8851	8433	7795	7871	7263
% Nullip	48.1%	48.2%	46.2%	43.7%	43.5%	44.3%	44.2%	43.8%	44.0%	42.3%	43.4%	44.1%



Theatre Procedures

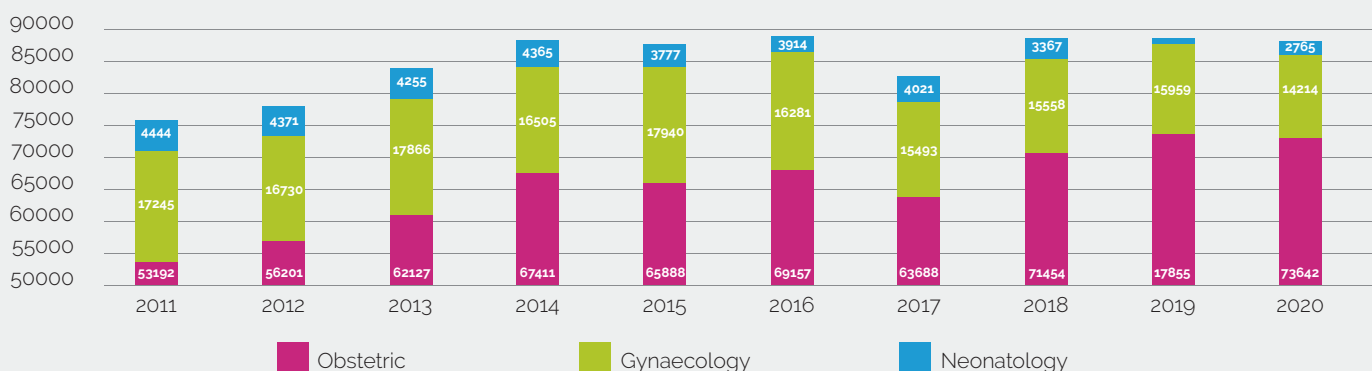
Theatre Activity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Caesarean Sections	1978	2045	2024	2138	2382	2303	2291	2240	2382	2279
Remaining Procedures	3623	3895	3800	3882	3826	3972	3917	3544	3417	2858
Total	5601	5940	5824	6020	6208	6275	6208	5784	5799	5137



Outpatient Activity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Obstetric	53912	56201	62127	67411	65888	69157	63688	71454	73855	73642
Gynaecology & Colposcopy	17245	16730	17866	16505	17940	16281	15493	15558	15959	14214
Neonatology	4444	4371	4255	4365	3777	3914	4021	3367	3443	2765
Total	75601	77302	84248	88281	87605	89352	83202	90379	93257	90621

* includes some sub-specialties. Excludes all unbooked attendances

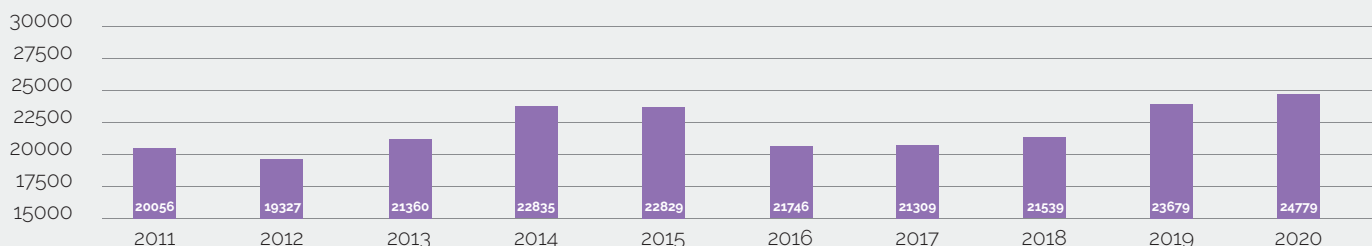
Outpatient Attendances



	2018	2019	2020
Emergency Department Attendances	13101	14146	11115

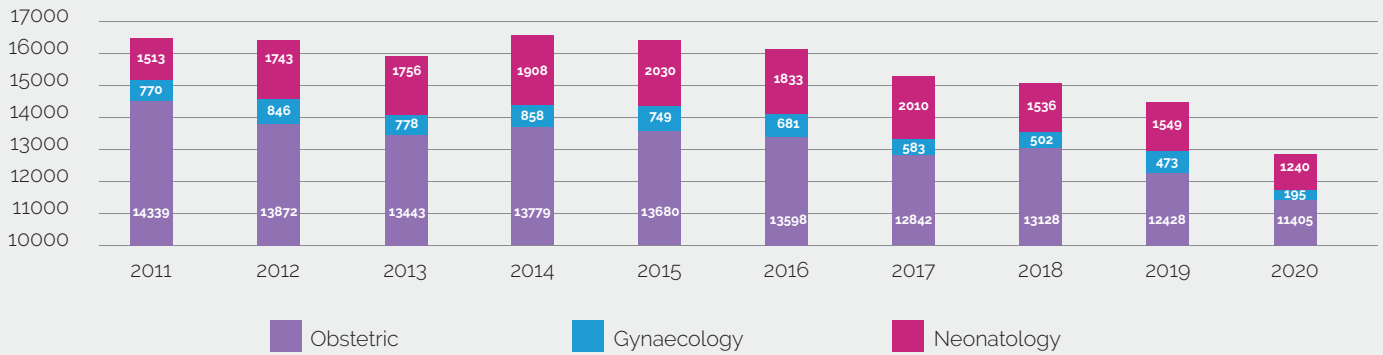
Fetal Medicine Unit	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Booked Attendances	20056	19327	21360	22835	22829	21746	21309	21539	23679	24779

Fetal Medicine Unit Attendances



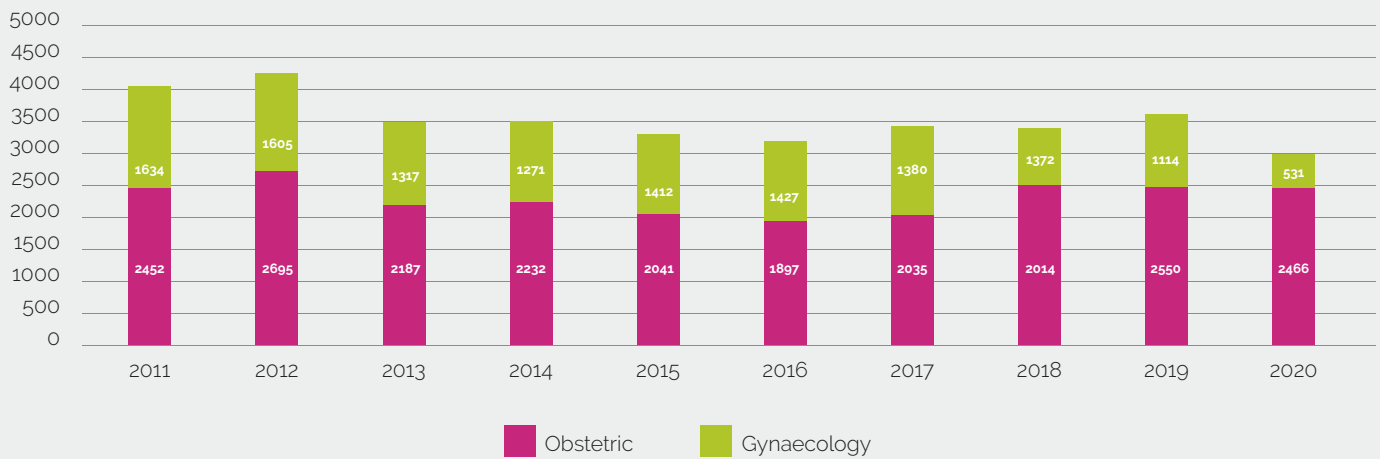
Inpatient Discharges	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Obstetric	14339	13872	13443	13799	13680	13598	12842	13128	12428	11405
Gynaecology	770	846	778	858	749	681	583	502	473	195
Neonatology	1513	1743	1756	1908	2030	1833	2010	1536	1549	1240
Total	16622	16461	15977	16565	16459	16112	15435	15166	14450	12840

Inpatient Discharges



Day Cases	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Obstetric	2452	2695	2187	2232	2041	1879	2035	2014	2550	2466
Gynaecology	1634	1605	1317	1271	1412	1427	1380	1372	1114	531
Total	4086	4300	3504	3503	3453	3306	3415	3386	3664	2997

Day Cases



Publications, Invited Lectures and Poster Presentations

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Byrne DF, Geraghty AA, Yelverton CA, Murphy EF, Van Sinderen D, Cotter PD, McAuliffe FM. The impact of probiotic supplementation on metabolic health in healthy women of reproductive age: a systematic review. *Food Funct.* 2020 Nov 11. doi: 10.1039/d0fo01727b

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Walsh M, Horan MA, Wingfield M. Reduced waiting times and improved efficiency for couples accessing public, outpatient fertility clinics in the National Maternity Hospital, Dublin, Ireland. *Fertil Steril*. 2020;114(3):e109-e110.

Invited Lectures

Wingfield M,

Medical aspects of surrogacy,
NISIG surrogacy webinar, May 2020

Horan M,

Managing Fertility After Cancer Treatment – What I
Need to Know
Irish Cancer Society Webinar, November 2020

Glover L

Reproductive Endocrinology
TCD MSc Clinical Chemistry, December 2020

Wingfield M, Medical discussant

Assisted Human Reproduction: Recent Developments
in Law
Medico-legal society of Ireland, December 2020

*Posters/Presentations at National
and International Conferences*

Reidy F; Giangrazi F; Kavanagh R; Wingfield M;
O'Farrelly C; Glover L.

Defining the immune-epithelial IL-17 axis in the
endometrium.

Fertility 2020, Edinburgh, 9-11 January 2020

Hartigan L; Glover L; Groarke H; Wingfield M.

Towards a clear referral pathway for fertility
preservation in survivors of childhood cancer

Fertility 2020, Edinburgh, 9-11 January 2020

Reidy F; Kavanagh R; Glover L; O'Farrelly C;

Wingfield M.

Association between IL-17A levels, oocyte fertilisation
and embryo development in
unexplained infertility

ESHRE virtual 36th Annual Meeting, 5-8 July 2020

Hartigan L; Glover L; Groarke H; O'Shea L; Wingfield M.

Follicular fluid levels of IL-10 are associated with
oocyte fertilization and early embryo
development.

ESHRE virtual 36th Annual Meeting, 5-8 July 2020

Horan M; Hartigan L; Groarke H; Glover L; Wingfield M.

Fertility preservation in adolescent males: Setting up a
national service.

ESHRE virtual 36th Annual Meeting, 5-8 July 2020

Walsh M, Horan MA, Wingfield M.

Reduced waiting times and improved efficiency for
couples accessing public, outpatient fertility clinics in
the National Maternity Hospital, Dublin, Ireland.

ASRM 2020 Scientific Congress and Expo, October
19-21 2020

Roche D, Martyn F, Wingfield M.

Fertility treatment and livebirth are possible following
a diagnosis of endometrial carcinoma or complex
hyperplasia.

IOG and JOGS Annual Meeting 2020, 27 November
2020

Schaler L, Horan M, Wingfield M.

Review of fertility patient behaviour during the first
wave of SARS-CoV-2

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2020

Horan M; Glover L; Wingfield M.

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Pathology and Laboratory Medicine

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Andrews LB, Beirne ER, Murtagh LP, Browne S, Curran SB, O'Brien EC. "You don't feel pregnant, you're just surviving" - The Impact of Hyperemesis Gravidarum on Women's Lives. Poster presentation at the Irish Nutrition and Dietetic Institute Research Symposium, Dublin, January 2020.

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Murphy MC, Dunne E, McCarthy R, O'Hagan L, Batson H, Curley A. PRIME (preterm infants need milk early) - Success of a multidisciplinary quality improvement project in a tertiary neonatal unit, *Journal of Neonatal Nursing*, September 2020.

Kennedy M, McCarthy R, Sweetman D. Multivitamin supplementation for preterm infants - is it still required? Poster presentation at Irish Neonatal Research Symposium, November 2020.

Gowan R, McCarthy R, Sweetman S in collaboration with Neonatal Dietitians Ireland, Fortification of breast milk for preterm infants - Review of practices in Irish neonatal units. Oral presentation at Neonatal Research Symposium, November 2020.

Haughey O, McCarthy R. Introduction of a nutrition information session for parents of babies born preterm, Poster presentation at Neonatal Research Symposium, December 2020.

Curran S, Chambers C, Devine H, Hastings N, Murtagh L, O'Brien E. Digital health transformation: the ABC of dietetics in maternity services. Poster presentation at National Maternity Hospital Research and Innovation Symposium, December 2020

McCarthy R, Gowan R, Haughey O, Twomey A, Breast is best, let's get to the source for babies born preterm. Poster presentation at National Maternity Hospital Research and Innovation Symposium, December 2020.

Haughey O, McCarthy R, Introduction of a nutrition information session for parents of babies born preterm, Oral presentation at National Maternity Hospital Research and Innovation Symposium, December 2020.

O'Brien E, Curran S, McAuliffe F. The Holleistic app: Translation of Research into Practice. Oral presentation at National Maternity Hospital Research and Innovation Symposium, December 2020

Preterm Birth Presentations

Pregnancy outcomes of Abdominal Cerclage for the prevention of Spontaneous Preterm Births
Nerissa N Nankissoor, Niamh Keating, Catherine Windrim, Larissa Luethe, Donal O'Brien, Donal Brennan, Siobhan Corcoran
Oral Presentation RCOG World Congress 2021
Does the use of gestation-specific centiles for cervical length change the management of pregnancies at risk of recurrent spontaneous preterm birth?

Pauric O'Reilly, Alex Dakin, Niamh Keating, Larissa Luethe, Siobhan Corcoran
Poster Presentation at ISUOG 2020
Paper Submitted for Publication
Outcomes in patients attending a Preterm Surveillance Clinic with a previous LLETZ and no history of Preterm Delivery
Niamh Keating, Sarah Murphy, Larissa Luethe, Siobhan Corcoran
Poster Presentation at ISUOG 2020
Lower Incidence of Preterm Birth in an Irish Cohort with Congenital Uterine Anomalies
Lily Farrell, Niamh Keating, Gillian Corbett, Larissa

Luethe, Siobhan Corcoran
Poster Presentation Medical Student Summit 2020

Book Chapters

Brennan DJ, Palacios Jarqaqemada JM (2020) Uterine Rupture.13th Edition of Munro Kerr's Operative Obstetrics edited by Arulkumaran Sabaratnam and Michael Robson

Brennan DJ, Palacios Jarqaqemada JM (2020) Additional Procedures at Caesarean Section – Salpingectomy, Myomectomy, Ovarian Surgery and Hysterectomy.13th Edition of Munro Kerr's Operative Obstetrics edited by Arulkumaran Sabaratnam and Michael Robson

Palacios Jarqaqemada JM, Brennan DJ. (2020) Placenta Praevia and the Morbidly Adherent Placenta.13th Edition of Munro Kerr's Operative Obstetrics edited by Arulkumaran Sabaratnam and Michael Robson

Brennan DJ, Brophy D and Palacios Jarqaqemada JM, (2020) Pelvic Vessel Ligation and Embolization: Obstetric and Radiological Perspective. 13th Edition of Munro Kerr's Operative Obstetrics edited by Arulkumaran Sabaratnam and Michael Robson

Higgins S. (2020) Cervical Cerclage. 13th Edition of Munro Kerr's Operative Obstetrics edited by Arulkumaran Sabaratnam and Michael Robson

CANDIDACY CHECKLIST FOR NEONATAL THERAPEUTIC HYPOTHERMIA (COOLING)

PATIENT'S NAME: _____ HOSP. NO: _____

TIME of BIRTH: _____:_____ hrs. CURRENT AGE in hours /minutes: _____ hrs. _____ mins.

If current age is greater than 6 hours, call tertiary cooling centre before proceeding.

Directions for the use of this checklist: Start at the top and work through each numbered component. When directed to proceed to the exam, refer to the exam found on page 2. If there is missing data, (such as a known perinatal event and / or Apgar scores) and you are in doubt as to whether or not the patient qualifies for cooling, consult with the tertiary cooling centre promptly to discuss the patient.

**Note: If patient is < 6 hours old and meets the gestation, weight and blood gas criteria and has a witnessed seizure, patient is eligible for 'COOLING' regardless of additional exam findings. Consult the tertiary cooling centre to discuss any questions or concerns.*

Clinical Information	Criteria <i>(place a tick in the box that corresponds to the patient information)</i>	Instructions
Gestation	1 ≥ 36 weeks gestation <input type="checkbox"/>	Go to ⇒ 2 Weight
	= 35 weeks gestation <input type="checkbox"/>	May not be eligible Contact cooling centre
	< 35wks gestation <input type="checkbox"/>	Not Eligible
Weight	2 ≥ 1800 grams <input type="checkbox"/>	Go to ⇒ 3 Blood Gas
	< 1800 grams <input type="checkbox"/>	Not Eligible
Blood Gas pH = _____ Base Excess = _____ Source: Cord <input type="checkbox"/> Or 1st infant blood gas at <1hour of life <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Arterial Capillary Venous Time Obtained: _____:_____	3 pH < 7.0 or Base excess ≥ -16 <input type="checkbox"/>	Criteria met thus far. Go to EXAM*
	No gas obtained <input type="checkbox"/> or pH 7.0 to 7.15 <input type="checkbox"/> or Base excess -10 to -15.9 <input type="checkbox"/>	Go to ⇒ 4 History of acute perinatal event
	pH >7.15 or Base Excess < 10 <input type="checkbox"/>	May not be eligible; Go to ⇒ 4 History of acute perinatal event
	4 Variable / late foetal HR decelerations <input type="checkbox"/> Prolapsed / ruptured / tight nuchal cord <input type="checkbox"/> Uterine Rupture <input type="checkbox"/> Maternal haemorrhage / placental abruption <input type="checkbox"/> Maternal trauma (eg. vehicle accident) <input type="checkbox"/> Mother received CPR <input type="checkbox"/>	Any ticked, Go to ⇒ 5 Apgar score
Acute Perinatal Event <i>(tick all that apply)</i>	No perinatal event or Indeterminate what the event was because of home birth or missing information	May not be eligible; Go to ⇒ 5 Apgar score
	Apgar Score at 1 minute _____ 5 minute _____ 10 minute _____	5 Apgar ≤ 5 at 10 minutes (yes) <input type="checkbox"/>
	Apgar ≤ 5 at 10 minutes (no) <input type="checkbox"/> <i>(no, was 6 or greater at 10 minutes)</i>	Go to ⇒ 6 Resuscitation after delivery
Resuscitation after Delivery <i>(tick all that apply)</i> ____ PPV/intubated at 10 minutes ____ CPR ____ Adrenaline administered	6 Continued need for PPV or Intubated at 10 minutes?(yes) <input type="checkbox"/>	Criteria met thus far. Go to EXAM*
	PPV/Intubated at 10 minutes?(no) <input type="checkbox"/>	May not be eligible Go to EXAM*

This checklist, adapted from the 'STABLE Program', 6th edition, 2013, has been produced by the National Neonatal Transport Programme (NNTP) and endorsed by the Faculty of Paediatrics, Royal College of Physicians, Ireland, in March 2014.

Circle findings for each domain			
PATIENT IS ELIGIBLE FOR COOLING WHEN 3 OR MORE DOMAINS HAVE FINDINGS IN COLUMNS 2 OR 3			
Domain	1	2	3
Seizures	None	<p>Seizures common: (focal or multifocal seizures)</p> <p>(Multifocal: clinical activity involving > one site which is asynchronous and usually migratory)</p> <p>Note: If the patient is < 6 hours old and meets the gestation, weight and blood gas criteria and has a witnessed seizure, patient is eligible for cooling regardless of the rest of this exam</p>	<p>Seizures uncommon: (excluding decerebration)</p> <p><i>Or</i></p> <p>Frequent seizures</p>
Level of Consciousness	Normal or Hyperalert	<p>Lethargic Decreased activity in an infant who is aroused and responsive</p> <p>Definition of Lethargic:</p> <ul style="list-style-type: none"> • Sleeps excessively with occasional spontaneous eye opening • Responses are delayed but complete • Threshold for eliciting such responses increased • Can be irritable when disturbed 	<p>Stuporous / Comatose Demonstrates no spontaneous eye opening and is difficult to arouse with external stimuli</p> <p>Definition of Stuporous:</p> <ul style="list-style-type: none"> • Aroused only with vigorous and continuous stimulation <p>Definition of Comatose:</p> <ul style="list-style-type: none"> • No eye opening or response to vigorous stimulation <p>In both stupor and / or coma, the infant may respond to stimulation by grimacing / stereotyped withdrawal / decerebrate posture</p>
Spontaneous activity when awake or aroused	Active Vigorous, doesn't stay in one position	Less than active, not vigorous	No activity whatsoever
Posture	Moving around and does not maintain only one position	<p>Distal flexion, complete extension or "frog-legged" position Term infants with HIE often exhibit</p> <ul style="list-style-type: none"> • Weakness in hip-shoulder distribution (eg proximal part of extremities) • Distal joints, fingers and toes often exhibit strong flexion • Thumbs strongly flexed and adducted. • Wrists often flexed • Above postures are enhanced by any stimulation 	Decerebrate with or without stimulation (all extremities extended)
Tone	<p>Normal</p> <ul style="list-style-type: none"> • Resists passive motion <p>Hypertonic, jittery</p> <ul style="list-style-type: none"> • Lowered threshold to all types of minimal stimuli eg light touch, sudden noises • Infant may even respond to his/her own sudden movements 	<p>Hypotonic or floppy,</p> <ul style="list-style-type: none"> • Axial hypotonia (ie. head lag) and/or limb hypotonia 	Completely flaccid like a rag doll
Primitive reflexes	<p>Suck: Vigorously sucks finger or ETT</p> <p>Moro: Normal: Limb extension followed by flexion with stimulus</p>	<p>Suck: Weak</p> <p>Moro: Incomplete</p>	<p>Suck: Completely absent</p> <p>Moro: Completely absent</p>
Autonomic system	<p>General Activation of Sympathetic nervous system</p> <p>Pupils:</p> <ul style="list-style-type: none"> • Normal size (-1/3 of iris diameter) • Reactive to Light <p>Heart Rate:</p> <ul style="list-style-type: none"> • Normal, > 100bpm <p>Respirations:</p> <ul style="list-style-type: none"> • Regular spontaneous breathing 	<p>General Activation of Parasympathetic nervous system</p> <p>Pupils:</p> <ul style="list-style-type: none"> • Constricted (< 3mm estimated) • but reactive to light <p>Heart Rate:</p> <ul style="list-style-type: none"> • Bradycardia (< 100bpm, variable up to 120) <p>Respirations:</p> <ul style="list-style-type: none"> • Periodic, irregular breathing effort • Often have more copious secretions and require frequent suctioning 	<p>Pupils:</p> <ul style="list-style-type: none"> • Skew gaze, fixed, dilated, • not reactive to light <p>Heart Rate:</p> <ul style="list-style-type: none"> • Variable, inconsistent heart rate, irregular, may be bradycardic <p>Respirations:</p> <ul style="list-style-type: none"> • Completely apnoeic, requiring PPV & / or ET intubation and ventilation

Neurological Exam to evaluate candidacy for cooling: If in doubt as to whether patient qualifies for cooling, consult with the cooling centre promptly to discuss the patient.

Senior Members of Staff

RESIDENT AND VISITING MEDICAL STAFF

Master

Prof Shane Higgins, MB, BCh, BAO, MRCOG,
FRANZCOG, MPH (Melb)

Department of Obstetrics and Gynaecology

Dr Gerard Agnew, MRCPI, MRCOG
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Dr Mona Joyce, FRCOG
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Dr Rhona Mahony, MD, FRCOG, EF, FRCPI, Hon FACOG
Dr Fiona Martyn, MB, BCh, BAO, MRCOG
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Dr Michael Robson, FRCS, MRCOG, FRCPI
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Dr Jan Franta, MUDr
Dr Lisa McCarthy, MB, MRCPI, PhD
Prof John F Murphy, MB, FRCPI
Dr Eoin O'Curraín, MB, BCh, BAO, MRCPI, FRACP (from January 2020)
Prof Colm O'Donnell, MB, MRCPI, MRCPCH, FRACP, PhD
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Dr Roger McMorow, MB, BCh, BAO, FCARCSI, Dip Med Man, Dip Mtn
Med (Clinical Director)
Dr Ola Petter Rosaeg, MB, FRCPC (Retired 08.10.2020)

Psychiatrist

Dr Anthony McCarthy, MB, BAO, BCh, MRCPI, MRCPsych

Department of Radiology

Department Lead: Dr Gabrielle C. Collieran, MB, BCh, BAO, MD,
IMRCS, FFR RCSI
Dr Ian Robinson, MB ChB FRANZCR CCD

Ophthalmologist

Dr Michael O'Keefe, MB, FRCSE

Clinical Geneticist

Dr William Reardon, MD, MRCPI, FRCPCH, FRCP (London)

HONORARY AND VISITING CONSULTANT STAFF

Respiratory Physician

Dr John Garvey, MB, BCh, BAO PhD, MRCRI, MRCP

Endocrinologist

Prof Mensud Hatunic MD, MRCPI

Physician in Chemotherapeutic Medicine

Dr David Fennelly, MB, BCh, BAO, LRCSI, MRCPI

Adult Nephrology

Prof Alan Watson, MD, FRCPI, FACP, FRCP
Dr John Holian MB, MRCPI, PhD

Occupational Physician

Dr Sheelagh O'Brien MRCPI, MSc, FFOMI

Chemical Pathology

Prof Carel LeRoux, MBChB, MSc, FRCP, FRCPath, PhD

Microbiology

Dr Niamh O'Sullivan, LRCP&SI, MB, BCh, FRCPath

Anatomical Pathology

Dr Peter Kelehan, MB, MSc, FRCPath

Gastroenterology

Dr Juliette Sheridan, PhD, MB BCh BAO, MRCPI

Prof Hugh E Mulcahy MD, FRCPI

Surgeons

Mr Enda McDermott, MCh, FRCSI

Mr Feargal Quinn, MB, FRCSI

Oto-Rhino-Laryngologist (ENT Surgeon)

Mr Alex Blayney, MCh, FRCS, FRCSI

Paediatric Urological Surgeon

Mr John Gillick

Urological Surgeons

Mr David Quinlan, FRCSI

Mr Gerry Lennon, NCH, FRCSI

Orthopaedic Surgeon

Mr Damian McCormack, BSc, MCh, Orth

Dermatologist

Dr Aoife Lally, MB MRCPI

Paediatric Cardiologists

Dr Paul Oslizlok, MB, FRCPI

Dr David Coleman, MB, ChB, FRACP

Dr Colin McMahon, MB, BAO, BCh, MRCPI, MRCP (UK), FAAP

Adult Cardiology

Dr John Erwin

Dr Carla Canniffe

General and Colorectal

Dr Ann Hanley, MD, FRCSI

Paediatric Neurology

Dr Bryan Lynch, MB, BCh, BAO, FAAP

Dr David Webb, MB, BAO, BCh, MRCPI, MD, FRCPC

Paediatric Neurosurgery

Mr Darach Crimmins FRCF (FN)

Mr John Caird, MD, MMedSci, FRCS (SN)

Mr Kieron Sweeney

Adult Neurologists

Dr Conor O'Brien, MB, MSc, PhD, CSCN (Emg), FRCPI

Dr Janice Redmond, MT, MD, FRCPI, FACP, DAB Psych Neuro, DAB

Elec-Diag Med

Prof Niall Tubridy, MB, BCh, BAO, MD, FRACP, FRCPI

Paediatric Infectious Diseases

Prof Colm Bergin, MB, FRCPI, MRCP (UK)

Infectious Diseases

Prof Colm Bergin, MB, FRCPI, MRCP (UK)

Chemical Pathology

Dr Pat Twomey

Palliative Medicine

Dr Marie Twomey, MB, MRCPI

Hepatology

Prof Aiden McCormick, MD, FRCPI, FRCP, FEBG

Rheumatology

Prof Douglas J Veale MD FRCPI FRCP (Lon)

Prof Oliver FitzGerald MD FRCPI FRCP (UK)

NON-CONSULTANT HOSPITAL DOCTORS**Specialist Registrars/Registrars in Obstetrics/Gynaecology****January to June**

Dr Nikita Deegan (SpR)

Dr Daniel Galvin (SpR)

Dr Eibhlin Healy (SpR)

Dr Nada Warreth (SpR)

Dr Sorca O'Brien (SpR)

Dr Michael Wilkinson (SpR)

Dr Alison Demaoi (SpR)

Dr Catherine McNestry (SpR)

Dr Alex Dakin (Reg)

Dr Emma Tuthill (Reg)

Dr Maria Cheung (Reg)

Dr David Rooney (Reg)

Dr Abdelaziz Satti (Reg)

Dr Zainab Ashraf (Reg)

Dr Ahmed Hasaballah (Reg)

Dr Asmita Dongare (Reg)

July to December

Dr Joan Lennon (SpR)
 Dr Andrew Downey (SpR)
 Dr Teresa Tracey (SpR)
 Dr Nicola O'Riordan (SpR)
 Dr Catherine Windrim (SpR)
 Dr Gillian Corbett (SpR)
 Dr Eimear McSharry (SpR)
 Dr Michael Wilkinson (SpR)
 Dr Maggie O'Brien (Reg)
 Dr Sarah Murphy (Reg)
 Dr Molly Walsh (Reg)
 Dr Sadhbh Lee (Reg)
 Dr Anthony Breen (Reg) (left Oct 20)
 Dr David Rooney (Reg)
 Dr Mohamed Elshaikh (Reg)
 Dr Zulfiya Mamaeva (Reg)

Fellows/Research Registrars

Dr Gillian Ryan (Maternal Fetal Medicine)
 Dr Adriana Olaru (Labour Ward) (Jan-Jun)
 Dr Niamh Keating (Fetal Maternal Medicine)
 Dr Bobby O'Leary (Urogynaee Fellow)
 Dr Fionnvola Armstrong (Placenta Accreta Fellow)
 Dr Laurentian Schaler (Merrion Fertility Clinic)
 Dr Maebh Horan (Merrion Fertility Clinic)
 Dr Emma Dunne (Neonatology)
 Dr Carmel Moore (Aspire Fellowship)

Senior House Officers in Obstetrics/Gynaecology*January to June*

Dr Mona Hersi
 Dr Sarah Murphy
 Dr Molly Walsh
 Dr Doireann Roche
 Dr Rebecca Boughton
 Dr Vinita Kuruvila
 Dr Maeve Montague
 Dr Naomi Smith (Jan – Mar)
 Dr Eimear O'Reily (Mar – July)
 Dr Alina Zidaru (Jan – Mar)
 Dr Orla O'Dwyer (Mar – July)
 Dr Amy Hanahoe (Jan – Mar)
 Dr Caitriona Wrynn (Mar – July)
 Dr George McGill (Jan – Mar)
 Dr Sasha Molony (Mar – July)
 Dr Brian Reilly (Jan – Mar)
 Dr Zahrah Maka (Mar – July)
 Dr Fiona Hurley (Jan – Mar)

July to December

Dr Danielle Cotter
 Dr Aoife McEvoy
 Dr Rebecca Boughton
 Dr Doireann Roche
 Dr Sarah O'Riordan
 Dr Kate Sexton
 Dr Aisling Redmond
 Dr Karina O'Flynn (July – Nov)
 Dr Suzanne Smyth (Nov-Dec)
 Dr Amelia O'Keeffe (July – Nov)
 Dr Emma O'Carroll (Nov-Dec)
 Dr Cliona Begley (July – Nov)
 Dr Bláithín Seery (Nov-Dec)
 Dr Jenny Russell (July – Nov)
 Dr Michelle Ohle (Nov-Dec)
 Dr Aoife Ni Shearcaigh (July – Nov)
 Dr John Flanagan (Nov-Dec)

Specialist Registrars/Registrars in Neonatology*January to June*

Dr Claire Connellan (SpR)
 Dr Ross Foley (SpR)
 Dr Niamh Shaughnessy (SpR)
 Dr Aoife Cassidy (SpR)
 Dr Deborah Condren (SpR)
 Dr Sharon Dempsey (SpR)
 Dr Sarah Kasha (Reg)
 Dr Nicoleta Barbu (Reg)
 Dr Ibrahim Dafalla (Reg)
 Dr Aamir Alshahrabally (Reg)

July to December

Dr Miriam Smyth (SpR)
 Dr Beth Gordon (SpR)
 Dr Karen Kelleher (SpR)
 Dr Jennifer Geraghty (SpR)
 Dr Caitriona Ni Chathasaigh (SpR)
 Dr Sarah Kasha (Reg)
 Dr Bazlin Ramly (Reg)
 Dr Jason Foran (Reg)
 Dr Atif Kahlil (Reg)
 Dr Aamir Alshahrabally (Reg)
 Dr Noemi Pellegrino (Reg)

Senior House Officers in Neonatology*January to June*

Dr Stephen Carroll
 Dr Lisa Lawlor
 Dr Paul Whooley
 Dr Cian Lennon
 Dr Michael Horgan
 Dr Gillian O'Donnell
 Dr Robert Joyce
 Dr Nicola Walsh
 Dr Muhammad M. Javed
 Dr Noemi Pellegrino

July to December

Dr Caitriona Loomes
 Dr Jack McCaffrey
 Dr Georgia Dugaci
 Dr Deirdre Ryan
 Dr Anne Murray
 Dr Marahaini Md Isa
 Dr Maeve Reidy
 Dr Doireann Ni Shiochain
 Dr Muhammad M. Javed

Specialist Registrars/Registrars in Anaesthetics*January to June*

Dr Timothy Nolan (SpR)
 Dr Gabriel Beecham (SpR)
 Dr Pdraig Calpin (SpR)
 Dr Naomi Quigley (SpR)
 Dr Gráinne Rooney (SpR)
 Dr Sean Rooney (SpR)
 Dr Yosef Awad (Reg)
 Dr Subhash Chander (Reg)
 Dr Zeyad Dawood (Reg)
 Dr Muhammed Tahir (Reg)
 Dr Mohamed Mostafa (Reg)

July to December

Dr Joseph McGeary (SpR)
 Dr Jean-Francois Bonnet (SpR)
 Dr Rebecca Monaghan (SpR)
 Dr Gráinne Rooney (SpR)
 Dr Denise Gorey (Reg)
 Dr Neil Mackie (Reg)
 Dr Mortada Ahmad (Reg)
 Dr Joao Vinagre (Reg)
 Dr Zeyad Dawood (Reg)
 Dr Eihab Elshabrawy (Reg)
 Dr Mohamed Mostafa (Reg)

Specialist Registrar in Pathology*January to June*

Dr Megan Finan

July - December

Dr Laura McKenna

Registrar in Psychiatry*January to June*

Dr Firdous Murad

July to December

Dr Roisin Plunkett

Specialist Registrar in Radiology*July to December*

Dr Niamh Adams

SENIOR MIDWIFERY & NURSING STAFF**Director of Midwifery & Nursing**

Mary Brosnan, MSc, RGN, RM, Adjunct Associate Professor, UCD
 Fellow Ad Eundem, RCSI

Assistant Directors of Midwifery & Nursing – Day Duty

Ann Calnan, BSc (Nursing Mgmt), RGN, RM, RNP
 Geraldine Duffy, BSc (Neonatal Studies), RGN, RM, ANNP (UKCC), Dip
 (Health Economics), Professional Certificate in Governance (Level 9)
 Valerie Kinsella, MSc (Healthcare Ethics & Law), RGN, RM, HDDI
 Ann Rath, BSc (Nursing Mgmt), RGN, RM
 Shideh Kiafar, RM, MSc (Infection Prevention and Control)

Assistant Directors of Midwifery & Nursing – Night Duty

Martina Carden, RGN, RM, Dip (Mgmt)
 Eimir Guinan, RGN, RM, BMS, RNP (from May)
 Bernadette O'Brien, RGN, RM, BMS, RNP
 Margaret Hanahoe, RGN, RM, RNP (Retired March)

**Assistant Director of Midwifery & Nursing – Clinical Practice
 Development Co-ordinator**

Lucille Sheehy, MSc, BMS, RGN, HDip (RM) Adjunct Associate
 Professor, UCD

Advanced Midwife/Nurse Practitioners

Anitha Baby, MSc, RM, BSc (Nursing), RNP Triage Services
 Caroline Brophy, MSc, RGN, RM, BNS, RNP Assisted Care
 Ciara Coveney MSc, BSc, HDip, Grad Dip(Diabetes) RM, RGN, RNP
 Usha Daniel, MSc, BSc (Nursing), RNP, P. Grad. Dip (Diabetes)(Diabetes)
 (Retired May)
 Linda Kelly, MSc, RCN, RGN, RM, P. Grad Dip (Nursing) Dip Mgt
 (Women's Health & Urodynamics)
 Deirdre Madden, MSc, RPN, RMP (Perinatal Mental Health) (to June)
 Shirley Moore, MSc, H. Dip (Neonatal Nursing), RM, RGN, RNP,
 (Neonatology)

Clinical Midwife/Nurse Managers 3

Gillian Canty, MSc, Graduate Dip in Healthcare Risk Management &
 Quality BSc (Midwifery) BSc (Nursing Mgmt), HDip (Midwifery), RGN,
 RM, RNP Project Team
 Martina Cronin, BSc (Nursing Mgmt), RGN, RM Labour & Birthing unit
 Catriona Cullen, MSc, BSc (Nursing), RGN, RM MN- CMS
 Teresa McCreery, MSc, RGN, RM, RSCN Community Midwives
 Carol Pugh, RGN, RM, Mgt Degree Postnatal Services
 Karen Sherlock, RGN, RM, BNS Theatre and Gynae Inpatient services
 Valerie Spillane, MSc (Diagnostic Imaging), MA (Health Promotion),
 RM, BSc, RGN, Antenatal Outpatient & Ultrasound Services
 Hilda Wall, RGN, RM, Dip (Healthcare Mgmt) Neonatal Unit

Clinical Midwife/Nurse Managers 2

Emily Barriga, BSN, RGN Neonatal Unit
 Maggie Bree, RGN, RM Theatre
 Carmel Breen, RGN, RM, BMS Night Duty
 Mariola Buczkowska, RGN, PgDip NICU, MSc (Neonatal Nursing)
 Neonatal Unit
 Niamh Carney, RGN, RM Pre-Assessment Clinic
 Barbara Cathcart, MSc, (Diagnostic Imaging), RGN, RM
 Fetal Medicine Unit
 Sive Cassidy, BSc, RGN, RM (MN – CMS)
 Michelle Clarke RGN, RM, RNP Labour & Birthing Unit
 Linda Collins, RGN, RCN, BSc, PgDip NICU, MSc (Neonatal Nursing)
 Neonatal Unit
 Catherine Cooke, RGN Urodynamics
 Breda Coronella, RGN, RM Neonatal Unit
 Joanne Courtney, MSc (Diagnostic Imaging), RGN, RM
 Fetal Medicine Unit
 Clodagh Craven, MSc (Diagnostic Imaging), RM, RGN
 Fetal Medicine Unit
 Siobhan Crisham, RGN, RM, BNS Theatre / Recovery
 Bincy Cyriac, RGN, RM Infection Control
 Jill Dowling, MSc RGN, RM, RNP Labour & Birthing Unit
 Eleanor Durkin, MSc, Hdip Midwifery, BMS, RN, RPN
 Margaret Fanagan, RGN, RM, IBCLC, Dip HA Antenatal Education
 Florrie Fee, RGN, RM Neonatal Unit
 Tara Finn RM MN - CMS
 Jennifer Fitzgerald, BMS, RGN, RM, H. Dip Gynaecology Clinic

Carmel Flaherty, RSCN, RGN, RM, HDip Health & Safety
 Occupational Health
 Emily Flynn, RGN, RM, HDip Emergency Care Area
 Miriam Griffin RGN, RM Postnatal Services
 Dana Hardy, RGN, RM, BNS Theatre
 Bianca Hein RM, RNP Labour & Birthing Unit
 Carolin Holmes, RM Perinatal Mental Health
 Jilby Jacob, RGN, RM, MN, MHCM Postnatal Services
 Jean Kavanagh, RGN, RM, RNP Labour & Birthing unit
 Jane Langenbach, BSc (Nursing) RGN, RM, RNP
 Labour & Birthing unit
 Ann Lopez RGN, Gynaecological Inpatients Services
 Remy Mathew, RGN, RM, RNP Postnatal Services
 Erica Mullins RGN, RM Night Duty
 Annabel Murphy, RGN, RM Antenatal OPD
 Helen McHale, RGN, RM, RNP Antenatal Ward
 Maria O'Connell, RGN, RM Gynaecology Clinic
 Gwen O'Neill, RGN, RM, RNP Labour & Birthing unit
 Bred O'Dea, RGN, RM Outpatients Clinic
 Rebekah Prabakaran, BSc (n) RN, RM, MSc (N) Neonatal Neonatal Unit
 Anya Phillips, RGN, RM, HDip Midwifery Labour & Birthing Unit
 Alphonsa Pius, MSc. Health Informatics, BSc. (Nursing) RGN, RM,
 IBCLC MN –CMS
 Sara Rock, RGN, RM Neonatal Unit
 Kim Ryan, MSc. GradDip, BSc. BComm, RM MN -CMS
 Brid Shannon, HDip (Diabetes), Dip (Mgmt) RGN, RM, RNP Labour &
 Birthing Unit
 Linda Smiles, RGN, RSCN Neonatal Unit
 Caitriona Sullivan, RGN, RM, DipMgt Night Duty
 Helen Thompson, MSc Leadership, BMS(hons), RGN, RM Night Duty
 Molly Vinu, BSc, MSc Med-Surg, MSc Health Informatics MN-CMS

Clinical Midwife/Nurse Specialists

Jacinta Byrne, MSc, RNT, RN, RM (CMS Haematology)
 Brenda Casey MSc, RM, BSc Nursing, RNP (CMS Bereavement)
 Sharon Croke MSc (Diag Imaging) RGN, RM (CMS Ultrasound)
 Sarah Cullen, MSc, RM, BSc. Nursing (CMS Bereavement)
 Lisa Hyland, MSc (Diag Imaging) RGN, RM (CMS Ultrasound)
 Niamh Meagher, MSc (Diag Imaging), RGN, RM (CMS Ultrasound)
 Heather Hughes, MSc (Diag Imaging) RNP, RGN, RM (CMS
 Ultrasound))
 Cecilia Mulcahy, RGN, RM, MSc (Diag Imaging) (CMS Ultrasound))
 Georgina Mulligan, RGN, RM (CMS Perinatal Mental Health)
 Elizabeth (Betty) Murphy, HDip (Diagnostic Imaging) RGN, RM (CMS
 Ultrasound)
 Caroline McCafferty, BSc (Nursing Mgmt) RGN, RCN, (CNS Neonatal)
 Claire McSharry, MSc (Diagnostic Imaging), RM, RGN (CMS
 Ultrasound)
 Ciara Murphy, RN, ENB 405, RCH (Dip HE), BNS (CNS Neonatal)
 Celine O'Brien, MSc, RGN, RM (CMS Maternal Medicine)
 Megan O'Malley, RPN, Perinatal Mental Health
 Eimear Rutter, Grad. Dip (Diabetes), RGN, RM (CMS Diabetes)

Community Midwives

Debbi Appelbe, RGN, RM
 Sarah Byers, RGN, RM
 Kate Casey, RGN, RM
 Katie Cosgrove, RGN, RM
 Niamh Cummins, BSc (Midwifery), RGN, RM
 Katie Hearty, BSc (Midwifery), RGN, RM
 Julie Higgins, BSc (Midwifery), RGN, RM, RNP
 Lorna Killick, RGN, RM
 Ivana Lambe, BSc (Midwifery)
 Clodagh Manning, RGN, RM, RNP
 Roisin McCormack, BSc (Midwifery), RGN, RM, RNP
 Bernie O'Callaghan, RGN, RM Retired July 2020
 Eimear O'Connor, RGN, RM
 Fiona Roarty, RGN, RM, PHN
 Sinead Thompson, BSc (Midwifery), RGN, RM, Dip HE

Clinical Skills Facilitator

Aoife Lennon, RGN, Post GradDip
 Saila Kuriakose, MSc, RGN, RM
 Colette O'Neill, MSc, RM

Neonatal Clinical Skills Facilitator

Fidelma Martin, RGN, DipHe(RSCN), BNS Neonatal Unit
 Thankamma Mathew, RGN, H. Dip (Neonatal Intensive Care)

Neonatal Resuscitation Officer

Laura Eager, RGN, RSCN, H. Dip (Neonatal Studies)

Oncology Nurse Co-ordinator

Sarah Belton, MSc (Nursing) RGN
 Louise Comerford BSc, RGN
 Emma McKinney, BSc, PGrad Dip Adult Cancer Nursing

Post Registration Midwifery Programme Co-ordinator

Ann Marie Dunne, MSc (Edu), P. Grad Dip, RGN, RM

Clinical Placement Co-ordinators

Sharon Egan, MSc, Hdip Midwifery, BSc Nursing
 Orla Gavigan, BMS, RGN, RM, Dip (Mgmt)
 Theresa Barry, BSc (Nursing Mgmt), RGN, RM
 Elaine Creedon, MSc, BSc (Midwifery), RGN, RM, BNS
 Sally Horton, MSc, HDip Midwifery, BSc. Nursing, RM, RGN, RMP

Haemovigilance Officer

Bridget Carew, RGN, RM, H. Dip (Healthcare Risk Mgt), H. Dip. (Quality in Healthcare)

Nurse Colposcopists

Gina Baldesco, BSCCP Nurse Colposcopist, RGN
 Dymrna Casey, BSCCP Nurse Colposcopist, RGN, RM
 Hazel Catibog, RGN, RM
 Marie Collery, BSCCP Nurse Colposcopist, RGN, RM
 Siobhan Griffin, BSCCP Nurse Colposcopist, RGN, RM
 Lisa Hughes, RGN, RM
 Sinead Kausley, RGN, RM
 Deirdre O'Neill, BSCCP Nurse Colposcopist, BSc, RGN, RM

Smoking Cessation

Orla Bowe, RGN, RM, MSc

SENIOR ADMINISTRATION STAFF**Secretary/General Manager**

Ronan Gavin, BBS (Finance), FCA

Financial Controller

Alistair Holland, BA, FCPA

IT Manager

Con Grimes (Acting)

Human Resources Manager

Yvonne Connolly, BA in IR & ER Grad CIPD

General Services Manager

Tony Thompson, Dip (HSM), Dip (SCM)

Purchasing and Supplies Managers

Linda Mulligan and Lorraine McLoughlin

Patient Services Manager

Alan McNamara

Information Officer

Fionnuala Byrne, MSc, BA (ICT), P. Grad Dip (Stats)

Health & Safety Officer

Martin Creagh, BSc, Dip (HSWW), IOSH

Facilities Engineering Manager

Neil Farrington, MSc (MMT), P. Grad Dip (MMT)

Tendering Officer

Gwen Montague (from Jan)

Compliance and Operations Manager/Data Protection Officer (Acting)

Carl Alfvag, LL.M (Master of Laws)

Quality, Risk and Patient Safety

Director of Quality, Risk and Patient Safety

Luke Feeney, D. Prof, MSc

Claims Coordinator

Nicole Kennedy

Quality Manager

Rachel Irwin, MSc (Nursing Mgmt), BSc, RM, RGN

Clinical Risk

Clare O'Dwyer, HDip (Healthcare Risk Mgt), BSc (Nursing Mgt), RGN, RM.

Laurence Rousseill, BSc (Midwifery), H. Dip (Midwifery), RGN, RM, RNP, Grad. Dip (Healthcare Risk Mgt & Quality)

PROJECT PROGRAMME OFFICE - NMH AT ELM PARK

Dr Orla Sheil, MD, FRCOG, FRCPI Operational Programme Manager, Clinical Lead

Dr Jenny Walsh, MB BCH BAO MRCPI MRCOG PhD Joint Chair, Digital Health Steering Group

Pauline Treanor, MBA; PGDip Corp. Governance, Operational Programme Manager

Martin Keane, (B Comm.), Project ICT Lead,

Damian McKeown, MBA, Project Co-Ordinator,

Eoghan Hayden, MSc (Clinical Eng), BSc (Comp Sci.), Commissioning & Transitioning Pillar Lead

Emmett Travers, BSc (Eng) MEng, Operations & Business Enablement Pillar Lead

Gillian Canty, MSc (Midwifery), Operational Readiness Deputy Lead

Martin Creagh, BSc, Dip (HSWW), IOSH, Co-location Deputy Lead,

Geraldine Duffy, BSc (Neonatal Studies), Dip (Health Economics), People Pillar Lead

Sarah McCourt, BA (Public Mgt – Healthcare Mgt), P. Dip (Project Mgt), P. Cert. (Healthcare), Project Administrator

ALLIED HEALTH PROFESSIONALS

Medical Social Work

Kaylene Jackson, Head Medical Social Worker, MSocSc, NQSW

Ciara McKenna, Senior Medical Social Worker, BSocSc, NQSW

Sinead Stakelum, Senior Medical Social Worker, BSocSc, NQSW

Karen McCormack, Senior Medical Social Worker, BA, H. Dip (Sp), MSocSc, NQSW

Gillian McMurray, Medical Social Worker, BA, H. Dip (Sp), MSocSc, NQSW

Laura Harrington, Medical Social Worker, BA, H. Dip (Sp), MSocSc, NQSW

Aoife Shannon, Medical Social Worker, BA, H. Dip (Sp), MSocSc, NQSW

Radiography

Angela Angove, DCR, Dip (MS), P. Grad Dip (MUS)

Mary Corkery, DCR

Bernadette Ryan, DCR

Val Grimes, DSR (R)

Carmel O'Connor, DSR (R)

Clara Nolan, BSc (Hons) Radiography, HDip BS, Msc MRI

Una Murphy, MSc, MRI, BSc Rad CCT

Carla Groves, Dip Radiography, Msc Ultrasound

Laura Moyles, BSc (Hons) Radiography, HDip BS, Msc MRI

Physiotherapy

Judith Nalty, Physiotherapy Manager, BSc (Physio)

Lesley-Anne Ross, Senior Physio (Gyn)MSc (Physio), MISCP

Jo Egan, Clinical Specialist Physio (Neo) BSc (Physio), MISCP

Eithne Lennon Senior Physio (Neo) BSc (Physio) MISCP

Sarah Fitzmaurice Senior Physio (Obs) BSc (Physio) MISCP

Laura O'Sullivan Senior Physio (Obs) BSc (Physio) MISCP

Aoife Cullen Clinical Specialist Physio (Gyn) BSc Physio MISCP (from July)

Ciara Ryan Clinical Specialist Physio (Gyn) BSc (Physio) MISCP

Sarah Mullins Senior Physio Msc (Gyn) (Physio) MISCP

Aoife Magner Senior Physio (Obs) BSc Physio MISCP

Consultant Clinical Biochemist

Dr Orla Maguire, MSc, FRCPath EurClinChem

Laboratory Manager

Marie Culliton, MSc, MBA, P. Dip. P. Reg., FACSLM

Chief Medical Scientist

Anya Curry, MSc, FACSLM

Bernadette O'Donovan, MSc, FACSLM

Paula Whyte, MSc, FACSLM

Catherine Doughty, MSc, FACSLM

Luke MacKeogh, MBA, FACSLM

Surveillance Scientist

Carol O'Connor, MSc, FACSLM

Senior Medical Scientist

Mary Anderson, MACSLM
 Norbert Clarke, MSc, FACSLM
 Laura Kennedy, MSc, FACSLM
 Padraig McGarry, MSc, FACSLM
 Gráinne O'Dea, MSc, FACSLM
 Catherine O'Neill MSc, FACSLM
 Orla Cormac MSc, FACSLM
 Declan Ryan MSc, FACSLM
 Philip Clarke MSc, FACSLM
 Deirdre Duggan MSc, FACSLM
 Donal Noonan MSc, FACSLM
 David Mahon MSc, FACSLM

Central Decontamination Unit

Pam Hutchings, BSc (Decontamination)

Chief Pharmacist

David Fitzgerald, MPharm, MSc, MPSI

Senior Pharmacist Medication Safety / MN-CMS

Áine Toher, BSc (Pharm), MSc, MPSI

Senior Pharmacist Maternal Medicines Clinic

Anne Clohessy, BPharm, MSc, MPSI

Senior Pharmacist NICU

Montserrat Corderroua, BSc (Pharm), MSc, MPSI

Antimicrobial Pharmacist

Louise Delany, MPharm, MSc, MPSI
 Senior Pharmacist Medicines Reconciliation
 Benedetta Soldati, MPharm, MPSI

Pharmaceutical Technicians

Linda Simpson, Senior Pharm. Tech
 Hannah Kerr, Basic Grade Pharm. Tech

Psychosexual Counsellor

Meg Fitzgerald, BSocSc, MSW, NQSW, Dip PST

Senior Dietitians

Roberta McCarthy, BSc/DipHumNut&Diet, MINDI
 Sinead Curran, BSc/DipHumNut&Diet, MINDI

CLINICAL ENGINEERING**Chief Clinical Engineer**

Eoghan Hayden, MSc (Clinical Eng), BSc (Comp Sci.)

Senior Clinical Engineer

Maighread Gallagher, MSc. (Bioengineering), B. Eng (Electrical and Electronics Engineering)
 Vasanth Pillai, MSc. (Clinical Engineering), Dip. (Instrument Technologies)
 Dara Keeley, B. Eng (Eng Technician), H. Dip (Comp. Sci)

Clinical Psychologist

Marie Slevin, MA

Sonographer

Erica Maughan, Senior Radiographer (from September)

SENIOR SUPPORT SERVICES**Portering Services Manager**

Claudiu Zselemi

Laundry Services Supervisor

Glenn Kynes

Hygiene Services Manager

Mark Anderson, BA

Catering

Manager: Elizabeth Byrne, BA (IR and Personnel Mgt), CIPD, H.Dip (Hospitality Mgt) QQI L6 & QQI L6 Auditing
 Beata Banach, BA (Marketing & Event Mgt), MSc. (Food Sci.) QQI L6 & QQI L6 Auditing
 Gillian McKeown, H. Dip (Hospitality), QQI (L6)
 Martina Guiney, H. Dip (Hospitality Mgt) QQI (L5)
 Paul Humphreys, Executive Chef, QQI (L6)
 Marta Jankowska, Catering Supervisor, QQI (L5)

Engineering

Sean Murray, Senior Ass. Technical Services Officer, B. Eng (Tech) MSc.
 James McGovern, Maintenance Supervisor, (from Jan)
 Gearoid O Toole, In-House Build Team Supervisor (from Mar)
 Anne Dowling, Engineering Services Coordinator, BFS, MIB (Grad) (until Oct)
 Michael Loughnane, Maintenance Supervisor (until Feb)
 Graham Tucker, Draughtsman Technician

Chaplaincy

Helen Miley
 Angela Neville Egan

Definitions

Approach to Data Presentation in Clinical Report

Presentation of data in the individual cases is now recorded in tabular form. An explanation of placental terminology is provided in appendix 1. Individual cases are categorised according to the disease process that caused death. Many cases will have multiple pathologies and multiple potential causes of death, and the sequence leading to these is given in the final (diagnostic) line.

The approach taken in cases with potentially competing causes of death is that analysis of this data enables calculation of hospital mortality in infants without a lethal or potentially lethal congenital anomaly.

IUGR can be variously applied to infants at the 3rd, 5th or 10th centiles. The third centile is the one shown to correlate best with perinatal mortality. The reference ranges for centiles given in this report are those published by the Child Growth Foundation (UK) (updated 2002).

Maternal death: Death of a patient, booked or unbooked, for whom the hospital has accepted responsibility, during pregnancy or within six weeks of delivery whether in the hospital or not.

Stillborn infant: A baby with birthweight greater than or equal to 500g, who shows no signs of life at delivery.

Early neonatal death: A baby born alive with birthweight greater than or equal to 500g, who dies within 7 days.

Perinatal mortality rate: The sum of stillbirths and early neonatal deaths per 1,000 total births whose birthweight is greater than or equal to 500g.

Corrected perinatal mortality rate: The sum of stillbirths and early neonatal deaths per 1,000 total births whose birthweight is greater than or equal to 500g excluding congenital anomalies.

Gestation: The best estimate is the duration of gestation using the first day of the last normal menstrual period and early ultrasound as appropriate in the clinical circumstances.

Preterm: Less than 37 completed weeks.

Postdates: 42 weeks or greater.

Prolonged labour: Labour more than 12 hours - nulliparous.

Labour length: Duration of time spent in the labour ward.

Blood Gases: Capillary, Arterial and Venous Blood gases given in order pH, Partial Pressure of Oxygen (PO₂), Partial Pressure of Carbon (PCO₂) and Base Excess (BE).

PATHOLOGY

Thrombophilia screen

Prothrombin Time, INR, APTT, Thrombin Time, Fibrinogen, Lupus Anticoagulant screen - (Lupus anticoagulant, anti-cardiolipin antibodies, beta-2 glycoprotein 1 antibody), Anti Thrombin Three, Protein C, Protein S Free, Modified APCR (FVLeiden mutation if appropriate).

Postmortem

The perinatal autopsy involves external examination of body, with appropriate photographs and X-ray. Internal examination includes inspection of cranial, thoracic and abdominal cavities with removal and weighing of organs: organs are returned to the body before release. Samples are taken for subsequent processing and histologic examination. Extent of sampling of tissue such as spinal cord, nerve and muscle depends on clinical details and on the extent of maceration. The autopsy includes swabs for culture from body cavities and washings for virology. Tissue is frozen for fat stains and may be used for assessment of metabolites. Cytogenetic analysis and where indicated, microarray, may be performed on either skin or placental tissue. The placenta is reported in conjunction with the autopsy, and maternal blood results are also evaluated in reaching a diagnosis. The quality of the report is benchmarked against standards set in the Faculty of Pathology, RCPI QA/QI programme.

A provisional anatomic diagnosis is issued within two working days (except in Coroner's cases, where it is not issued), and the final report is usually within 8 weeks. Occasional cases take longer due to complexity and/or the necessity for external consultations.

Placental pathology

A triage system is in place for placental examination.

The entire placenta is submitted to the laboratory:

- a) from cases of Caesarean section
- b) from cases born in the delivery ward, where there is an abnormality of pregnancy, labour, delivery or the neonatal period.

In other cases, the placenta is kept refrigerated for seven days and retrieved if an indication for analysis becomes apparent.

Data from analysis of cases of Perinatal morbidity or mortality is returned in an anonymised fashion to the National Perinatal Epidemiology Centre, UCC, where it is pooled with data from other maternity units and national trends and benchmarks are published. The terminology used is the same consensus terminology as that used by NPEC (Khong TY et al). Some of these terms are expanded on below.

Maternal vascular malperfusion (MVM)

This is a spectrum: at the less severe end is mild accelerated villous maturation, then ischemic villous crowding and latterly infarction, also referred to as uteroplacental insufficiency (UPI). Increasingly, terms such as "shallow implantation" are being used to explain the pathogenesis. Expected findings in a case of severe PET would be a small placenta with recent and old infarcts, located centrally and peripherally in the parenchyma. Atherosclerosis is fibrinoid change in vessels, seen in about half of cases of PET and occasionally in other conditions eg connective tissue disease.

Hypoxic membrane lesions

Laminar decidual necrosis may be regarded as an acute hypoxic lesion, and microcystic change in the chorion as a chronic hypoxic lesion.

Meconium

When present in large quantities, meconium may cause necrosis of muscle cells in the walls of chorionic vessels and possibly lead to vasospasm and ischaemia.

Chorangiosis

More vessels than normal are seen in terminal villi. It may be present as a primary finding or as a reaction where adjacent villi have been destroyed by villitis, and is suggested to be a marker of chronic hypoxia.

PATTERNS OF INFLAMMATION**Chorioamnionitis**

The terms "maternal inflammatory response" and "fetal inflammatory response" are used with each being staged and graded according to consensus guidelines. There is an association between a severe fetal inflammatory response and brain damage in both term and pre-term infants.

Maternal-fetal immune interaction.

This may be manifest as any or all of villitis, intervillitis, chronic chorioamnionitis and deciduitis.

Villitis

Rare cases of villitis are due to infection eg CMV, but most are of unknown aetiology and are immunologically mediated. Villitis is graded as low-grade or high-grade. Overall, villitis is seen in 10% of placentas; high-grade villitis occurs in < 2% and is associated with an adverse perinatal outcome. Villitis may cause damage to fetal vessels in the placenta and this is associated with neurologic damage in term infants. It may recur in subsequent pregnancies.

Intervillitis

Chronic histiocytic intervillitis is relatively rare, but is over-represented in the cases in this report. It is associated with growth restriction and perinatal loss, with a mean gestation of loss of 25/40. It is more common in patients with immune dysregulation, and is likely to recur in subsequent pregnancies.

THROMBOSIS AND HAEMORRHAGE**Fetal vascular malperfusion (FVM)**

Occlusions of the fetoplacental circulation are manifest by: extensive avascular villi, obliterated stem arteries, haemorrhagic villitis, and occlusive thrombi. The term fetal thrombotic vasculopathy is also used. High-grade FVM, in particular, is associated with neonatal encephalopathy.

Non-occlusive mural fibrin thrombi

These are found in large fetal vessels in approx 10% of placentas. They are more common in cases with FTV and abnormal coiling; they reflect impaired fetoplacental flow, but the significance of isolated ones in smaller stem vessels is at present unclear.

Cord coiling

The cord normally has one coil per 5cm. Both hypo- and hypercoiled cords are associated with IUGR, fetal death, cord stricture, thrombosis and an abnormal response to labour.

Abruption and retroplacental haemorrhage (RPH)

RPH may be identified on pathologic examination of the placenta, but have been clinically silent. Conversely, dramatic clinical abruption may leave no changes in the placenta. In many cases RPH causes compression infarction of the placenta.

Diffuse chorioamniotic haemosiderosis (DCH)

This is diagnosed by the presence of haemosiderin-laden macrophages in the membranes and/or chorionic plate. Such placentas are more likely to show circumvallation, old peripheral blood clots and green discoloration. Clinically, DCH is associated with chronic vaginal bleeding, multiparity and smoking. Blood and breakdown products are released into the amniotic fluid. Oligohydramnios, IUGR and a lower gestational age at delivery have been found more commonly in cases with DCH. Persistent pulmonary hypertension and dry lung syndrome are more common in these neonates. DCH may represent chronic peripheral separation of the placenta, possibly from marginal venous bleeding (rather than the arterial bleed of abruption).

ABNORMAL PLACENTAL DEVELOPMENT

Delayed/abnormal villous maturation

This is where the placenta has failed to develop appropriately for gestational age, partially or completely. It is a poorly understood entity, and is associated with diabetes. It is associated with an increased risk of stillbirth. Some cases may receive a descriptive diagnosis eg abnormal maturation or variable villous maturation where there is a mixed picture, with some areas showing delayed maturation and other areas accelerated maturation. The term "distal villous immaturity" is also used.

Increased perivillous fibrin

Localised increases in fibrin are common, but a diffuse increase, sometimes in a pattern called "maternal floor infarction" is associated with an adverse outcome.

Placental weight

In general, the term placenta weighs between one sixth and one seventh of the infant's weight, but a wide range of placental weights is seen in normal infants. The weight is given in the cases discussed where it is felt to be markedly abnormal. Fetoplacental weight ratio (median of around 7 at term) are sometimes used. Updated September 2018

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Appendix 2: Classification of indications for caesarean section in spontaneous labour or after having had labour induced

Fetal reason

Caesarean section for fetal indication before any oxytocin has been given.

Dystocia

Inefficient uterine action/inability to treat/fetal intolerance

Problem is inadequate progress with no fetal problems until oxytocin is started.

Inefficient uterine action/inability to treat/overcontracting

Problem is inadequate progress but oxytocin does not reach maximum dose as per protocol in unit because of overcontracting uterus.

Inefficient uterine action/poor response

Problem is inadequate progress which does not improve after being treated with the maximum dose of oxytocin according to the protocol in the unit.

Inefficient uterine action/no oxytocin

Problem is inadequate progress which for whatever reason has not been treated with oxytocin.

Efficient uterine action/CPD/POP*

Adequate progress (1cm/hr) and in nulliparous women would need to have been treated with oxytocin) but vaginal delivery not possible. *In multiparous women the term CPD/POP is replaced with obstructed labour.

CLASSIFICATION OF INDICATIONS FOR INDUCTIONS OF LABOUR

Fetal reasons

Includes all indications for induction that are carried out for the benefit of the fetus.

PET/Hypertension

Includes all indications for induction that are carried out for hypertensive disorders.

Post Dates

Includes all inductions that are carried out specifically for 42 weeks gestation or greater.

SROM

Includes all inductions for spontaneous rupture of the membranes

Maternal reasons/Pains

Includes all indications for induction that are carried out for the benefit of the mother including pains not in labour

Non medical reasons/Dates < 42 weeks

Includes all indications for inductions where there is no absolute medical indication or for dates but less than 42 weeks

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Glossary

ABG	Arterial blood gas
AC	Abdominal circumference
ACA	Anticardiolipin antibodies
ACH	After coming head
aEEG	Amplitude integrated EEG
AFI	Amniotic fluid index
AFV	Amniotic fluid volume
AGA	Appropriate for gestational age
AKI	Acute kidney injury
ALT	Alanine aminotransferase
Anaemia	A haemoglobin level of less than 102% g/dl
ANC	Antenatal care
APCR	Activated protein C resistance.
APH	Antepartum haemorrhage Bleeding from the genital tract after 24 weeks gestation
APTT	Activated partial thromboplastin
ARM	Artificial rupture of the membranes to induce labour
ASD	Atrial septal defect
AST	Asparate aminotransferase
AVSD	Atrioventricular septal defect
BBA	Born before admission
BMI	Body mass index
BMV	Bag and Mask Ventilation
BPP	Biophysical profile
BP	Blood pressure
BPD	Biparietal diameter
BPD	Bronchopulmonary dysplasia
BPP	Bio physical profile
BSO	Bilateral salpingo oophorectomy
CCAM	Congenital cystic adenomatoid malformation
CHD	Congenital heart defect
CIN	Cervical intraepithelial neoplasia
CK	Creatine kinase
CLD	Chronic lung disease
CMV	Cytomegalovirus
CPAP	Continuous positive airway pressure
CPC	Choroid plexus cysts
CPD	Cephalopelvic disproportion
CPG	Capillary blood gas
CPR	Cardiopulmonary resuscitation
CRP	C reactive protein
CSA	Childhood sexual abuse
CSF	Cerebro spinal fluid
CT	Computerised axial tomography
CTG	Cardiotocograph
CTPA	Computed tomography pulmonary angiogram
CVP	Central venous pressure
CVS	Cardiovascular system
CXR	Chest x-ray
D	Day
D/C	Dilatation and curettage
DIC	Disseminated intravascular coagulation
DNA	Did not attend
DOL	Day of life
Domino	Domicillary In Out
DR	Delivery room
DTR	Deep tendon reflex
DVT	Deep vein thrombosis
DWI	Diffusion-weighted images
EBL	Estimated blood loss
Echo	Echocardiogram
ECHO	Extracorporeal membrane oxygenation
ECV	External cephalic version
EDF	Enddiastolic flow
EDV	Enddiastolic volume
EFM	Electronic fetal monitoring
EFW	Estimated fetal birth weight
ELBW	Extremely low birth weight
ET	Endotracheal
ETT	Endotracheal tube
EUA	Examination under anaesthetic
FBS	Fetal blood sampling
FD	Fetal distress
FFP	Fresh frozen plasma
FHH/NH	Fetal heart heard/not heard
FM	Fetal movements
FMF	Fetal movement felt
FMNF	Fetal movements not felt
FSE	Fetal Scalp Electrode
FTA	Failure to advance
FVM	Fetal vascular malperfusion
FTND	Full term normal delivery
G and M	Grossly and microscopically
GA	General anaesthetic
GAD	Gestation at delivery
GBS	Group B Streptococcus
GCT	Glucose Challenge Test
GDM	Gestational diabetes mellitus
GIS	Gastrointestinal system
GP	General practitioner
GTT	Glucose tolerance test
GUS	Genitourinary system
Hb	Haemoglobin g/dl
	HCG Human chorionic gonadotrophin
	HELLP Haemolysis elevated liver enzymes low platelets
HFO	High frequency oscillation
HR	Heart rate
Hrs	Hours
HRT	Hormone replacement therapy
HSV	Herpes simplex virus

HVS	High Vaginal Swab	N/R	Not recorded
IA	Intermittent auscultation	NRCTG	Non reassuring CTG
IDDM	Insulin dependent diabetes mellitus	NS	Normal saline
IHCP	Intrahepatic cholestasis of pregnancy	NSAPH	Non substantial antepartum haemorrhage
IMB	Intramenstrual bleeding	NST	Non stress test
IMV	Intermittent mandatory ventilation	NT	Nuchal translucency
INR	International normalised ratio	NTD	Neural tube defect
IOL	Induction of labour	OCP	Oral contraceptive pill
IPP	Intermittent positive pressure	OHSS	Ovarian hyperstimulation syndrome
IPPV	Intermittent positive pressure ventilation	OP	Occipital Posterior
ITP	Idiopathic thrombocytopenic purpura	PCB	Post coital bleeding
IUCD	Intrauterine contraceptive device	PCOS	Polycystic ovary syndrome
IUD	Intrauterine death	PCR	Polymerase chain reaction
IUGR	Intrauterine growth retardation	PDA	Patent ductus arteriosus
IUI	Intra uterine insemination	PE	Pulmonary embolism
IUT	Intrauterine transfusion	PET	Pre-eclamptic toxemia
IVDA	Intravenous drug abuser	PFA	Plain film of the abdomen
IVH	Intra ventricular haemorrhage	PFC	Persistent fetal circulation
IVIG	Intravenous immunoglobulin	PFO	Patent foramen ovale
L/S	Lecithin/Sphingomyelin	PGA	Post gestational age
LA	Lupus anticoagulant	PIE	Pulmonary interstitial emphysema
LBI	Liveborn infant	PLIC	Posterior limb of the internal capsule
LDV	Lactate dehydrogenase	PMB	Post menopausal bleeding
LFD	Large for dates	PNW	Postnatal ward
LFT	Liver function test	POM	Puncture of membranes to accelerate labour
LGA	Large for dates	POP	Persistent occipito posterior position
LLETZ	Large loop exision of transformation zone	PPH	Post partum haemorrhage
LMP	Last menstrual period	PPHN	Persistent pulmonary hypertension
LMWH	Low molecular weight heparin	PPROM	Preterm pre-labour rupture membranes
LP	Lumbar Puncture	PR	Pulmonary regurgitation
LSCS	Lower segment caesarean section	PROM	Preterm rupture of membranes
LSR	Lecithin/sphingomyelin ratio	PTX	Pneumothorax
LUS	Lower uterine scar	PVL	Periventricular leucomalacia
LVH	Left ventricular hypertrophy	RBC	Red blood cell
LVS	Low vaginal swab	RCC	Red cell concentrate
MCA	Middle cerebral artery	RDS	Respiratory distress syndrome
Mins	Minutes	RLF	Retrolental fibroplasia
MRA	Magnetic resonance angiogram	RPOC	Residual products of conception
MRI	Magnetic resonance imaging	RS	Respiratory system
MROP	Manual removal of placenta	RV	Right ventricle
MSU	Mid-stream urinalysis	RVH	Right ventricular hypertrophy
MSV	Mauriceau smellie veit	SA	Spinal analgesia
MVM	Maternal vascular malperfusion	SBI	Stillborn infant
ND	Normal delivery	SCBU	Special care baby unit
NEC	Necrotising enterocolitis	SFD	Small for dates
NED	No evidence of disease	SFD	Suspected fetal distress
NER	Neonatal encephalopathy register	SG	Social group
NICU	Neonatal intensive care unit	SGA	Small for gestational age
NIPPV	Nasal intermittent positive pressure ventilation	SIADH	Syndrome of inappropriate ADH secretion
NND	Neonatal death	SIDS	Sudden infant death syndrome
NO	Nitric oxide	SIMV	Synchronized intermittent mandatory ventilation
NPO	nil by mouth		

SMR	Standardised mortality rate
SROM	Spontaneous rupture of membranes
SVC	Superior vena cava
SVD	Spontaneous vaginal delivery
TAH	Total abdominal hysterectomy
TAH & BSO	Total abdominal hysterectomy and bilateral salpingoopherectomy
TAPVD	Total anomalous pulmonary venous drainage
TAS	Thoracamniotic shunt
TC	True conjugate
TDS	Three times a day
TICH	Traumatic intracranial haemorrhage
TLD	Therapeutic loop diathermy
TOF	Tracheo oesophageal fistula
TR	Tricuspid regurgitation
TTN	Transient tachypnoea of the newborn
TTT	Twin to twin transfusion
TVT	Tension-free vaginal tape
U/S	Ultrasound

The National Maternity Hospital Annual Report 2020

Photography in the Report

We are fortunate to have an 'Artist in Residence', Jeanette Lowe, Photographer, in the hospital to document our final years in the old Holles Street buildings. Jeanette was on hand during the COVID-19 pandemic to demonstrate, through photography, this extraordinary year. The majority of the images in the report are Jeanette's work and we are grateful to be gifted the benefits of her work.

Other photography is from a mix of press releases, staff phone photos and photos families sent into us and we are grateful to have all these too.

Print & Design

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The NMH Foundation exists to raise vital funds for the National Maternity Hospital, with a focus on advancing maternal and neonatal health in Ireland. We raise vital funds to invest in research, to provide vital equipment and technology within the hospital, and to support the work of the care teams and support services caring for mothers and tiny babies. The NMH Foundation is helping babies to arrive, survive and thrive.

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