



Mater Misericordiae University Hospital



ANNUAL

Report 2015

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CEO INTRODUCTION

In the Mater Misericordiae University Hospital we pride ourselves on providing patient centred care that is delivered in a coordinated and integrated manner. Each specialty and their teams are focused on delivering individualised care with the best possible outcomes. Quality and patient safety are the number one priority for everyone who works at the hospital and our updated board reporting system has given greater transparency to the quality of care delivered and has enabled the board to hold the management accountable for that care.

The Mater's fundamental purpose is the delivery of high quality healthcare to patients. In addition to the local services for our catchment area, the Mater provides a range of services on a regional and national level including:

- ▶ National Services: Cardiac Surgery, Heart and Lung Transplantation, Extra Corporeal Life Support (ECLS), Spinal Injuries, Pulmonary Hypertension and the National Isolation Unit.
- ▶ Tertiary Services: Cardiology (including Adult Congenital Heart Disease), Oncology & Haematology, Clinical Genetics, Breast Surgery, Colorectal Surgery, Ophthalmology and Gynaecology.

We are an academic teaching hospital that is committed, in conjunction with our academic partner University College Dublin, to education and research in the health sciences and allied areas. We have an extensive programme of research across the large number of disciplines in the Mater with hundreds of publications published annually. Our emphasis on research provides direct benefit to patients in the form of clinical trials. There is a wide range of active clinical trials occurring across many specialties in the hospital. For cancer patients, participation in a clinical trial is an acknowledged treatment option particularly where the current (approved) treatments have not worked.

Finally, the Hospital aspires to meet the highest possible standards and levels of efficiency, effectiveness and quality in all its endeavours. While our lean programmes continue to focus on system improvements that make a significant difference in the delivery of overall care for patients, our nursing teams are focused on the individual patient's experience and adapting our practices to improve each patient's care. The whole team at the Mater is driven by criteria of excellence, continuous improvement and innovation.

Gordon Dunne
Chief Executive

CHAIRMAN'S MESSAGE

The Mater Hospital's ambition is to be the safest hospital in Ireland, delivering the highest quality care, with the most patient-centred, efficient processes. To ensure we achieve this ambition the Board of the Mater Hospital spends over 50 per cent of each meeting reviewing every aspect of the patient experience. This follows from a joint initiative sponsored by the Mater and the Health Service Executive and, I believe, has re-oriented the Board's effectiveness in the appropriate direction for a hospital of our size, scale and complexity.

The year 2015 was the eighth successive year of financial challenge for the health service and uncertainty over our financial position has been a constant theme during this year (and, indeed, previous years) resolved only in December 2015 by the grant of a supplementary estimate to the Department of Health. Despite the uncertainty, activity levels increased across all areas of the Mater. I commend all those who work in the Mater for their hard work and dedication. The unique "spirit of the Mater" builds on the legacy of the Sister of Mercy who established the Mater in 1861 and whose presence and support has contributed so much to the ethos and values of the Mater.

Next year will be equally challenging as our initial budget allocation for 2016 is 2.5% less than our 2015 final allocation and we are projecting an increase in activity levels of some 5%. I welcome the Government's decision to allocate further funding to health in June this year. The Mater, when measured by the HSE's "Activity Based Funding (ABF)" Model, determined that the Mater was one of the best performing hospitals in Ireland where ABF measures acuity and overall efficiency.

The Mater is also an institution which teaches future health service professionals and where research is viewed as an integral part of providing the best treatment modalities to our patients. Our academic partner is UCD and we have had a major focus over the last eighteen months in appointing academic clinicians in the areas of Gynaecological Oncology, Medicine, and Cancer and Clinical pathology. I welcome Prof. Donal Brennan to the Chair of Gynaecological Oncology and Prof. Owen Smith CBE as a Consultant in the Mater and to the newly created post of Head of the Cancer Clinical Academic Directorate in the Ireland East Hospital Group. I am optimistic the appointments to the critically important Chair in Medicine and Therapeutics as well as Clinical Pathology will be made in 2016. It is our ambition that the Mater is the best place to train as a healthcare professional in Ireland.

The Mater is a member of the Ireland East Hospital Group (IEHG), the largest and most diverse hospital group in Ireland. Together with St. Vincent's University Hospital, we are committed to supporting all of the hospitals in IEHG. To this end, the Mater is providing support to Navan and Mullingar Hospitals as well as our traditionally close links with Cappagh Hospital. We will play a full part in the strategic development of IEHG as hospital groups move towards a statutory footing. We have also established much closer working relationships with primary care practitioners in the greater Dublin area reflecting that most chronic diseases are better and more effectively managed in the community.

The Mater has its own ambitious plans for its future development. We occupy less than 40 per cent of our site for medical purposes. We require additional capacity for elective medicine as much of our ward capacity is utilised by the requirements of unscheduled care. With some sixty thousand patient presentations to the Mater's Emergency Department in 2015 (which does not include those who present to the Ophthalmic Emergency Department), the scale of the challenge is apparent. We are working on a master plan for the Mater's future development. I will return to this subject in our 2016

annual report.

I want to express my thanks to my Board Colleagues and to our Management Team ably led by our CEO, Gordon Dunne, whose seamless transition from Cappagh Hospital has enabled the Mater to continue to build on the strong foundation built by his predecessor, Prof. Mary Day (now CEO of IEHG). I would also like to thank the Senior Management Team of Prof. Brendan Kinsley (Executive Clinical Director), Prof. Tim Lynch, (Chair of the Medical Executive), Tanya King (Director of Nursing) and Caroline Piggott (Finance Director). I would also like to record my appreciation of our indefatigable Board Secretary, Pat Mahony, for his Trojan work on the implementation of the requirements of the Companies Act 2014 and HSE compliance regulations.

Finally, I thank the HSE and in particular, it's Director General, Mr. Tony O'Brien, for his support of the Mater. I am also very grateful to the leadership of the Religious Sister of Mercy for their support of the Mater in every conceivable way. The Mater and the many Mercy hospitals around the world are testimony to the vision of Blessed Catherine McAuley who founded the order and her vision of mercy for the poor, the ill, the indigent and the dying. I also wish to record my sincere thanks to our patron His grace, the Archbishop of Dublin, Dr Diarmuid Martin, for his interest in and support of the Mater Hospital.

Lastly, I welcome the appointment of Simon Harris TD as Minister for Health. I commend his view that the future of healthcare in Ireland should be developed on an all-party basis with a ten year outlook. I also recognise and thank him for securing additional funding for health this year in association with the Minister for Public Expenditure and Reform, Pascal Donohue TD who represents the constituency in which the Mater is located and whose support has been invaluable over the past several years.

Thomas Lynch

Chairman of the Board

QUARTEINARY CARE

Cardiac Surgery

Extra Corporeal Life Support (ECLS)

Heated Intraperitoneal Chemotherapy (HIPEC) for
Peritoneal Carcinoma

Anaesthesia and Critical Care Medicine

National Heart & Lung Transplant Programme

National Isolation Unit

National Spinal Injuries Unit

Pulmonary Hypertension

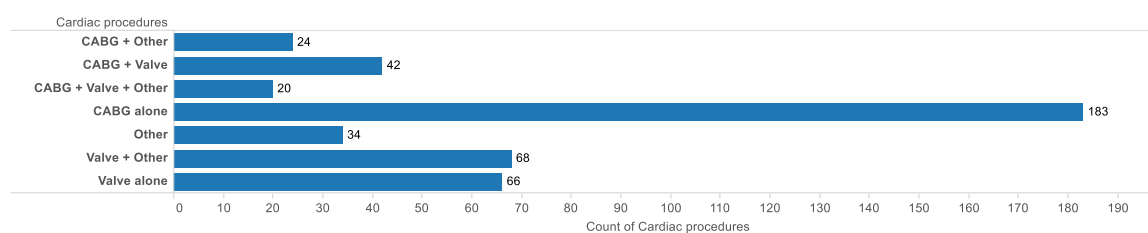
Thoracic Surgery



CARDIAC SURGERY

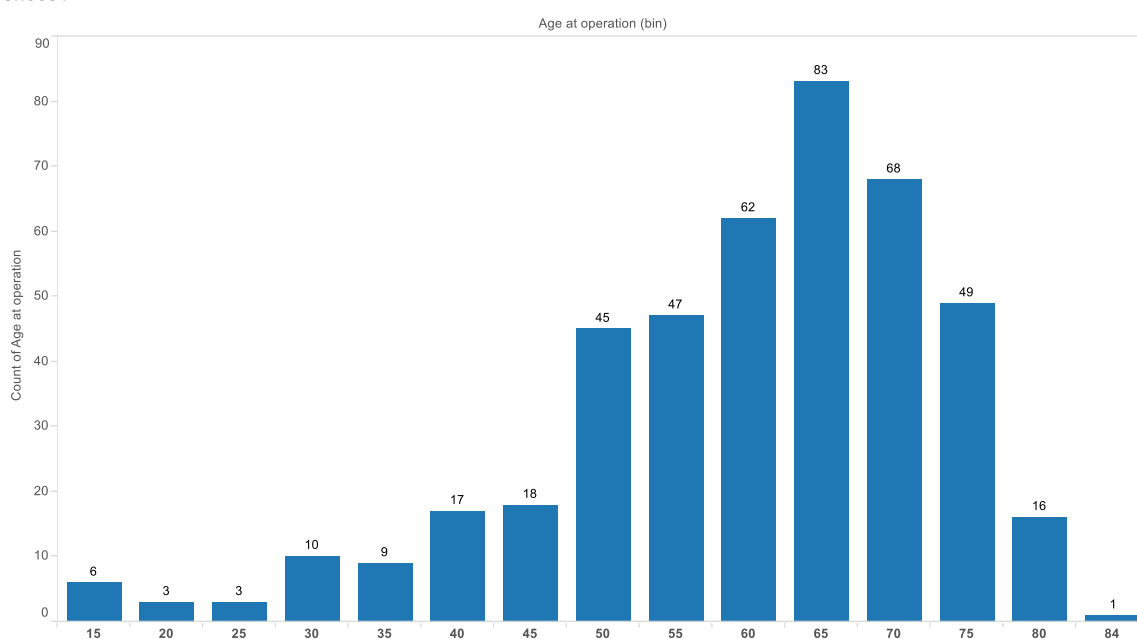
Cardiac Surgery at the Mater Misericordiae University Hospital is dedicated to providing the safest, state-of-the-art, highest-quality, and the innovative surgery for our patients. Our team of cardiothoracic surgeons, cardiologists, vascular surgeons, nurses, and allied health professionals deliver care that is safe, effective and compassionate. The care we deliver is tailored to the needs and requirements of each individual patient, and is designed to result in the best possible outcomes for the patients we serve. In 2015, our cardiac surgeons performed 269 coronary artery bypass surgeries, including "minimally invasive" procedures.

Sheet 6



In 2015 over 430 open heart surgeries were performed at the Mater Hospital including coronary artery bypass graft surgery, aortic valve replacement and mitral valve repair and replacement. All cardiac surgery outcomes data is sent to the Society of Cardiothoracic Surgery for Britain and Ireland for external review and audit. Cardiac patients are predominantly male with 311 male patients compared to 126 female.

Sheet 7



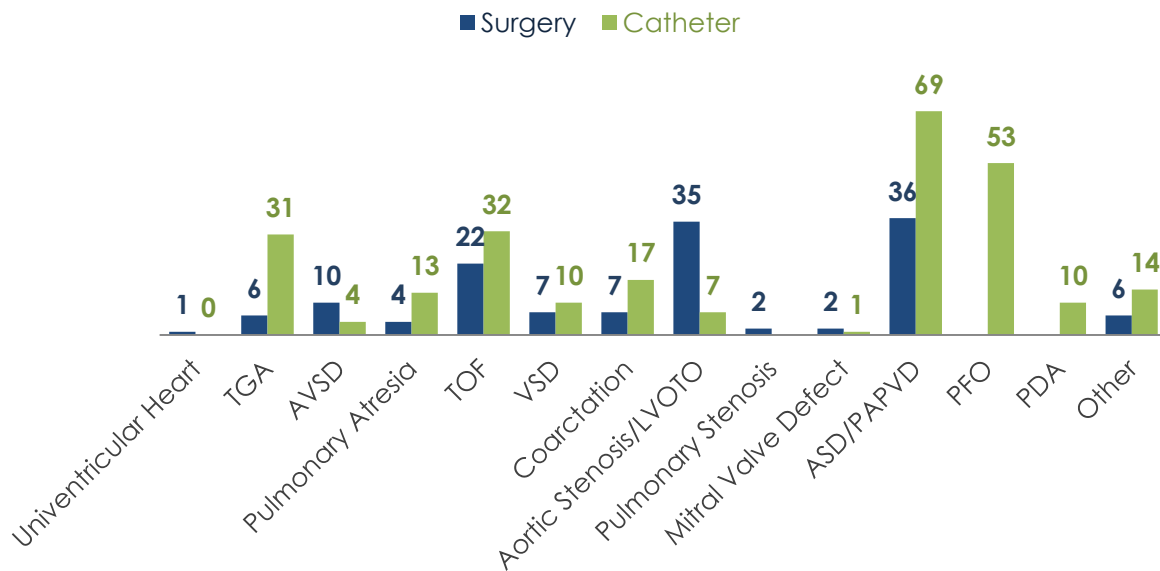
Adult Congenital Heart Disease (ACHD)

During a five-year period (2009-2013) 404 adult congenital cardiac patients have received treatment in the ACHD unit in the Mater Hospital.

Of the 138 patients who underwent surgery, 61% were male, with a mean age of 31.5 years. 54% had previous surgery and 33% of patients had a complex congenital diagnosis. The most common surgeries performed were valvular (46%) and septal surgeries (31%).

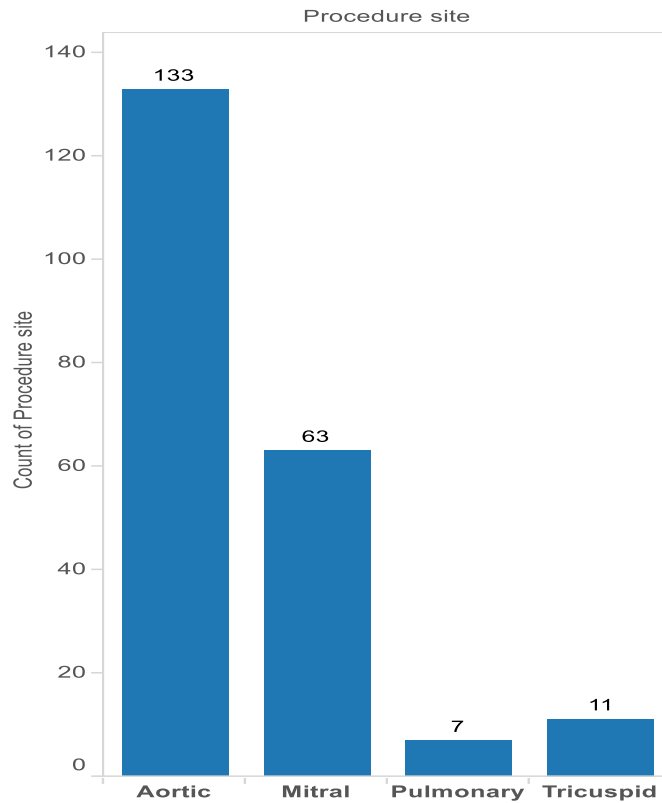
Of the 266 patients who underwent catheter interventions, the mean age was 38.2 years. The most frequent interventions were repair of atrial septal defect (41.7%) and diagnostic procedures (26.3%), with 32% of patients having a complex diagnosis.

Congenital Diagnoses



Valve Surgery

Our team of experts are brought together from multiple disciplines to offer the most complete, leading edge and fully integrated care for patients. The Mater Hospital provides a full spectrum of surgical valvular services including complex Mitral Valve Repair and Aortic Valve Repair.



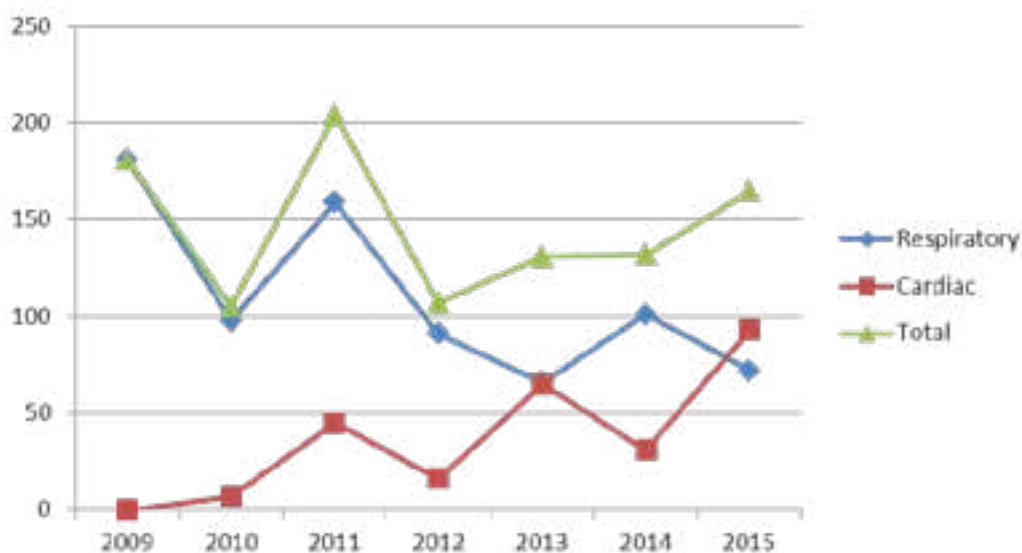
A significant number of cardiac patients require support following discharge. However due to inadequate or no family support being available they require convalescence or transfer back to referring hospital. The requirement for convalescence or ongoing care frequently significantly delays discharge from the hospital. While an older age makes the need for ongoing care more likely, patients with higher operative risk are more likely to require ongoing hospitalisation.



EXTRA CORPOREAL LIFE SUPPORT (ECLS)

The Mater Misericordiae University Hospital is a quaternary centre for Extra Corporeal Life Support (ECLS). The centre manages patients with severe hypoxic respiratory failure whose failure to respond to conventional measures may result in the institution of ECLS. This service is demanding and requires a nursing ratio of 2:1 for these extremely critically ill patients. ECLS is also provided for selected severe cardiac failure with a significant proportion of these patients arising from the Mater's in-house cardiac and transplant activities.

ECLS Bed Days





HEATED INTRAPERITONEAL CHEMOTHERAPY (HIPEC) FOR PERITONEAL CARCINOMA

The Mater Hospital is also the only centre in Ireland to provide Heated Intraperitoneal Chemotherapy (HIPEC) for certain peritoneal malignancies. Peritoneal carcinoma is cancer that has spread to the lining of the abdomen. Until recently, patients living with this aggressive form of cancer were considered terminally ill. The Mater Misericordiae University Hospital provides Cytoreductive Surgery and Heated Intraperitoneal Chemotherapy (HIPEC) for peritoneal malignancies such as stage IV colon cancer and other gastrointestinal cancers.

The unit has been recognised by the National Cancer Control Programme (NCCP) and the Irish Association of Coloproctology (IACP), an all-Ireland body representing colorectal surgeons. Previously Irish patients needed to travel to either Basingstoke or Manchester in the UK for surgical treatment. The Mater Hospital is the only hospital on the island of Ireland offering this treatment option to aggressively treat malignancies of the peritoneum caused by

- ▶ Cancer of the appendix
- ▶ Colorectal cancer
- ▶ Gastric cancer
- ▶ Ovarian cancer
- ▶ Peritoneal mesothelioma
- ▶ Sarcomatosis

Hyperthermic intraperitoneal chemotherapy (HIPEC) is a highly concentrated, heated chemotherapy treatment that is delivered directly to the abdomen during surgery. HIPEC is a complex theatre environment. Unlike systemic chemotherapy delivery, which circulates throughout the body, HIPEC delivers chemotherapy directly to cancer cells in the abdomen. This allows for higher doses of chemotherapy treatment. Heating the solution may also improve the absorption of chemotherapy drugs by tumours and destroy microscopic cancer cells that remain in the abdomen after surgery.

Multiple studies show the procedure can improve overall survival and improve the patient's quality of life



ANAESTHESIA AND CRITICAL CARE MEDICINE

Critical Care, Anaesthesia, Elective Surgery, Theatres & Sterile Services (CCAEST)

The CCAEST directorate that encompasses Anaesthesia, Critical Care and Pain Medicine, the Operating Theatres and the Central Sterile Services Department provides high quality, personalised patient care. The team at the Directorate works interdependently with the clinical teams to support patients with a diverse and complex case mix including

- ▶ Elective and emergency surgical patients
- ▶ Heart and lung transplant patients
- ▶ Critical care for acute medical and surgical patients
- ▶ Interventional cardiology
- ▶ Interventional radiology and MRI
- ▶ Gastroenterology

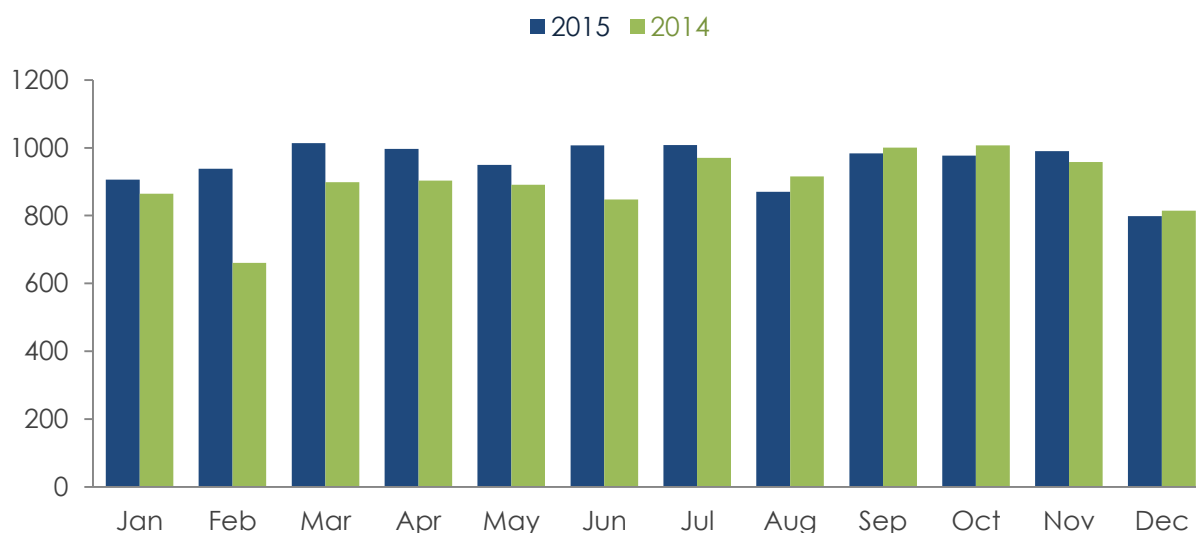
Elective Surgery

Specialty specific elective surgery activity is reported within the individual directorate reports, with overall activity reported in CCAEST.

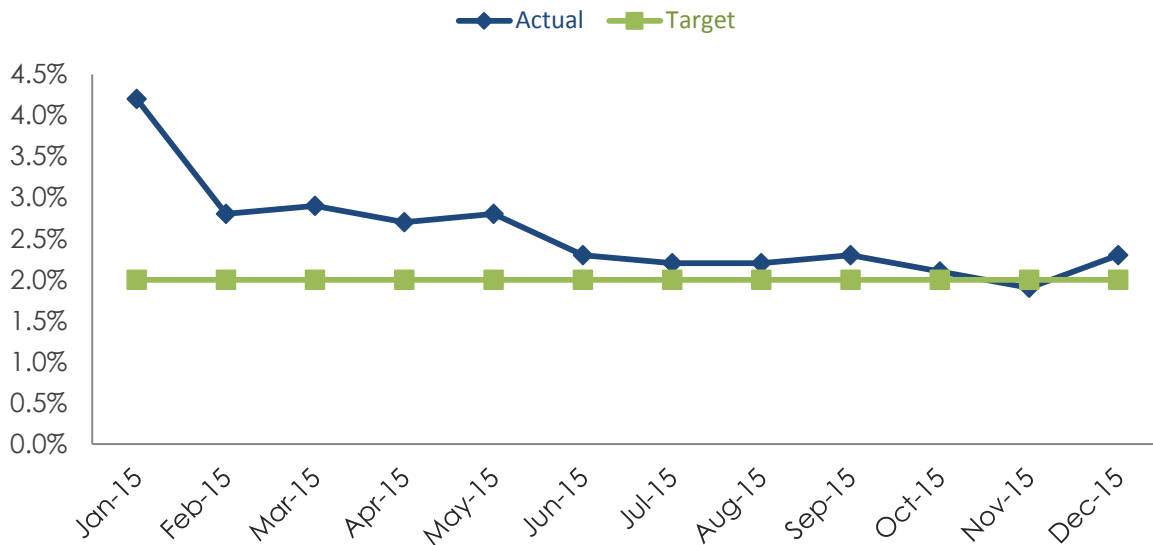
Anaesthesia & Theatre Activity

The team at the Mater Misericordiae University Hospital are committed to providing the highest quality and safest care to our patients. The hospital is a high volume centre with over 11,000 cases performed in 2015. That number has grown by almost 4% on 2014, even when allowing for the closure a loss of one weeks of activity in February 2014 due to theatre closure.

Theatre Activity

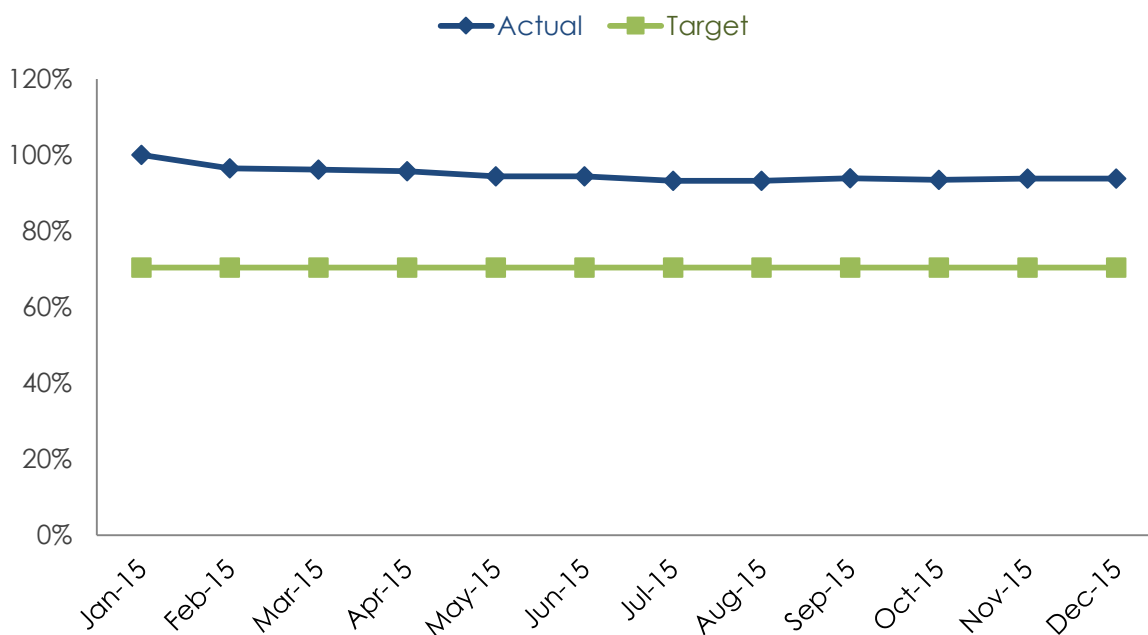


Surgical Re-admission Rates



There is an annual growth rate of around 2-3% in the number of people requiring hospital care as our population ages and we are living longer with multiple co-morbid conditions. The Mater Hospital has undertaken many initiatives that ensure that we can properly manage the growing volume and complexity. Two of the key measures in this regard are Day of Surgery Admissions and Average Length of Stay.

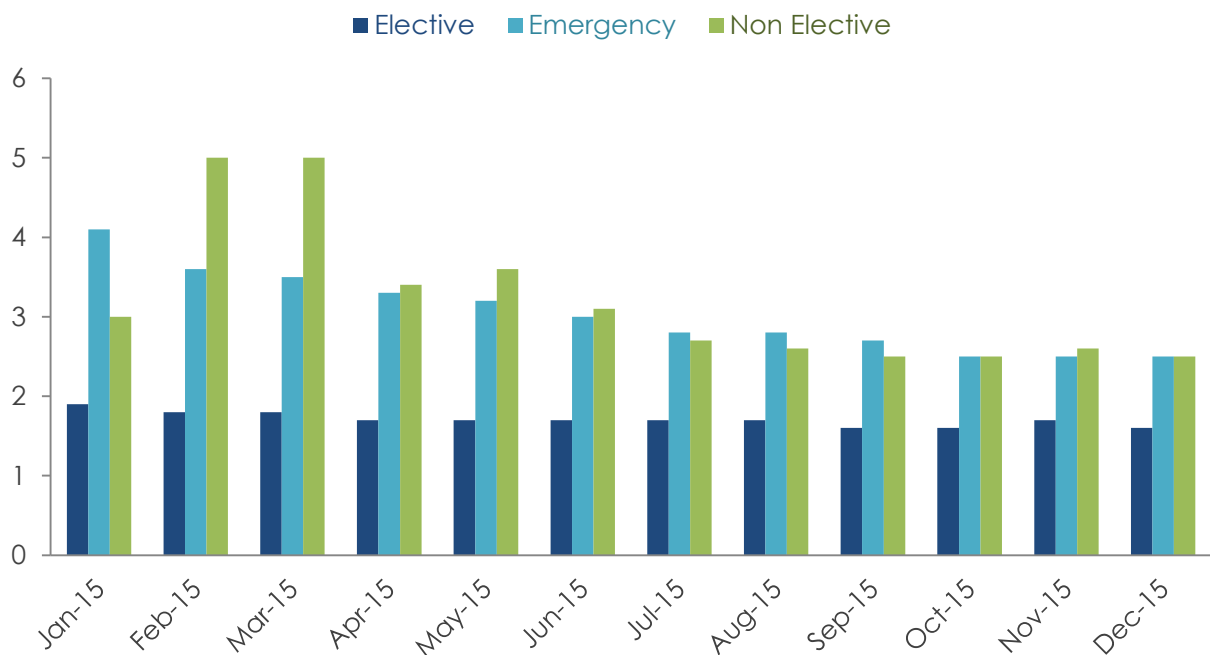
Day of Surgery Admissions (Compliance Rate)



Day of Surgery admissions are managed through the Scheduled Care Ward, achieving a day of surgery admission rate greater than 90%. Improvements to this process in 2016 will include ring-fencing of this ward to meet this demand, and the relocation of this ward to an area of the hospital more adjacent to theatre will improve efficiency of access to theatre and the patient experience.

The opening of an emergency theatre has facilitated timely urgent and emergency surgeries as well as reducing the proportion of emergency cases which would otherwise be performed outside of normal working hours, particularly after midnight and at weekends.

Length Of Stay by Admission Type



The Mater Hospital accepts all referred Cardiothoracic emergencies, we are the National Centre for Heart and Lung Transplantation, as well as for spinal cord trauma and major spine surgery. Lung transplants now number 30-40 per annum and heart transplants of the order of 12-15 per annum. Developments in organ donation and in preservation and conditioning of retrieved organs are likely to increase the number of transplants performed in the future. The Mater Hospital is also the only centre in Ireland to provide Heated Intraperitoneal Chemotherapy (HIPEC) for colon and other gastrointestinal cancers with extensive peritoneal spread.

Strategic direction 2016

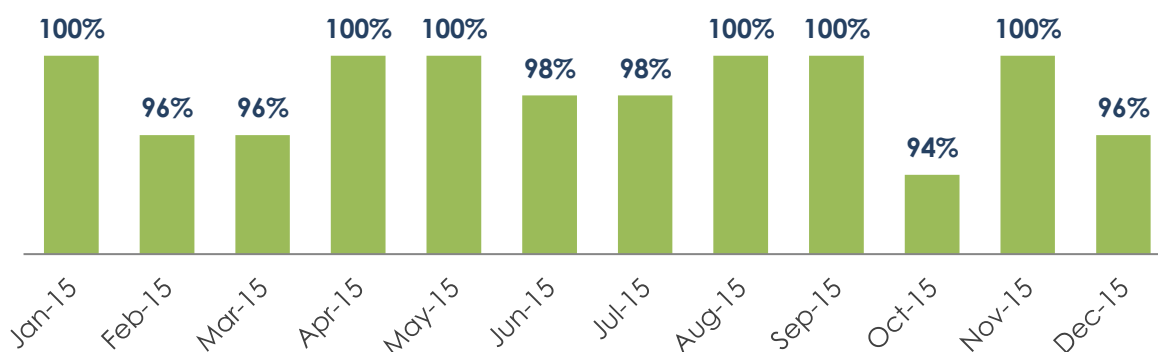
Opening of a second Orthopaedic theatre is anticipated in 2016 as a requirement to meet the demands of the National Spinal Surgery programme. Recruitment of theatre nursing staff is a priority, and a challenge to opening new theatre capacity, including current non-resourced capacity and future planned expansion of two new ophthalmology theatres. The Ireland East Hospital Group (IEHG) solutions are also under-review, including working with Navan Hospital to deliver same day surgeries.



2015 saw the roll out of the theatre management system allowing electronic data capture of all theatre flows, better analysis of all theatre activity and efficiencies and electronic booking for all theatre cases. 2016 will see the commencement of the Anaesthesia Information Management System which will capture all perioperative clinical activity enabling research, audit, assessment of clinical events, inform morbidity and mortality multidisciplinary meetings and much more.

The majority of patients had either General or Regional Anaesthesia, or a combined technique and were admitted on the same day of surgery.

% of Elective Surgery cases done as day case in CCAEST Directorate



The Surgical Day Ward (SDW) admitted 2,526 patients for Surgical Day Procedures in theatre. The Scheduled Care Ward (SCW) admitted 3,292 patients in 2015 for surgical procedures requiring short duration post-operative hospital stay

The Pre-Operative Assessment Clinic (POAC) had a significant role in facilitating this achievement: the POAC is crucial in the identification of the complexity of the individual patient's profile and the scheduled surgery to ensure patient optimisation and delivery of the appropriate level of perioperative care. Consultant staffing of the clinic will improve in 2016 with dedicated Consultant sessions, and presence in the POAC for the first time later this year for two days per week and a medium term plan to have dedicated Consultant sessions in the clinic on a daily basis. The National Anaesthesia Clinical Programme has published guidelines and visited the clinic with a view to helping to facilitate these objectives.

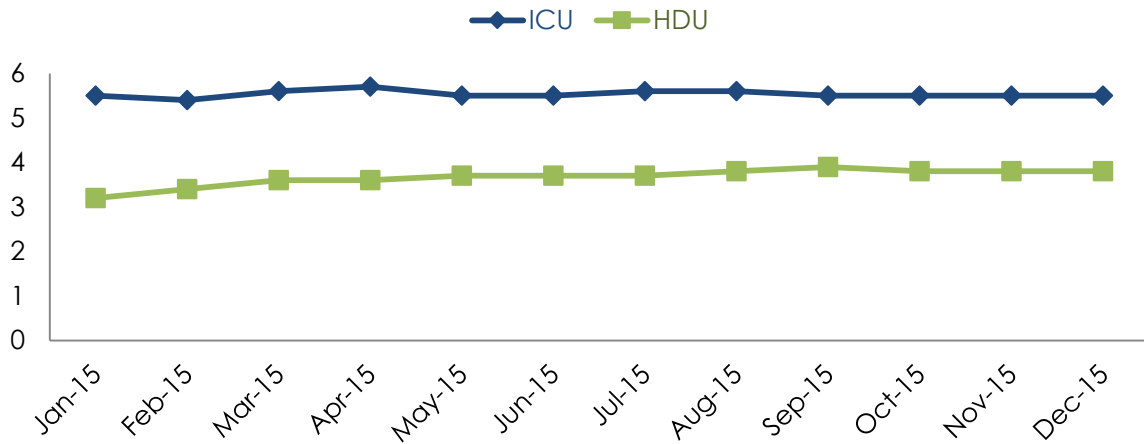
Anaesthesia and Critical Care Medicine

The Mater Hospital Critical Care Complex provides a tertiary referral service for specialist intensive care medicine, with a particular remit for the National Services of Cardiac Surgery, Heart & Lung Transplantation, Spinal Surgery, and Extracorporeal Membrane Oxygenation that are based at the hospital.

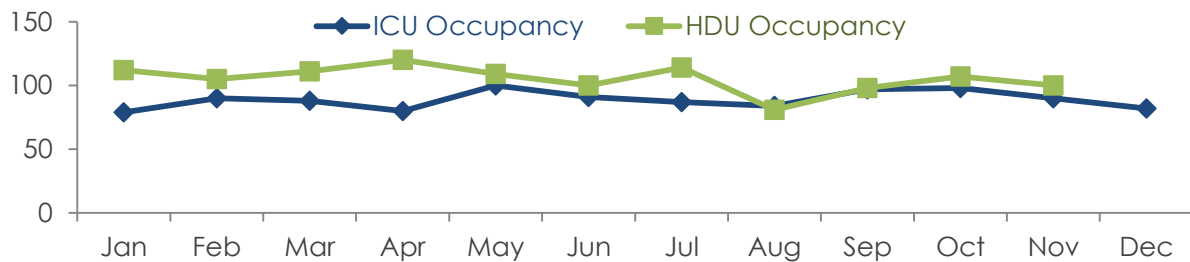
The Critical Care Unit (ICU & HDU) is a 36 bed facility with core staffing provided by a team of approximately 130 -140 staff nurses, clinical nurse managers and a team of 5 Consultant Intensivists. These staff are supported by Consultant Anaesthetists, Non Consultant Hospital Doctor (NCHD), physiotherapy, pharmacy, speech therapy, dietetic and household staff amongst others. Experienced administrative support is also a strong feature of the critical care department.

physiotherapy, pharmacy, speech therapy, dietetic and household staff amongst others. Experienced administrative support is also a strong feature of the critical care department.

AvLOS ICU & HDU



Occupancy



The vast majority of major non-cardiac elective surgeries (e.g. major vascular, GI, orthopaedic/spine, ENT and plastics) are admitted for post-op monitoring in the HDU and this demand is continually increasing.

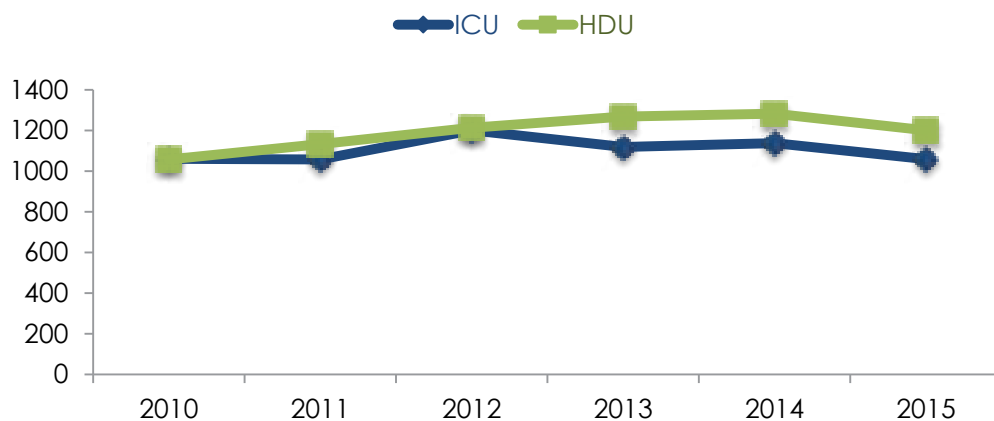
As a leading academic intensive care practice, the intensive care team is staffed by consultants and by senior trainees from a broad specialty base, including anaesthesia, internal medicine, and emergency medicine. We are recognised for training by the Joint Faculty of Intensive Care Medicine of Ireland, the College of Anaesthetists of Ireland, the European Society of Intensive Care Medicine, and the College of Intensive Care Medicine of Australia and New Zealand.

Admissions to Critical Care

The majority of acute or emergency admissions are general in nature and are usually referred on a 24-hour basis as unstable or deteriorating patients from the wards and the Emergency Department. The hospital also accepts all unstable obstetric/gynaecological patients referred from the Rotunda Hospital and orthopaedic patients from Cappagh Hospital.

Admissions for 2015 were 1,066 patients to the ICU and 1,259 to the HDU making the Mater ICU one of the busiest in the country. This large throughput, combined with rapidly increasing patient complexity, is the key driver of high bed occupancy. Occupancy over the last 5 years has averaged out at greater than 100%, above the internationally recommended occupancy levels of 80-85% that allows for the safe provision of critical care and accommodation of surge activity. ICU occupancy for 2015 was 113%. Notwithstanding this the ICU patient survival rate remains very consistent at approximately 88%.

ICU/ HDU Admissions Trends 2010-2015

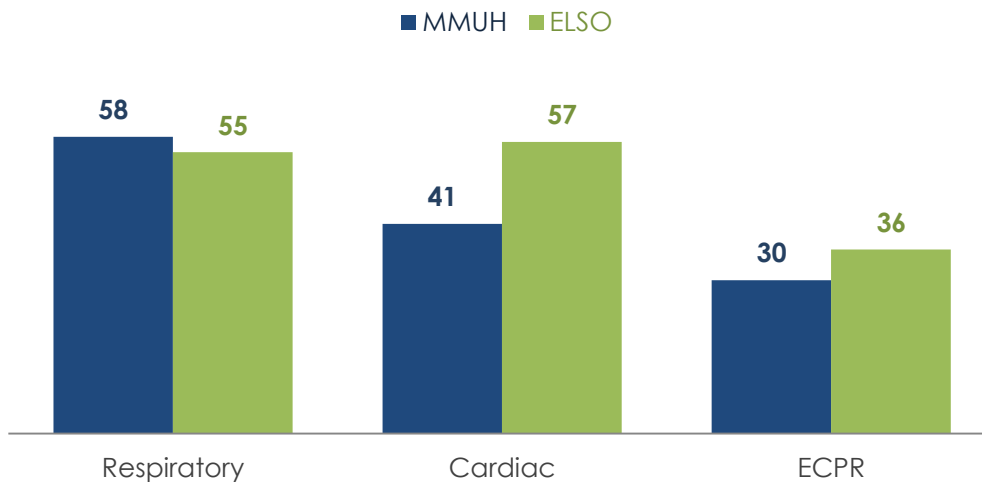


The Mater Hospital accepts all referred cardiothoracic emergencies, spinal cord injuries and is the national centre for both heart and lung transplant. Lung transplant activity has gone from 4 recipients in 2011 to over 30 for 2015 accounting for a significant increase in ICU bed occupancy for this patient cohort.

National Specialty Admissions

In addition to the cardio-thoracic organ transplant programme and national spinal injuries unit the hospital provides specialty Extra Corporeal Life Support (ECLS) on a national basis. The centre manages patients with severe hypoxic respiratory failure whose failure to respond to conventional measures may result in the institution of ECLS. This service is demanding in its nature and will account for one bed closure for each ECLS patient as the nursing ratio changes from 1:1 to 2:1 for these extremely critically ill patients. ECLS is also provided for selected severe cardiac failure with a significant proportion of these patients arising from the Mater's in-house cardiac and transplant activities.

Survival to Hospital Discharge % (MMUH vs ELSO)



Source: MMUH data: 2009-2015
ELSO data: summary report Jan 2016

Of the 22 ECLS cases in 2015, 14 were referred to the Mater's Critical Care from other centres in Ireland

The Mater Hospital is also the only centre in Ireland to provide Heated Intraperitoneal Chemotherapy (HIPEC) for certain peritoneal malignancy cancers such as stage IV colon cancer and other gastrointestinal cancers. The HIPEC surgical service is a new undertaking by the colorectal surgeons and patients undergoing this aggressive form of specialist surgery require post-operative critical care monitoring. The hospital has now completed over 30 of these cases with excellent results.

Quality and Audit

The Mater ICU was the pilot centre for the roll-out of the National ICU Audit as part of the National Office for Clinical Audit (NOCA). The Mater ICU has always undertaken comprehensive audit to benchmark quality and performance against international guides. Traditionally this has involved (amongst others) a measurement of APACHE II scores (severity of disease classification system) and using these to develop a Standardised Mortality Ratios. The NOCA ICU programme will now report case mix adjusted outcomes via the UK Intensive Care National Audit & Research Centre (ICNARC) along with a suite of agreed quality metrics. Preliminary data for 2015 is currently undergoing a validation process with ICNARC and shall be reported later in the year.

Critical Care Strategic direction 2016

Access to critical care remains a core fundamental to provision of critical care services in a timely, safe and equitable manner. Funding is being sought to open 6 High Dependency Beds and 1 Critical Care bed. Funding and recruitment of critical care nursing staff are the main challenges.

Pain Medicine Service

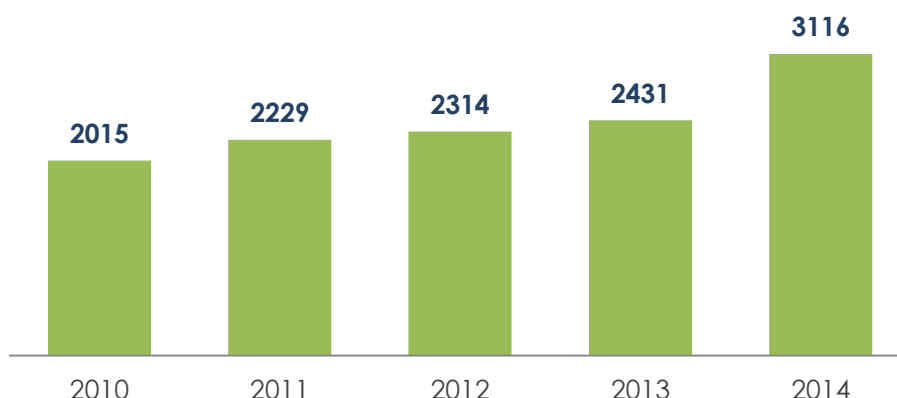
Activities in the department include

- ▶ Acute Pain Medicine
- ▶ Outpatient Consultations
- ▶ Outpatient Procedures
- ▶ Inpatient Procedures
- ▶ Pain Management Programme
- ▶ Multidisciplinary Assessment

Acute Pain Service

Poorly controlled acute pain results in increased pulmonary, cardiac, metabolic, gastrointestinal and metabolic complications. Post-surgical complications are a major cause of morbidity and mortality, in addition to increased length of stay, increased cost and patient suffering. Post-surgical complications are a major cause of morbidity and mortality, in addition to increased length of stay, increased cost and patient suffering. Many techniques used for acute pain management require specialist training and intensive monitoring. The acute pain service is at the forefront of staff education and the safe delivery of care to patients. The activity of the acute pain service has increased over the past number of years.

Acute Pain Activity (New Patients)



Chronic Pain Service

Chronic pain affects 35% of the Irish population. The role of tertiary service is to support, educate and assist primary care in managing patients suffering chronic pain. The demand for chronic pain service continues to grow.



Legend: Red line is national target

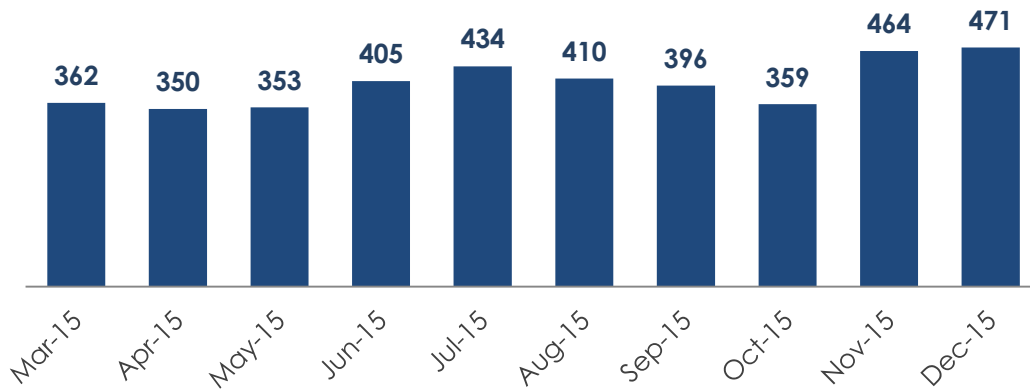
Patients experiencing chronic pain are vulnerable, conflicted, stigmatised and often among the greatest health care utilisers. It is therefore imperative that a whole person inter disciplinary approach is adopted when assessing and managing patients with established chronic pain.

As a tertiary referral centre the Department of Pain Medicine offers a neuromodulation and intrathecal drug delivery system service to patients with intractable cancer pain or severe pain from benign causes such as post-laminectomy syndrome or complex regional pain syndrome.

The establishment of the Mater Acceptance and Commitment Pain Program (MAPP) has been a major innovation in the last few years. The 8 week programme is delivered by Clinical Psychology and Physiotherapy in conjunction with the department of Pain Medicine.

Another innovative process has allowed streamlined multidisciplinary assessment of complex patients. This process was formerly performed as inpatient only. However, its expansion has had a significant impact on admissions, which have reduced by approximately 60 per annum resulting in 300 bed days saved.

Pain Procedure Patients (Mar-Dec 2015)



Pain Medicine Strategic Direction

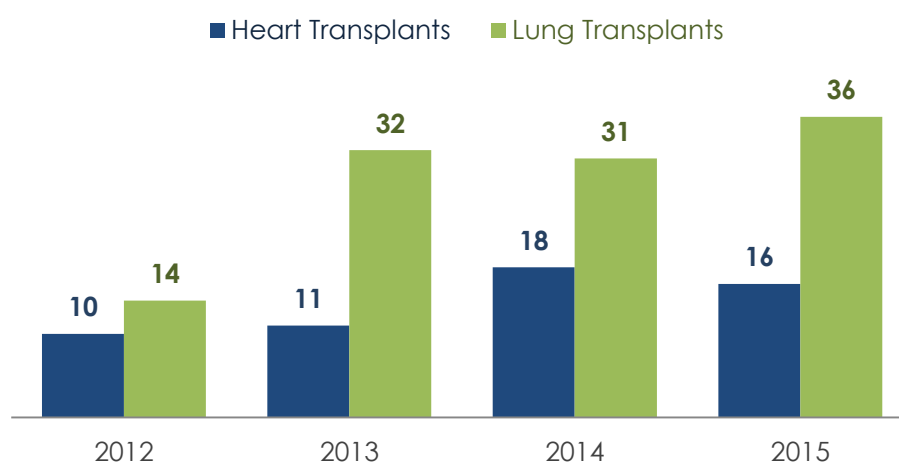
The Department of Pain Medicine has recently been approved for Fellowship Training with the Faculty of Pain Medicine, acknowledging the expertise within this Department. A new consultant appointment, Dr H Gopal, further strengthens the team. Currently a total nursing complement of 2 CNM2s supports all the above activities. Resourcing, recruiting and retention of nursing staff again is a key challenge to meet current needs and develop the service.



NATIONAL HEART & LUNG TRANSPLANT PROGRAMME

The Mater Misericordiae University Hospital is the National Heart and Lung Transplant Centre. The hospital offers comprehensive treatment, transplantation and care management for patients requiring all forms of specialised heart and lung surgery including transplantation.

Transplantation Surgery



In 2015 the team at the Mater Hospital carried out Ireland's first Heart and Lung Transplant

Heart Transplant

The Mater Hospital staff have been pioneers in the treatment of cardiovascular disease and continue to be recognised for innovation and excellence since carrying out Ireland's first heart transplant in 1985. The National Adult Congenital Heart Disease Programme is part of the Department of Cardiothoracic Surgery. Paediatric patients are transferred from Our Lady's Hospital for Sick Children to the Mater once they reach adulthood, in-particular if they have complex lesions needing long term follow-up.

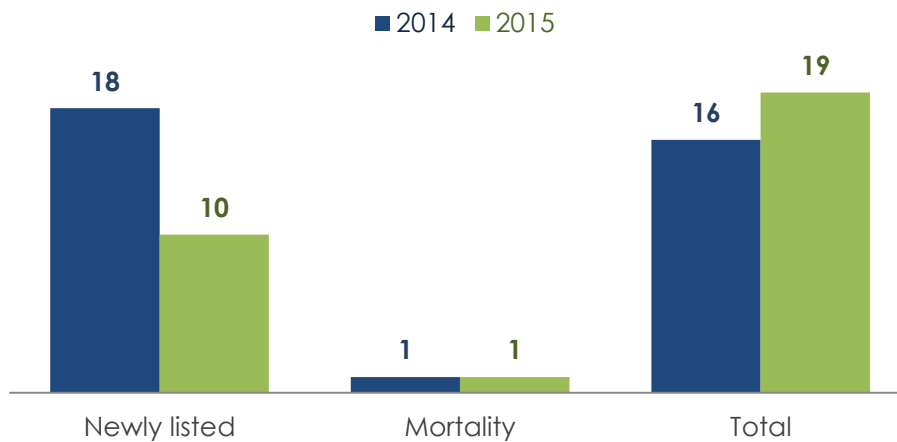
Nearly half of all heart transplants in 2015 were carried out in patients with adult congenital heart disease

The multidisciplinary team includes leading cardiologists and surgeons who provide comprehensive treatment to patients who require transplantation due to a variety of complex conditions, including

- ▶ Cardiac amyloidosis
- ▶ Cardiomyopathy
- ▶ Heart failure
- ▶ Chronic heart conditions

In 2015 there were 19 people on the waiting list for a heart transplant. 10 of those patients were new to the list in 2015 with the median waiting time of 8 months.

Heart Waiting List (Median 8 Months in 2015)



Heart Failure

Most patients referred to heart transplant unit at the Mater Hospital have end-stage heart failure. People who have advanced (end stage) heart failure, but are otherwise healthy, may be considered for a heart transplant. The multidisciplinary team made up of cardiologists, cardiac surgeons, nurse practitioners and nurses work together to determine the best line of treatment for every patient. Together this team discusses the medical approach to treating patients with severe heart failure. When needed, they also determine appropriate surgical treatment, such as heart transplantation.

Ventricular Assist Devices (VADs)

The team at the Mater Hospital provide the most appropriate treatment for each individual patient, with a focus on doing everything possible to improve heart function.



Ventricular assist devices are implantable mechanical pumps that support heart failure patients by normalising blood flow. Cardiologists at the Mater use VADs for three main purposes

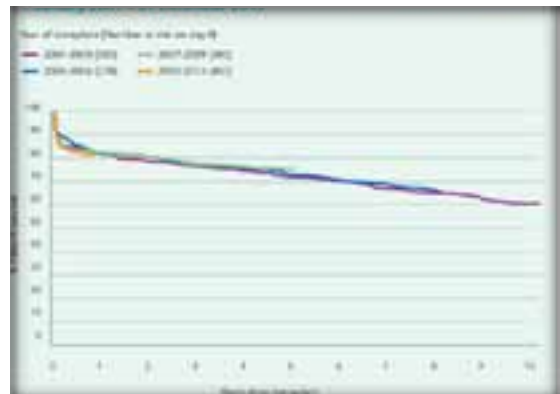
- ▶ As a **bridge to transplantation**, temporarily supporting a patient who is waiting for a heart transplant.
- ▶ As a **bridge to recovery** for patients with a potentially reversible form of cardiac failure.
- ▶ As a **final therapy** for patients who have irreversible heart failure but who are not candidates for a heart transplant.

Survival Rates

Ireland 10-year patient survival for heart transplantation (2000 – 2015 inclusive)



Long term patient survival after first adult heart only transplant in the UK (2001 – 2013 inclusive)



Lung Transplant

The Mater Misericordiae University Hospital is the National Centre for Lung Transplantation and is committed to providing the most innovative, effective, and compassionate care to patients with advanced lung disease.

Medical and surgical expertise is combined with access to today's most advanced technologies and enhanced by a dedication to providing comprehensive, compassionate, collaborative, and appropriate multidisciplinary care. This team of lung disease specialists include

- ▶ Respiratory consultants
- ▶ Thoracic surgeons
- ▶ Cardiologists
- ▶ Endocrinologists
- ▶ Thoracic nurses
- ▶ Transplant coordinator

Our dedicated transplant team provides comprehensive treatment for patients who require transplantation due to a variety of conditions, including

- ▶ Chronic obstructive pulmonary disease (COPD)
- ▶ Bronchiectasis
- ▶ Cystic fibrosis
- ▶ Pulmonary fibrosis
- ▶ Pulmonary hypertension
- ▶ Sarcoidosis.
- ▶ Other interstitial lung diseases

Nearly half of all patients receiving lung transplantation in Ireland have Cystic Fibrosis

Ex-Vivo Lung Perfusion (EVLP)

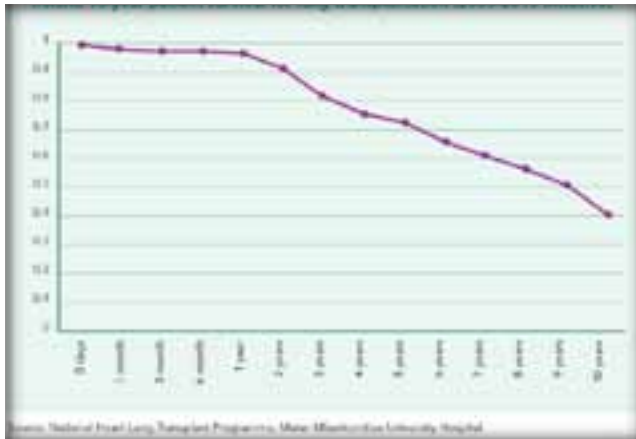
In 2015 the team at the Mater Hospital began using Ex-vivo Lung Perfusion to recondition lungs for transplant. Because so many donor lungs are damaged at the time of death, only 20-30% of donated lungs are usable for transplantation.

Ex Vivo Lung Perfusion (EVLP), a process of evaluating and preparing donor lungs outside the body prior to transplant surgery, that increases the available donor pool by restoring and repairing donor lungs that have sustained damage.

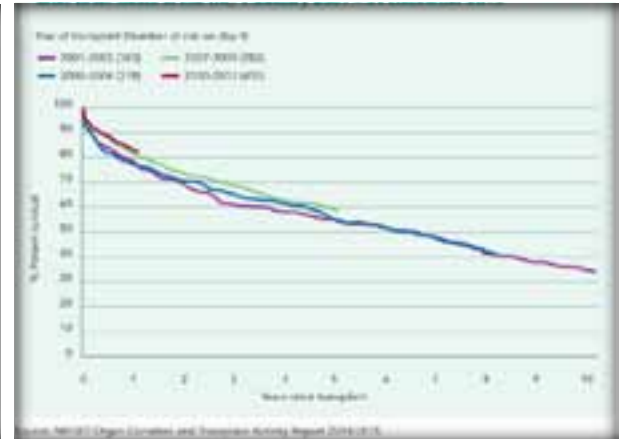
In EVLP, the lungs are warmed to normal body temperature and a miniature heart-lung machine then pumps solutions and oxygen through the lungs, reversing injury and reviving the once rejected donor organs.

Survival Rates

Ireland 10-year patient survival for heart transplantation (2000 – 2015 inclusive)



Long term patient survival after first adult lung only transplant from donors after brain death in the UK (2001 – 2013 inclusive)

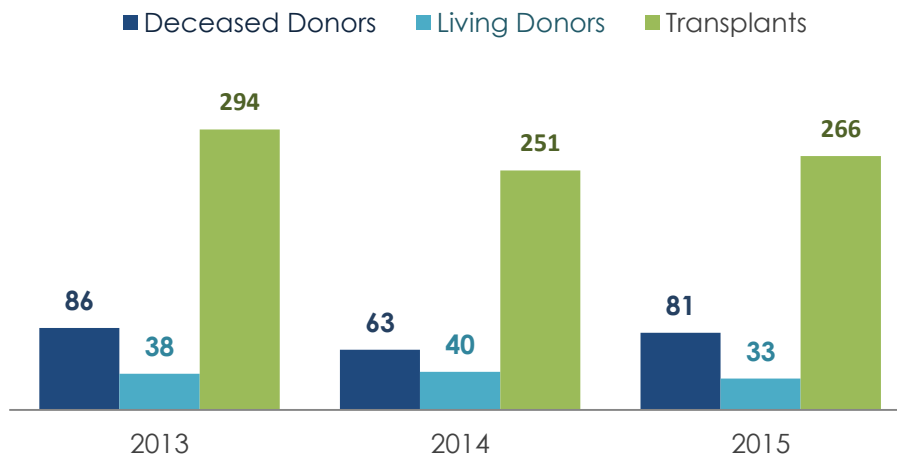


Organ Donation and Retrieval in Ireland

The hospital works closely with the HSE's National Organ Donation and Transplantation Office to ensure an integrated approach to organ donation and to maximise utilisation. In 2015 a total of 266 people received an organ transplant in Ireland. Compared to 2014 this is an increase in kidney, lung and liver transplants, while the heart transplants were the second highest on record. Overall, the number of organ transplants in Ireland for 2015 was the third highest on record.

The number of deceased donors increased in 2015 to 81 - up from the low of 63 in 2014. The increase in 2015 was assisted by the introduction of the national organ procurement service and key organ donation personnel.

Organ Donation



A new record was set for lung transplants in Ireland in 2015, at 36, and is one of highest rates in Europe. In addition, the first combined heart / lung transplant took place in the Mater Misericordiae University Hospital.

NATIONAL ISOLATION UNIT

The Mater Hospital is the home to Ireland's National Isolation Unit. The unit is responsible for caring for patients from around the country who are suffering from both hazardous and highly infectious diseases, such as tuberculosis (TB), SARS, Ebola, avian (bird) flu and viral haemorrhagic fever. It also provides essential care to people who are suffering from bioterrorism-related infectious diseases and from other infections, including HIV, hepatitis B and C, meningitis, MRSA and malaria.

The unit is equipped with two high specification negative pressure rooms with HEPA filtrated individualised air-handling systems and appropriate anteroom for decontamination as outlined by the European Network of Highly Infectious Diseases.

The recent Ebola Virus Disease (EVD) scare in the European Union showed that many hospital sites were not prepared for such contingencies. As part of a review of the services required to manage contingencies like Ebola the Mater Hospital applied for and received approval for a new Infectious Diseases consultant whose job will be to set up a 'fever service' for the returning traveller. This role will include responsibility for the National Isolation Unit of Ireland, currently a position held by Dr Jack Lambert Consultant in Medicine and Infectious Diseases.

A key responsibility of this new consultant will be setting up new protocols for emerging future infectious disease threats, post EVD, and developing a more comprehensive plan for the evaluation and management of migrants in general, including the asylum seekers who are currently being evaluated in Ireland in a number of setting, but not in a comprehensive or coordinated manner.

2015 saw the wind down of the Ebola preparedness at the Mater. There were a number of mock drills performed, in partnership with the Irish Military, the Garda Services, the Ambulance Services, and with Dublin Airport, to prepare for the risk of an arriving traveller with suspected Ebola. There were also extensive trainings performed to with a core staff at the Bernard's Ward, the Infectious Disease team, including core nurses, doctors, emergency room and ICU health care workers, and other ancillary personnel.

Rather than scale down from Ebola, the plan is to build on our preparedness for EVD for the new emerging infectious disease threat before it strikes

Infectious Diseases

The team at the Mater Misericordiae University Hospital also looks after a large number of patients with other infections including:

- ▶ Hepatitis B and C
- ▶ Meningitis
- ▶ MRSA
- ▶ Tuberculosis
- ▶ Malaria
- ▶ HIV

The Mater's Infectious Disease Specialists run weekly clinics where urgent patients are seen within 72 hours. There is an established national network relationship between GPs and the hospital in post exposure prophylaxis, which is commonly linked to HIV, where prophylactic treatment is started immediately after exposure to a pathogen to prevent infection and the development of a disease.

Hep Check: Homeless Hepatitis Check

The Mater Hospital's Homeless Hepatitis Check programme has screened almost 500 people, with 26% of people screened testing HCV positive. Over 70% of those were male, 38% reported either current or previous injecting drug use and 90% had been previously diagnosed with HCV. The project was set up to establish the effectiveness of intensified screening and support for Hepatitis C (HCV) in individuals attending homeless services in Dublin.

Attempts to engage these patients in hospital care have previously been shown to be unsuccessful. A new approach based on GP provision of long term care for injectable drug users, of whom almost 80% are infected with hepatitis C (HCV), is being implemented. In the Hepcare project community fibroscan identifies those with advanced liver disease, with urgent referral to hospital service for Direct Antiviral treatment (DAA).

The Hep Check project is a collaborative effort between Dr Jack Lambert Consultant Infectious Diseases, Dr Steve Stewart Consultant in Hepatology, Professor Walter Cullen, Professor of Urban General Practice, UCD School of Medicine and Dr Austin O'Carroll, General Practitioner.



Global Adolescent HIV Research Project: The Passages Project

Consultants from the Mater Hospital are the primary investigators in a multinational HIV research project in Adolescents Living with HIV (ALHIV). The Passages Project was conceived in response to empirical evidence across multiple sites that showed increases in non-compliance in the early-to-late teen years, which coincides with the age of transition to adult clinics. Geographically distant sites were selected based upon country profiles and HIV incidence/prevalence. Brazil, Ireland, Jamaica, Romania, South Africa, Thailand and the United Kingdom were selected to determine if challenges to successful transition were similar across sites.

The Project aims were

- ▶ To evaluate barriers and facilitators of adherence among HIV-infected adolescents in a cohort of ALHIV.
- ▶ To design/modify support tools to improve Anti-Retroviral Therapy (ART) compliance, Sexual and Reproductive Health and Rights uptake, and successful transition from paediatric to adult clinics.
- ▶ To assess the impact of interventions across cohorts using indicators that combine adherence self-reports, suppressed viral loads, and successful retention across the transition spectrum to adult clinics.

The study was designed, in partnership with government, NGOs and ALHIV and has the aim of informing future policy and programming.



NATIONAL SPINAL INJURIES UNIT

The Mater Hospital has been the National Spinal Injuries Centre since 1991. The 5 consultant surgeons and their teams are specialists in the treatment of chronic, acute and complex spine conditions, maximising a patient's potential for recovery while minimising many of the associated conditions and complications that can result from spinal trauma.

The team at the Mater make use of advanced technology and clinical expertise to treat a variety of conditions of the spine including

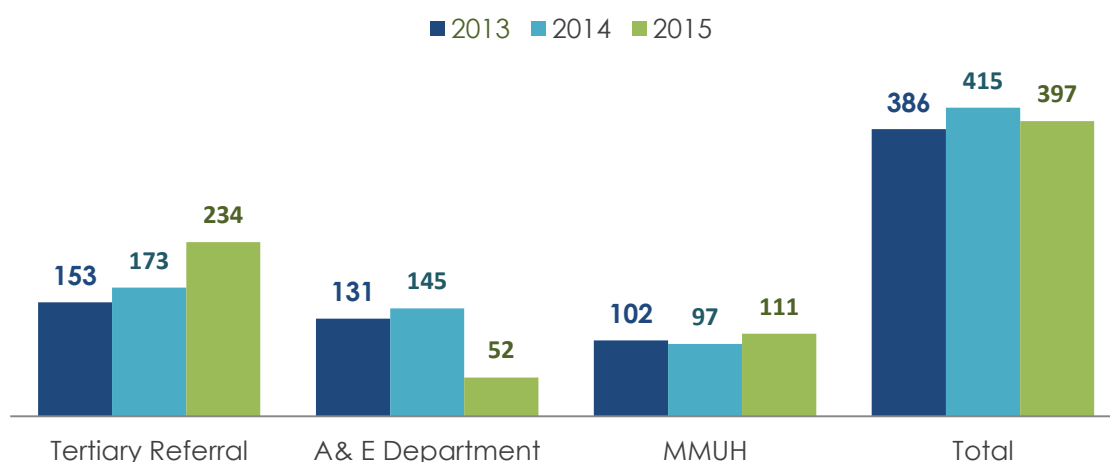
- ▶ Spinal trauma
- ▶ Spinal tumours
- ▶ Deformities
- ▶ Infections
- ▶ Degenerative spinal conditions

The Mater Hospital is the only designated acute spinal injuries centre in the country

Centre of Excellence

The team at the hospital uses the latest techniques in complex spinal surgery including minimally invasive procedures. Minimally invasive surgery is available for a number of spinal disorders, ranging from degenerative diseases to spinal tumours. These procedures have the potential to greatly benefit patients by reducing surgical risk, pain, blood loss, risk of infection, as well as improving recovery time.

Referrals

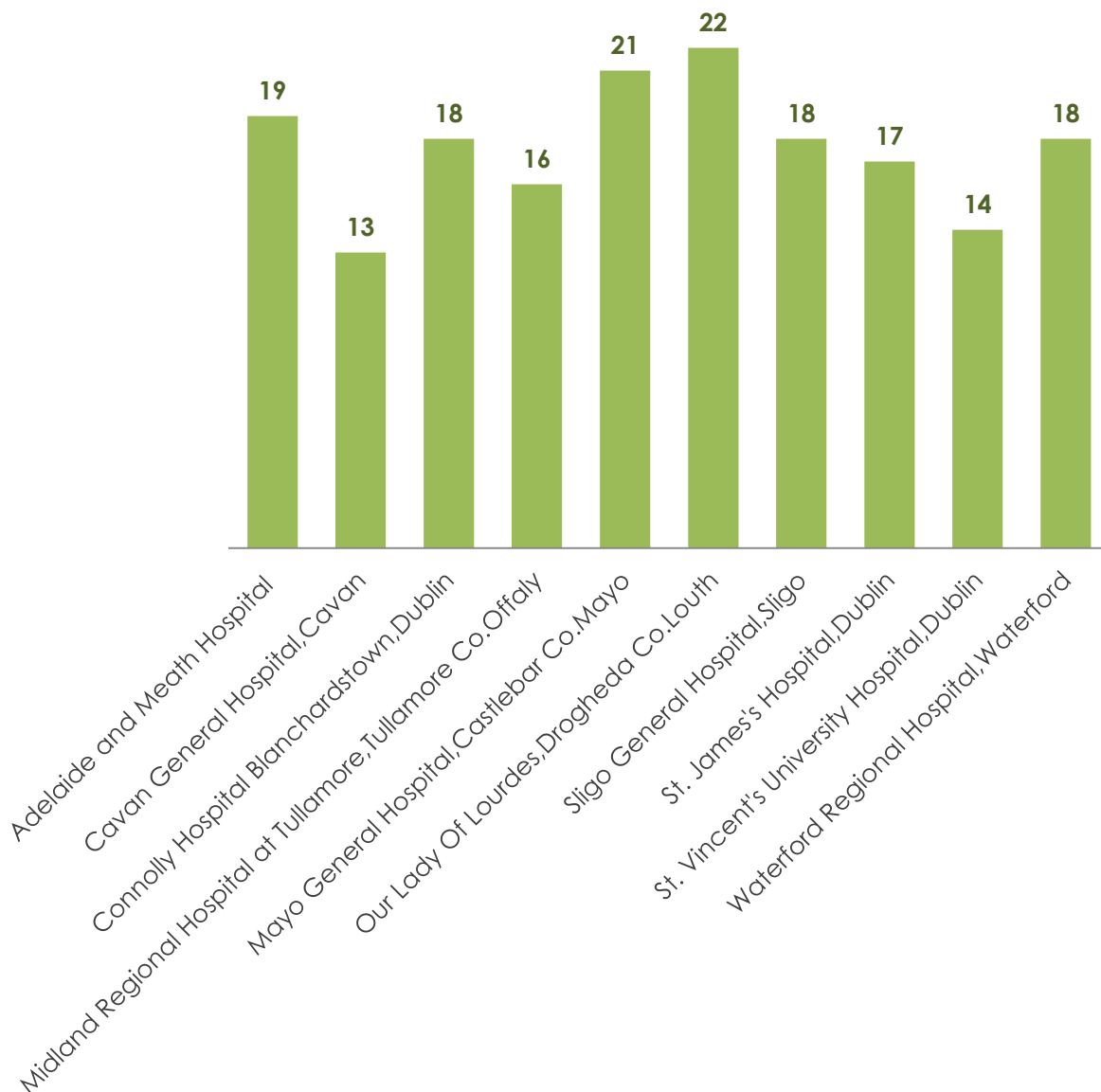


There are weekly multi-disciplinary team meetings attended by all relevant specialties to discuss all complex spinal cases.

Referring Centres

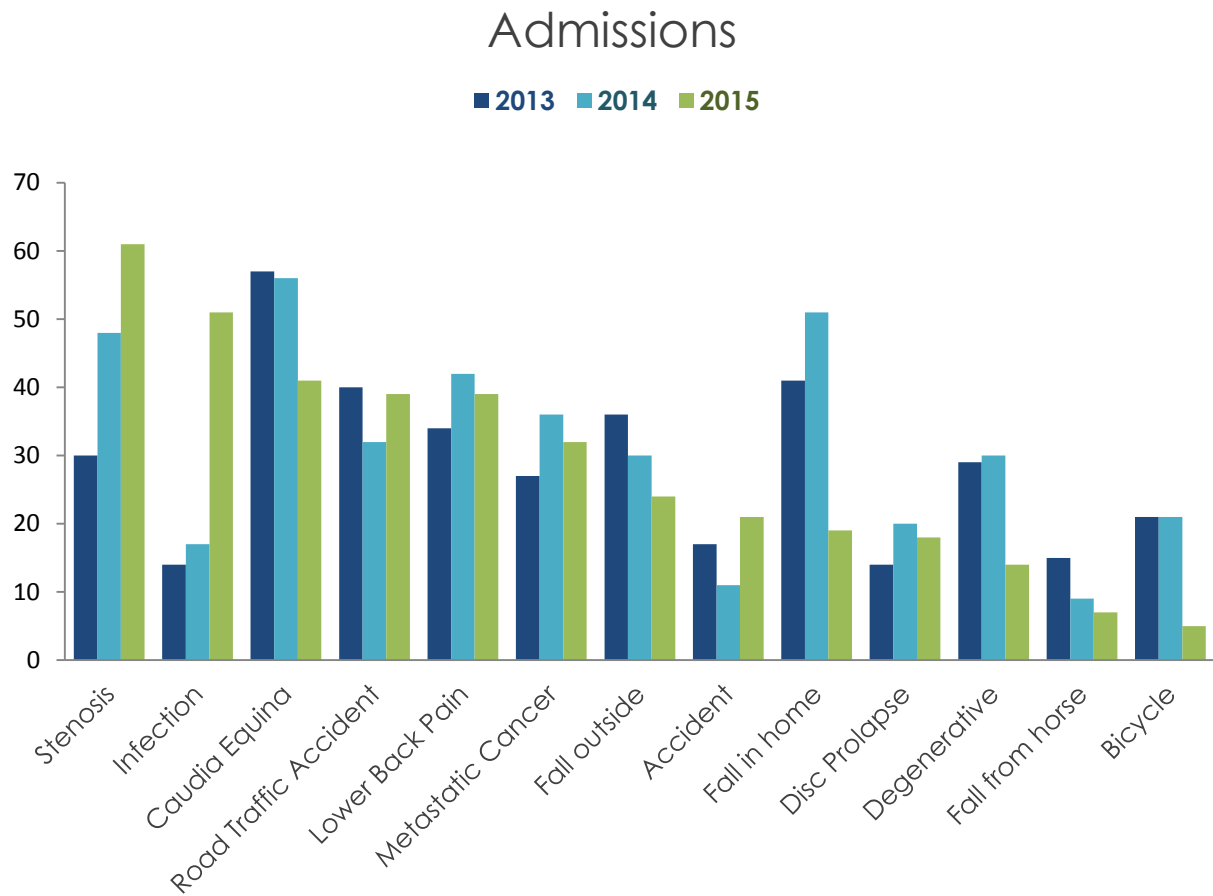
In 2015, 18 hospitals referred 227 patients to the National Spinal Injuries Unit. With 78% of all tertiary referrals coming from 10 hospitals.

Patients from Referring Hospitals



78% of all tertiary referrals come from 10 hospitals

Admission Diagnosis



Spinal Tumours

Patients with a metastatic spine tumour (a tumour in the spine that began in another part of the body), may be suitable for some surgical procedures that can help stabilise the spine, reduce pain, prevent paralysis, and increase mobility. These procedures are not curative, but can provide local control of the cancer while allowing the patient to return to other treatments such as chemotherapy or radiation therapy. The types of cancer that most frequently lead to a spinal tumour include

- ▶ Lung cancer
- ▶ Breast cancer
- ▶ Prostate cancer
- ▶ Thyroid cancer
- ▶ Kidney cancer

The role of spinal surgery in the treatment of spinal cord compression caused by metastatic cancer has been well established. A secondary or metastatic tumour is classified by its location in the spine (cervical, thoracic, lumbar or sacrum). The number of surgeries to treat spinal tumours has doubled since 2012. 95 patients were treated by the unit with a metastatic cancer issue between 2013 and 2015.



PULMONARY HYPERTENSION

The Mater Misericordiae University Hospital is the National Centre for Pulmonary Hypertension (PH). Pulmonary Hypertension is a rare lung disorder in which the arteries that carry blood from the heart to the lungs become narrowed, making it difficult for blood to flow through the vessels. It is a severe disease with untreated patients surviving on average between 2-3years.

The estimate prevalence (total number of people with PH) in Ireland is 26 per million with the number of new cases annually (incidence) of 7.6 per million. Joint guidelines developed by the European Cardiology Society and the European Respiratory Society recommend that the management of PH should be carried out in designated specialist centres. This allows expert care to be delivered at the correct stage of the disease process. There are 7 centres in England, 1 in Scotland and 1 in Ireland (at the Mater Hospital).

The specialised centre for PH was established as the national referral and treatment centre for those diagnosed with PH in Ireland in 2003. Working with cardiac and respiratory consultants across the country the centre has developed and rolled out the national referral guidelines for PH, to ensure that patients get optimum care.

The unit moved to the new out-patient department, with state of the art diagnostics in 2012. This new facility integrates the services of Phlebotomy, Radiology, ECHO Department, Cardiology and Respiratory with the out-patient consulting rooms.



Integrated Care

It often takes some time to find the best treatment for pulmonary hypertension. The treatments are often complex and require extensive follow-up care. When pulmonary hypertension is caused by another condition, the underlying cause will be treated whenever possible.

Providing fully integrated care across many specialties is important in Pulmonary Hypertension. That care starts with right heart catheterisation, the most accurate and conclusive of diagnostic tools, for diagnosing pulmonary hypertension. This is a non-routine specialised investigation requiring the measurement of a number of variables and is carried out by the cardiology department in the Mater Hospital.

Treatment of patients with Pulmonary Hypertension requires a high level of integrated care across several specialities. The specialities most frequently involved in patient's care are

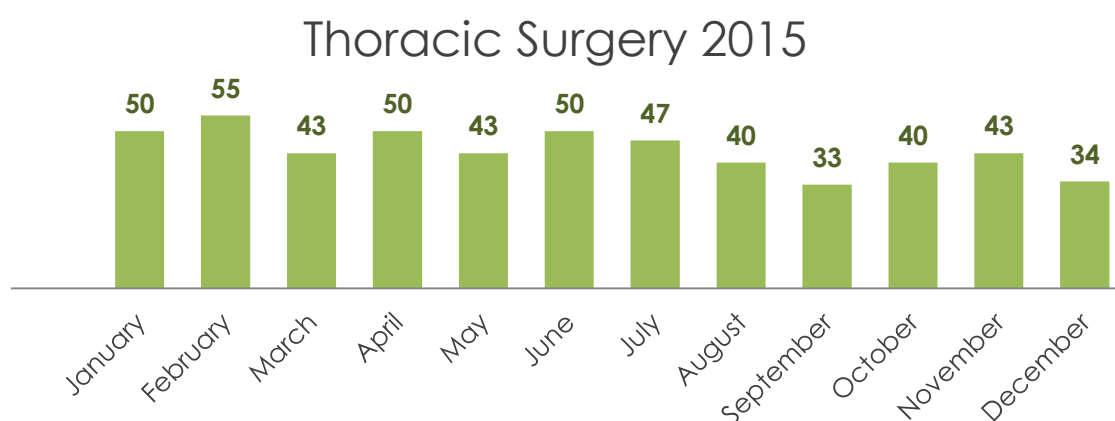
- ▶ Rheumatology for connective tissue disease service.
- ▶ Thoracic surgery for lung transplant and pulmonary endarterectomy.
- ▶ Cardiology for adult congenital heart disease.
- ▶ Genetics (for research purposes)

The Mater Hospital is ideally structured to deliver the high level of integrated care required as it houses the National Centres for both Lung Transplantation and Adult Congenital Heart services, while rheumatology and genetics are both available on the campus.

THORACIC SURGERY

Thoracic surgery is a specialty focusing on surgical issues of the lungs and airway, diaphragm, great vessels, oesophagus and chest wall. It is a rapidly evolving specialty that provides both operative and consultative care for many diseases of the chest including lung cancer, oesophageal conditions and gastroesophageal reflux.

The thoracic team at the Mater Hospital is the National Lung Transplantation Centre and perform state of the art minimally invasive surgery to treat patients with even the most complex disease. In 2015, the most common procedures were pulmonary operations.



Video Assisted Thoracic Surgery (VATS) vs Thoracotomy

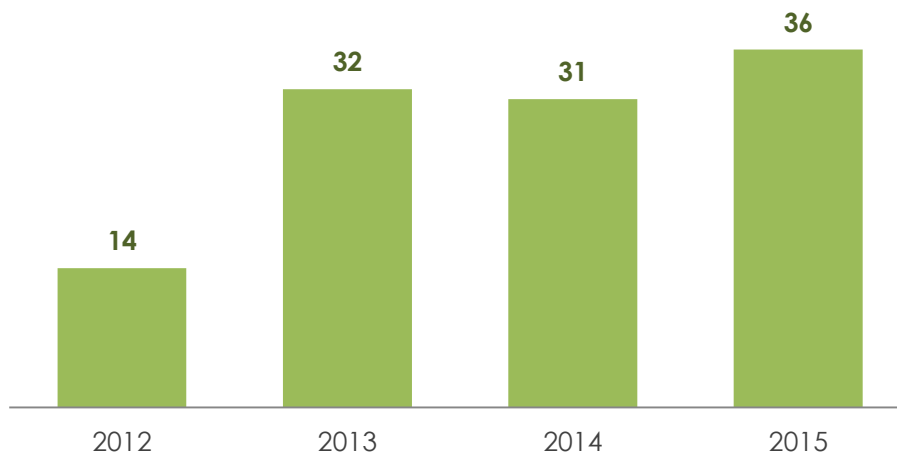
The majority of pulmonary resections performed at the Mater in 2015 were video-assisted lobectomies. Video-assisted thoracic surgery (VATS) and minimally invasive techniques are used when appropriate to yield the best possible outcomes for each patient.

Many of the procedures performed by our thoracic surgeons can be done using both open and video-assisted (VATS) techniques. The use of the VATS technique is associated with less postoperative pain, a shorter length of stay, and faster return to normal activities.

Lung Transplant

The Mater Hospital has been the home of the National Lung Transplantation Centre since 2005. Previously all Irish patients attended the Freeman Hospital in Newcastle for their lung transplantation services. The transition to the Mater has led to a steady growth in the volume and complexity of procedures, with the *number of thoracic procedures increasing significantly in the past 2 to 3 years.*

Lung Transplants



The composition of the lung transplantation population, in Ireland, is different with nearly half of all patients receiving lung transplantation have Cystic Fibrosis. This is driven by Ireland having the highest incidence of Cystic Fibrosis in the world. The surgical team at the Mater works closely with the National Centre for Adult Cystic Fibrosis, St Vincent's University Hospital, to care for those patients across the two facilities within the Ireland East Hospital Group.

The service is built around a dedicated and highly experienced team drawn from a wide range of experts, including: thoracic surgeons, radiologists, oncologist, respiratory physicians and anaesthetists, as well as transplant coordinators, nurses, physiotherapists and social workers. Working in close co-operation, this multidisciplinary team manages all aspects of patient care from initial assessment of potential transplant patients through to the long term post-transplant care required. The new structure in the Mater Misericordiae University Hospital enhances the programme with the various specialties involved all working in the same directorate.

QUALITY & PATIENT SAFETY

Safe & Effective Care
Patient Experience



SAFE & EFFECTIVE CARE

Quality measures show how well a hospital achieves desired health outcomes for patients. At the Mater Hospital, quality means excellent, safe, efficient and compassionate care. We assess quality in terms of our patients' experiences – our responsiveness, how well we answer questions, our hospital's atmosphere, how prepared our patients feel when they leave our hospital, and much more.

Our commitment is to

- ▶ Eliminate preventable harm.
- ▶ Learn from mistakes.
- ▶ Support full disclosure of quality and safety performance.
- ▶ Go beyond compliance with regulatory requirements to improve continuously through constant re-evaluation of our performance.

We provide measures of our performance in all major areas related to patient safety and clinical care. Those performance measures are reviewed on an ongoing basis and form a central part to the hospital's board meetings.



Mater Board on Board

The Mater's Board on Board project became fully operational in 2015. The purpose of the project is threefold

- ▶ That the Board gets a comprehensive picture of the quality of care being provided at the hospital
- ▶ That they have a deep understanding of the quality of that care
- ▶ That the Board act to hold the hospital accountable for the quality of care delivered

The Board is now provided with detailed performance data that enables them to fully understand the complexities of measures of quality of clinical care.



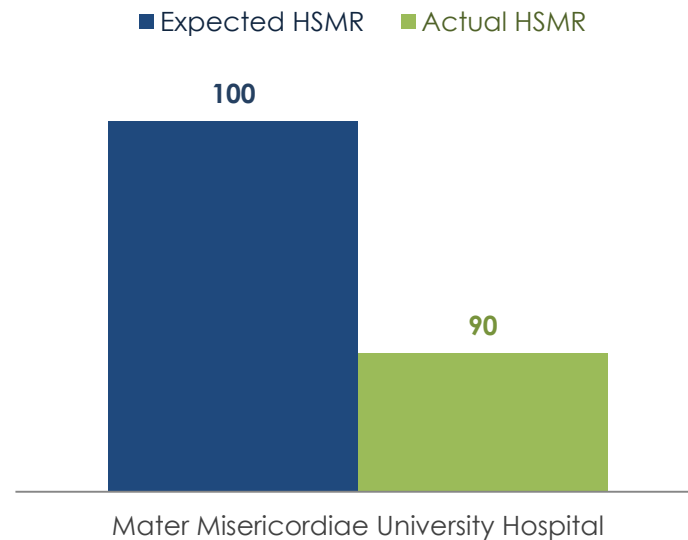
The quality dashboard is a working document and continues to evolve as new measures both locally and nationally are developed and new areas of focus are agreed by the Board. The report that accompanies the dashboard outlines the background to the performances and identifies the improvement initiatives within the system to improve the overall performance and patient experience. In 2015, it expanded to include Patient Experience Times (PET), and Hospital Standardised Mortality Rate (HSMR). The HSMR is a national audit through the National Office for Clinical Audit (NOCA). This audit is in the preliminary stages of implementation and interpretation.

Hospital Standardised Mortality Rate (HSMR)

While crude mortality rates are important, it is very hard to use this information to compare and contrast what's happening between hospitals. This is because every hospital is different, both in the treatments and operations that it offers and the make-up of its local population.

The HSMR is an important measurement of quality for the Mater Hospital, as the hospital carries out higher-risk operations, such as organ transplants, sees more patients who are elderly and has higher levels of poverty in its catchment than many other hospitals. Therefore, the Mater may have a crude mortality rate that is very different from one that doesn't provide such higher-risk operations and/or whose local population is generally younger and more affluent.

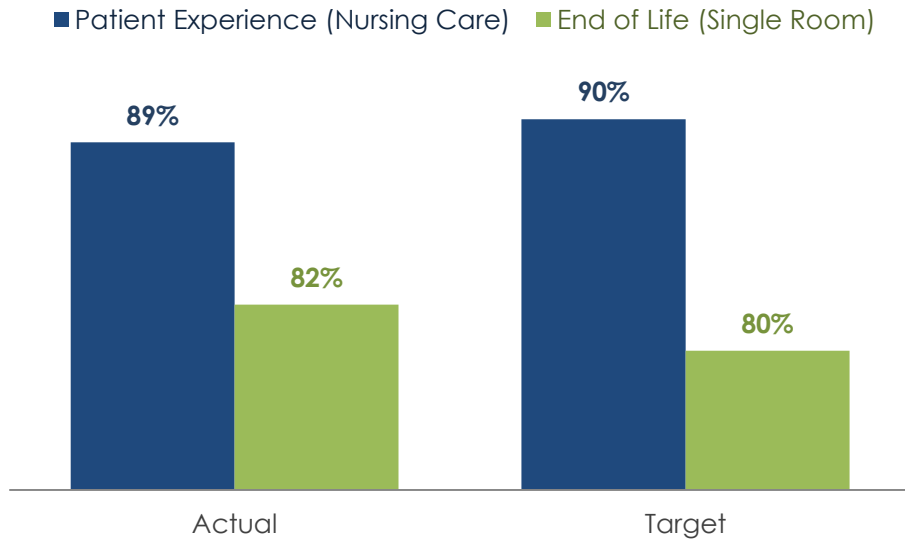
The HSMR scoring system works by taking a hospital's crude mortality rate and adjusting it for a variety of factors – population size, age profile, level of poverty, range of treatments and operations provided, etc. By taking these factors in to account for each hospital, it is possible to calculate two scores – the mortality rate that would be expected for any given hospital and its actual observed rate. It is the difference between these two rates that is important when it comes to HSMR.



The expected HSMR score for the hospital is set at 100. If the actual observed number is less than 100 then the hospital has less deaths than expected, with the converse being true, higher than 100 the hospital has more deaths than expected.

Patient Centred Care

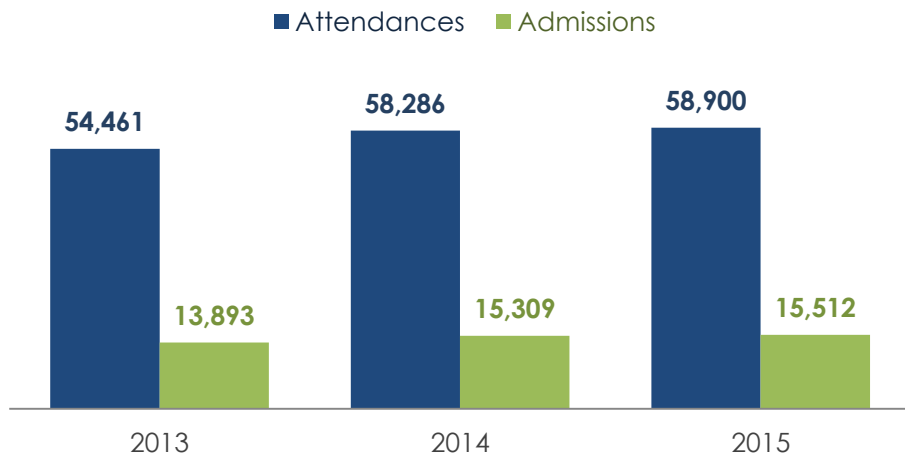
The experience that someone has of their treatment and care is intrinsically important to them and a key outcome. There is a strong body of evidence about the links between patient experience and clinical safety and effectiveness. For example, involvement in decision -making and effective communication are strongly associated with improved patient safety and better self- reported clinical outcomes. Conversely, poorer outcomes are achieved and health resources wasted when patients do not feel involved or do not understand the treatment they are offered.



Patient experience is one of the three elements of high - quality care, alongside clinical effectiveness and safety

Attendances at the Emergency Department have grown by over 8% since 2013, with admissions to the hospital through the Emergency Department up by 11% over the same period. Admissions to the Mater Hospital from the Emergency Department now represent over 72% of all admissions to the hospital.

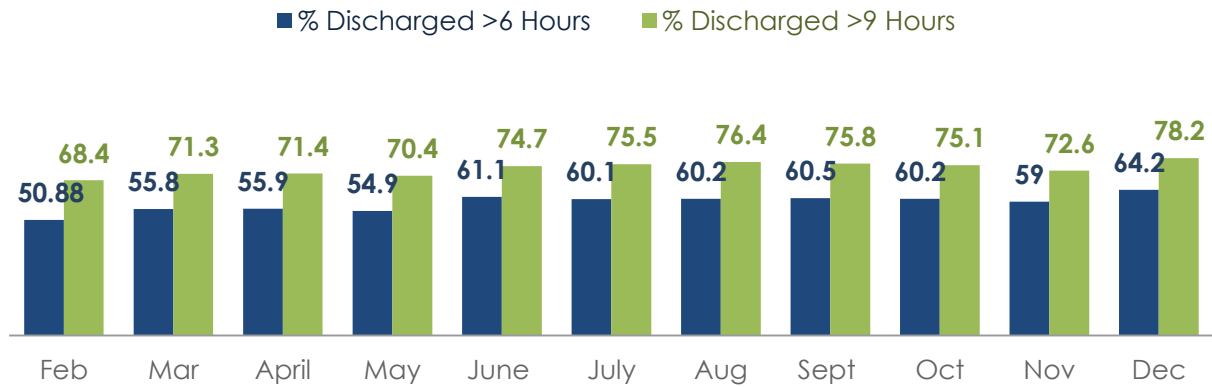
Emergency Department



Average attendance to discharge is a key access metric for the hospital. Our target is that over 90% of patients would be discharged within 6 hours at 100% discharged within 9 hours. Progress was made against both targets in 2015 with the % of patients discharged within 6 hours increasing from an

average of 53% in quarter 1 to 61% in quarter 4. A similar improvement in the % discharged within 9 hours from 69% to 74%.

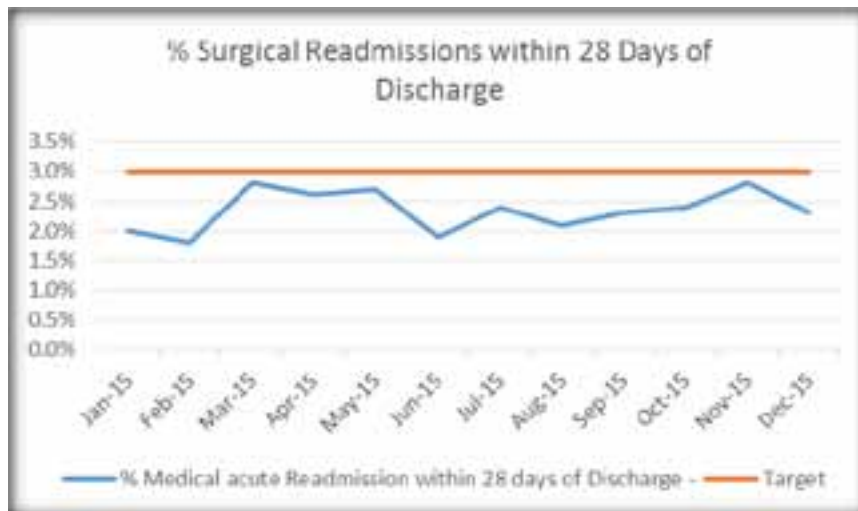
Average Attendances to Discharge



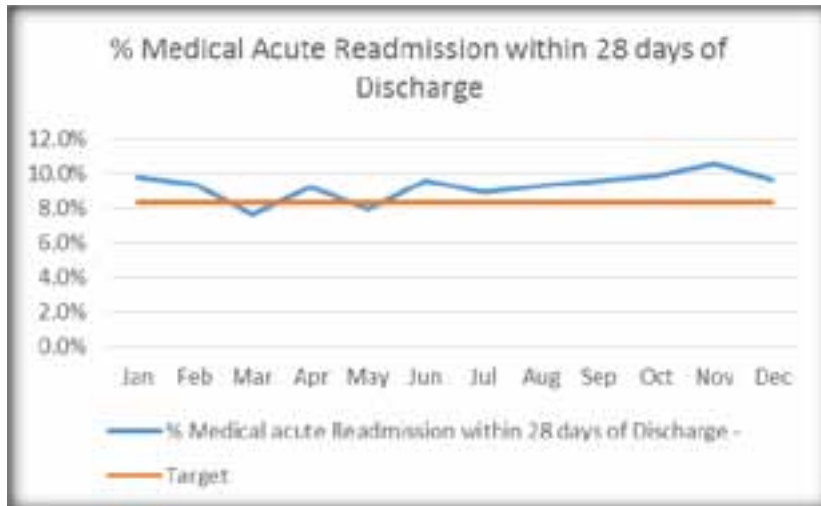
Hospital Readmissions

Research studies and quality-reporting initiatives have shown that 15-25% of people who are discharged from the hospital will be readmitted to the hospital within 30 days or less, and that many of these readmissions are preventable. The Mater Hospital has set targets for readmissions

- ▶ 3% for Surgical Readmissions
- ▶ 8.3% for Medical Readmissions



Reducing readmissions is a win-win for both cost and quality. The patient benefits from not requiring further hospitalised care, while the hospital benefits from not having to incur the cost of treating the patient again.



PATIENT EXPERIENCE

Measuring our patient experience at the Mater Misericordiae University Hospital is an integral part of our Quality Improvement process and an important measurement of patient care. Patient satisfaction is important because improving the patient experience is positively correlated with:

- ▶ Better adherence to medical advice and treatment plans.
- ▶ Greater patient self-management skills and improved quality of life.
- ▶ Patients who have better care experience are shown to have better outcomes

In the Mater Hospital we encourage honest feedback and the voice of our patients and families directs us towards the continued improvement of overall patient experience.

Patient Experience Survey

- ▶ The survey is performed monthly and aims to measure the patient's perception of the nursing care provided.
- ▶ This information permits a review of our present practice, and identifies the areas of concern from the patients' perspective. It also provides opportunity for patients to highlight their positive experiences of the care they received.



0-79%

80-89%

90-100%

Question	Indicator			
	Q1 2015	Q2 2015	Q3 2015	Q4 2015
Do you feel that the care you required was delivered each day irrespective of which nurses were on duty?	98	96	97	95
Do you feel confident in the skills in the nurses who looked after you?	97	96	97	97
Do you feel safe whilst under the care of the nurses?	99	97	98	98
Do you feel the nurses involved you in decisions about your care/treatment?	88	87	96	92
Do you get enough help from staff to eat your meals?	96	95	98	95
As far as you know, do the nursing staff wash or clean their hands between touching patients?	90	97	99	98
Do you feel that nurses had enough time to give you the care which you needed?	90	76	85	75
Do you feel that you have been treated with respect and dignity while you are on this ward?	100	98	99	98
Do you feel the nurses respected your choices and preferences?	98	96	98	98
Do you feel that the nurse encouraged and supported you to do things for yourself in order to promote your recovery?	99	97	97	97
Do you feel the nurses understand the things that are important to you during your time in hospital/under their care?	95	94	97	96
Do you feel you have been given enough privacy when discussing your condition or treatment with staff?	96	93	95	93
How clean is this ward?	96	93	98	96
How clean is the toilet/s?	90	86	93	89
When you use the call buzzer is it answered?	96	94	98	95
Have nursing staff on the ward talk to you about your discharge plan from the hospital?	31	25	25	30
When did the nurses speak to you about your discharge plan?	51	33	32	39
How would you describe the quality of care you received from nursing staff?	96	95	97	95
How likely are you to recommend this ward to friends & family if they needed similar care or treatment?	93	91	97	92
Patient Experience Indicators Total	89	87	90	88

Mater Nursing Forum

In 2015 the Mater Nursing Forum was created with a programme agenda focusing on the four pillars of the Nursing Strategic Plan

- ▶ Quality
- ▶ Competent Compassionate Staff
- ▶ Safety
- ▶ Patient Experience

Presentations are given by each Nursing Directorate on one of the four strategic pillars on a rotational basis. Topics in 2015 included

- ▶ Role of Social Media and Digital Innovation in Healthcare
- ▶ Nurse Led Clinics
- ▶ Compassion in an ED setting
- ▶ Fire Strategy in a Critical Care Environment

Some of the most informative and engaging presentations were delivered by the patients who shared their experiences of the care we deliver. Speakers external to the Nursing Directorates were also invited to present at the Mater Nursing Forum, including Sage (Support & Advocacy Service for Older People), Diarmuid Ó Coimín (Hospice Friendly Hospitals Programme) and the Pharmacy Department.

Nurse Management Development Programme

The Nurse Management Development Programme launched in 2015 was a series of interactive workshops encompassing

- ▶ Managing People
- ▶ Interviewing Skills
- ▶ Financial Management

A workshop focusing on the legal and practical applications of HR policies was carried out in association with Mason, Hayes and Curran, this workshop focused on Protecting Patient & Staff Information. With a further Clinical Audit workshop aimed at facilitating clinical staff in conducting audits of their practice. A follow up workshop took place 3 months later and examined audits / work completed during the interim period.



TERTIARY CARE

Breast Surgery
Cardiology
Clinical Genetics
Colorectal Surgery
Gynaecology
Lung Cancer
Medical Oncology
National Centre for Inherited Metabolic Disorders
Ophthalmology



BREAST SURGERY

Overview

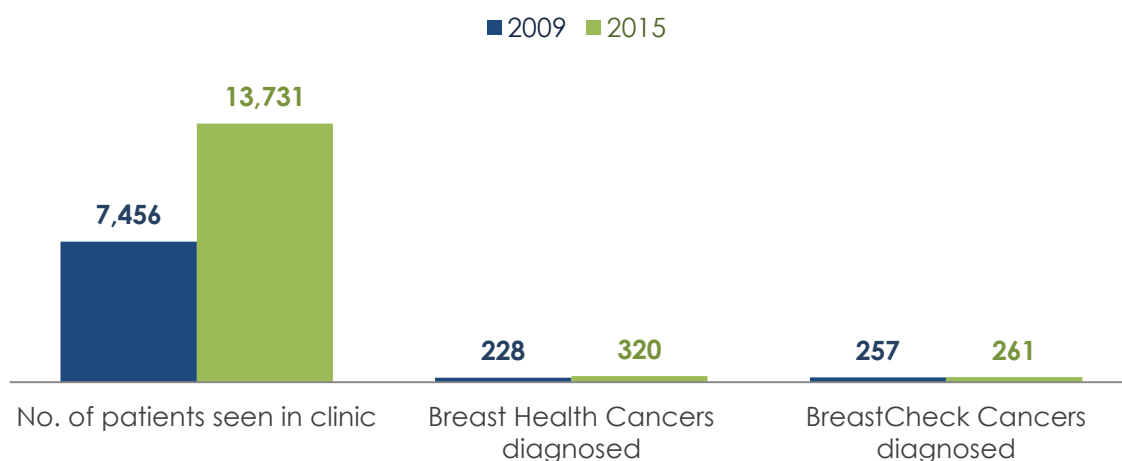
Early detection, advanced treatment and clinical and scientific research are critical to positively impacting the survival rates for breast cancer. The team at the Mater Hospital has approached these healthcare needs through a variety of initiatives that include preventive screenings, leading-edge diagnostics, advanced surgical and radiotherapy intervention and specialised clinical trials.

The Mater Campus

- ▶ Treats approximately 18% of all breast cancers nationally¹
- ▶ Is one of the eight designated breast cancer hospitals nationally.
- ▶ Is home to BreastCheck, one of the 4 centres nationally for preventative breast cancer screening.
- ▶ Has a Specialist Breast Centre (BreastHealth) staffed by a team of specially trained breast cancer surgeons, radiologists, pathologists, medical oncologists and other healthcare professionals.

The Specialist Breast Centre is focused on ensuring that patients can get their results in an accurate and timely manner and if required, proceed to treatment promptly. The numbers attending clinics in the Mater Hospital have increase significantly over the last 5 years with the numbers of breast cancers diagnosed reaching 320 in 2015.

Performance Parameter



¹ National Cancer Registry of Ireland

Breast Imaging

The Breast Service provides a range of clinics specially tailored to the needs of the patients. These include Triple Assessment Clinics where a woman may receive her clinical examination, radiological investigation and, if necessary, tissue sampling on the same day, with subsequent early medical and surgical treatment if required.

Breast MR is now the screening test of choice for detecting breast cancer in women with a high risk of developing breast cancer. The procurement by the Mater Hospital of the 3Tesla magnet for the main radiology department allows for more advanced imaging, enabling our team to screen more high risk women with improved diagnostic accuracy. This state of the art machine is one of only a handful in the country was partially funded by monies raised by the Mater Foundation's Breast Cancer Appeal.

BreastCheck

Improvement in survival for the approximately 3,000 women diagnosed with breast cancer every year has been driven by increased preventative screening, improved symptomatic detection and improved treatment options. BreastCheck through the provision of regular mammograms, works to reduce mortality by detecting breast cancer at the earliest stage, when a woman has more treatment options available and her chosen treatment is likely to be less extensive and more successful.

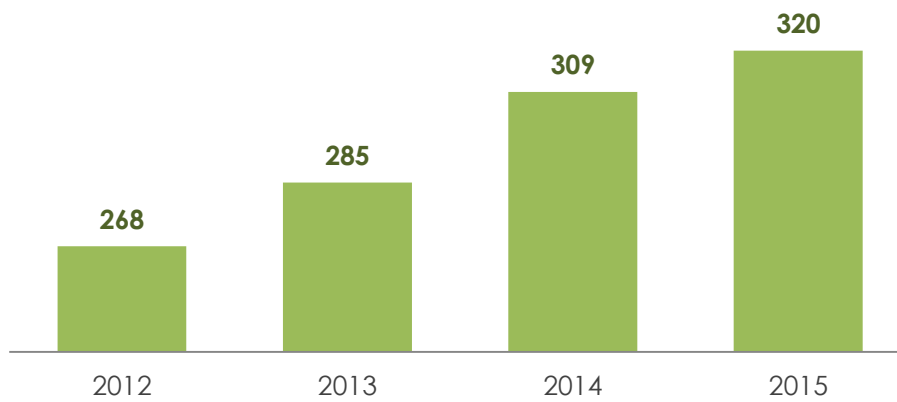
The BreastCheck Eccles Unit manages screening for the North-East, East, Midlands and part of the South-East. Each mammogram is read by two independent experienced breast radiologists and women with abnormal mammogram results attend a triple-assessment clinic with additional mammographic views and ultrasound examinations. All biopsy results are discussed at a multi-disciplinary team meeting, and patients are informed of their result within five working days.

Multidisciplinary Team

The multidisciplinary meeting is an essential component of the service. All patients who have tissue sampling are discussed at the meeting within one week. The multidisciplinary meetings are attended by a large range of sub-specialists from various disciplines including Surgery, Radiology, Pathology, Medical Oncology and Radiation Oncology.

Patient cases are reviewed at the team, who discuss the condition and treatment options for a patient. Our multidisciplinary breast cancer meeting is designed to evaluate patients with known breast cancer in a comprehensive, single-day setting to minimise the time between diagnosis and treatment.

New Breast Cancer Patients discussed at MDM



Surgery

Most patients with breast cancer will also undergo surgery. Our team at the Mater Hospital are specialists in breast cancer surgery who have decades of experience in the area. Their approach, supports patients in eliminating breast cancer cells, while providing exceptional care in breast conservation surgery and careful reconstruction techniques. The team works closely with every patient to develop the right treatment plan to match her specific needs.



Personalised Treatment: Genomic Health

The Mater Hospital is the first hospital in Ireland to trial the new Oncotype DX breast cancer test for women with Ductal Carcinoma in Situ (DCIS). The Oncotype DX breast cancer test for DCIS patients is the first and only clinically validated genomic test to provide an individualised prediction of the 10-year risk of local recurrence (either DCIS or invasive carcinoma). The test is undergoing ethics approval at the hospital and will be assessed for

- ▶ Improving decision making based on individual diagnostics.
- ▶ Cost-benefit analysis – by addressing the overtreatment of some patients and providing optimal treatment for those who require additional treatment.
- ▶ Outcomes – looking at the 5-year survival outcomes for patients.

This diagnostic test helps guide treatment decision-making in women with DCIS treated by surgery, with or without hormone therapy.

The Oncotype DX test will be provided for 90 patients with DCIS and is expected to provide information in addition to standard measurements (such as margin width, tumour size and tumour grade) that doctors have traditionally used to estimate how likely a patient's cancer is to return, and to help doctors and patients optimise treatment decisions.

Innovation: Inter-Operative Radiotherapy (IORT)

Intraoperative radiation therapy (IORT) is a treatment for cancer in which the radiation is delivered directly to a small area of the body, all at once. In breast cancer, IORT is used in patients who have had a lumpectomy (removal of a tumour from the breast). IORT delivers low-energy, high-dose radiation directly to the cavity left after the tumour has been removed from the breast, right after the tumour has been removed.

Recent studies have shown that IORT is equally effective in treating breast cancer as traditional radiotherapy. However, IORT has the following advantages

- ▶ All of the required radiation can be delivered at one time. The “standard” radiation therapy schedule for breast cancer is five days a week for up to six weeks. IORT saves time, and is more convenient for the patient.
- ▶ The radiation dose in IORT is much smaller than that of external beam radiotherapy.
- ▶ Nearby normal organs and tissues receive less radiation from the IORT radiation.
- ▶ IORT costs significantly less than external beam radiotherapy.

Consultants at the Mater Hospital, in conjunction with the Mater Private Hospital will commence treating patients with this new approach in early 2016.

Breast Seeds Localisation

Breast seed localisation is a procedure in which a tiny metal seed, about the size of a small sesame seed, is placed into abnormal breast tissue. The implanted seed contains a small amount of radiation. A consultant radiologist uses a thin needle to place a tiny seed into the breast to mark the exact location of the cancer.

This technique helps surgeons find the area of abnormal tissue during surgery when it is too small to be seen or felt by hand. The seed are removed during the surgical procedure.

Previously patients with such small breast cancers were required to undergo a procedure called breast needle localisation, in which a radiologist inserted a wire into the breast to map the location of the cancer. The wire remained in the breast, poking out of the skin for several hours, to guide the surgeon during the operation.

Studies suggest that radioactive seed localisation is a more-precise removal of small breast cancers as compared to traditional breast needle localisation. It reduces the need to have a second surgery due to incomplete removal of the abnormal tissue and helps to preserve healthy tissue.

Leibhéal LEVEL



Fluibeatómra / Phlebotomy



Clinici na n-Óthair / Searchtrach / Outpatient Clinics

3	4
5	6
7	8



Nasc chun na Roinne Eile / Link to All Other Departments

1

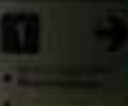
Arbailteoirí / Lift to Levels 2-7



Arbailteoirí / Lift to Outpatient Clinics



Clinici na n-Óthair / Outpatient Clinics



Ynterleasairne / Administrations

Leithreas / Toilets



CARDIOLOGY

Centre of Excellence

The Cardiovascular Department at the Mater Misericordiae University Hospital is a national leader in the delivery of high quality cardiovascular care to a large patient population. The hospital provides a full range of services including General Cardiologic Consultation, Electrophysiology, Cardiac Catheterisation/Coronary Intervention/Structural Heart Intervention, Advanced Heart Failure/Transplantation/Circulatory Assist Devices, Adults with Congenital Heart Disease and a comprehensive Imaging service (MRI, CT, nuclear medicine, PET). The Mater Hospital offers a personalised approach to care for each patient.

Our cardiology team work closely and in collaboration with Beaumont Hospital, James Connolly Memorial Hospital and Our Lady of Lourdes Hospital, Drogheda, in providing integrated care to the patients of the north east. That service is available 24hours a day with all out of hours' cardiac emergencies being treated in the Mater Hospital.

National Centre for Congenital Heart

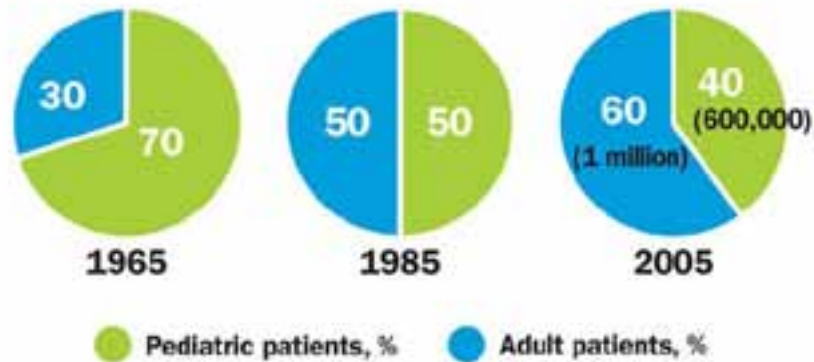
The Adult Congenital Heart Disease service at the Mater Misericordiae University Hospital provides personalised, lifelong care for adult patients with congenital heart disease, specialising in valve problems, heart failure, arrhythmia and multidisciplinary surgery.

The Mater Hospital is the National Adult Centre for Congenital Heart Disease. The multi-disciplinary team works in conjunction with the teams in Our Lady's Hospital for Sick Children, Crumlin and the Rotunda Hospital. The centre receives over 350 referrals per year with a new cross border initiative with Northern Ireland expected to increase that number further.

The goal of the team at the Mater Hospital is to provide best in class care and clinical outcomes for patients with congenital heart issues. The hospital provides advanced sub-speciality care encompassing congenital heart disease, structural heart and cardio-thoracic surgery for its patients.

The prevalence of Adult Congenital Heart Disease (ACHD) is increasing. There are now more adults than children alive with congenital heart disease. Approximately 85% of children born with congenital cardiac anomalies are expected to reach adulthood, with an increasing number of patients with complex ACHD surviving to adulthood.

Changing Proportion of Pediatric & Adult CHD



Adapted from: Williams RGL et al. Report of the National Heart, Lung, and Blood Institute Working Group on Research in Adult Congenital Heart Disease. *J Am Coll Cardiol*. 2006;47(4):701-707.

A Multidisciplinary Approach to Treating Congenital Heart Disease

Our multi-disciplinary team provides integrated management for patients with Grown Up Congenital Heart Disease (GUCH) from diagnostic and interventional procedures, through to continuity of care and long-term follow up. Our team is focused on treating congenital heart disease in adults and work with experts from multiple disciplines to provide the best care for each patient, including

- ▶ Cardiac genetics
- ▶ Cardiac imaging
- ▶ Cardiac and thoracic surgery
- ▶ Electrophysiology
- ▶ Heart failure and transplantation
- ▶ Haematology
- ▶ Interventional cardiology
- ▶ Neurology
- ▶ Pulmonary care

Paediatric patients are usually transferred from Our Lady's Hospital for Sick Children, Crumlin to the Mater Misericordiae University Hospital once they reach adulthood, in-particular if they have complex lesions needing long term follow-up.

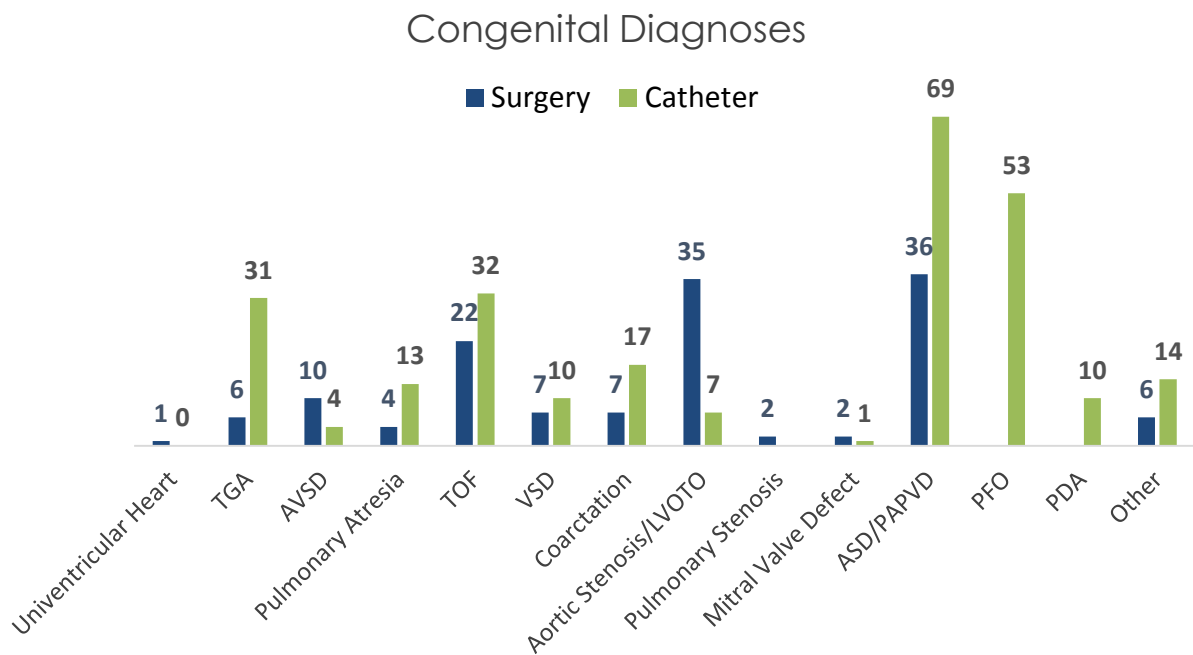
Nearly half the number of heart transplants in 2015 was carried out in congenital patients including one patient who had a heart and lung transplant - the first in Ireland

Adult Congenital Heart Disease Treatment

During a five-year period (2009-2013) 404 adult congenital cardiac patients have received treatment in the ACHD unit in the Mater Hospital.

Of the 138 patients who underwent surgery, 61% were male, with a mean age of 31.5 years. 54% had previous surgery and 33% of patients had a complex congenital diagnosis. The most common surgeries performed were valvular (46%) and septal surgeries (31%).

Of the 266 patients who underwent catheter interventions, the mean age was 38.2 years. The most frequent interventions were repair of atrial septal defect (41.7%) and diagnostic procedures (26.3%), with 32% of patients having a complex diagnosis.



Maternal Medicine

The Mater Hospital also provides a maternal cardiology joint service with the Rotunda Hospital, for women who are pregnant or planning to be pregnant and who have congenital or acquired heart disease. Monthly multidisciplinary meetings ensure the optimal plan for labour is in place with regular cardiac screening and foetal ECG to check the baby's heart.

Heart Failure

The Heart Failure service at the Mater Hospital evaluates and manages a range of heart disease conditions that result in heart failure. Heart failure specialists use advanced therapies to treat patients with congestive heart failure and other conditions that might require a cardiac transplant. Our cardiologists are experts in diagnosing and treating heart failure, but also are well-versed in treating the following complex conditions

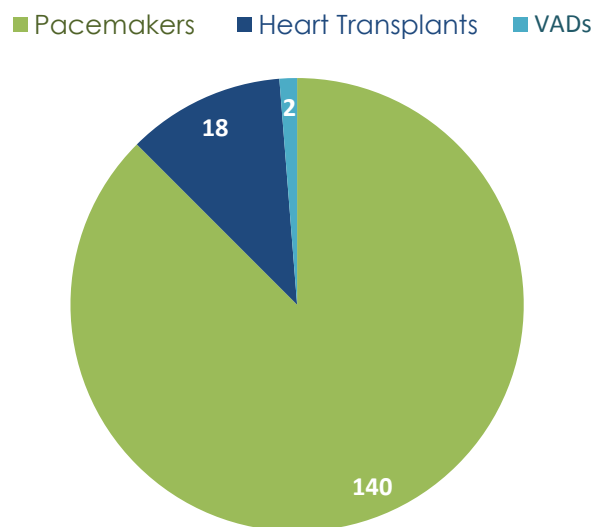
- ▶ Cardiac amyloidosis
- ▶ Cardiomyopathy
- ▶ Advanced congenital heart disease (the National Centre for Congenital Heart Disease is based in the Mater Hospital)
- ▶ Cardiomegaly
- ▶ End-stage heart disease

The Mater Hospital runs a dedicated Heart Failure Clinic and Services for patients with heart failure. Heart failure services at the hospital covers the entire spectrum of care from medical management through device implantation and structural heart care to finally heart transplantation, if required. It is the provision of the complete range of services in one centre that make the Heart Failure services at the Mater unique.

Medical and Surgical Treatment

Our cardiologists work closely with patients to introduce preventive and early treatment measures in an attempt to delay or avoid hospitalisation. These advanced medical treatments include

- ▶ Lifestyle and nutrition education
- ▶ Managing blood pressure
- ▶ Prescribing activity and exercise programmes
- ▶ Medications designed to decrease the workload on the heart and prevent the progression of the disease
- ▶ Restricting salt and fluid intake
- ▶ Measures to maintain a balanced diet



Depending on the cause and severity of heart failure, surgery may be required for some patients. Our consultants are experts in treating patients using complex or combination surgical procedures. Surgical options might include:

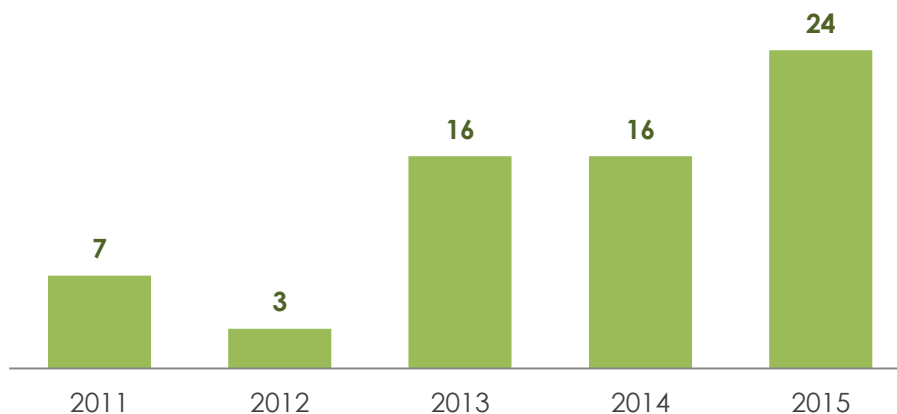
- ▶ Pacemaker insertion/defibrillator insertion
- ▶ Coronary artery bypass grafting
- ▶ Heart transplantation
- ▶ Ventricular assist devices (VADs) as a bridge to transplant
- ▶ Valve repair surgery
- ▶ Valve replacement surgery

Structural Heart

The Mater Hospital is a national leader in the management of complex structural heart disease. This area of cardiovascular care is becoming an increasingly important area in the field of cardiac intervention. The Structural Heart Disease service is multi-disciplinary and relies on a team approach including experts from Interventional Cardiology, Congenital Heart Specialists, Advanced Cardiac Imaging, Cardiac Surgery, and Electrophysiology as well as a dedicated team of nurses and skilled technicians. We care for patients with

- ▶ Advanced structural and valvular heart disease.
- ▶ Patent foramen ovale (PFO).
- ▶ Atrial and ventricular wall defects.

TAVI - Procedures (2011 - 2015)



In addition to evaluation and diagnosis, the specialist team at the Mater offer a range of advanced procedures, including

- ▶ Percutaneous valve replacement
- ▶ Percutaneous aortic and mitral valvuloplasty
- ▶ Minimally-invasive valve procedures – mitral valve replacement / mitral valve repair or aortic valve replacement / aortic valve repair
- ▶ Paravalvular leaks programme.
- ▶ Catheter-based closure of atrial and ventricular wall defects
- ▶ Alcohol septal ablation for hypertrophic cardiomyopathy
- ▶ Catheter-based closure of valve leaks in high-risk or inoperable patients

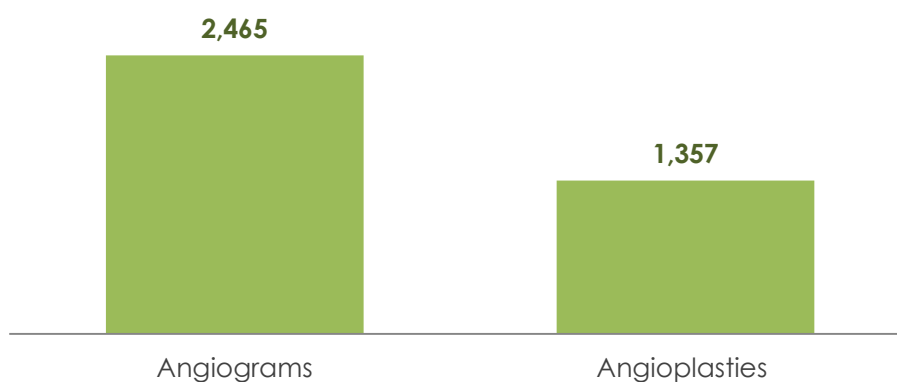


Interventional Cardiology

Interventional Cardiology at the Mater Misericordiae University Hospital offers cutting-edge diagnostic tests and nonsurgical interventional treatments for patients with coronary artery disease and congenital heart disease. The hospital is one of the 5 designated primary percutaneous coronary intervention (PPCI) centres in the country. The hospital is recognised as a PPCI centre of excellence and collaborates closely with cardiologists in Beaumont Hospital, James Connolly Memorial Hospital and Our Lady of Lourdes Hospital in Drogheda.

Each year, the hospital sees thousands of patients with almost every kind of heart disease. Our interventional cardiologists treat people of all ages who have serious, sometimes life-threatening, cardiac conditions and perform the entire range of advanced procedures, from coronary angioplasty to complex coronary stenting.

Angiogram & Angioplasty Volumes (2015)



Chronic Total Occlusion (CTO)

The Mater Hospital offers a highly advanced innovative approach to treat patients with chronic total occlusion, called chronic total occlusion percutaneous coronary intervention (CTO PCI). This is a minimally invasive technique used to treat patients with chronic total occlusion (CTO), or complete blockages, of the coronary arteries.

CTOs are blockages that have typically been present for more than three months. These blockages are a result of severe atherosclerosis and are one of the complications from coronary artery disease (CAD). CAD occurs when the artery or arteries that supply blood to the heart become narrowed or blocked because of atherosclerosis. When the heart does not receive enough blood, the patient may experience chest pain (angina), shortness of breath or a Myocardial Infarction (heart attack).

Treatment options for CTO have traditionally been limited, with a coronary artery bypass grafting (CABG), being the only option for treating these blockages. Some patients, however, may not be candidates for CABG surgery due to high surgical risk, while some patients may not require CABG and could benefit from stenting using CTO PCI techniques. This approach is associated with much greater success rates than previous interventional cardiology approaches and has significant benefits to the patient, who no longer requires open chest surgery.

Family Heart Screening Clinic

The team at the Mater Misericordiae University Hospital specialises in helping to evaluate and treat patients and family members with known or suspected inherited cardiovascular disease. Our Family Heart Screening Clinic utilises leading genetic technology to provide the most comprehensive medical diagnoses and care.

The Mater Heart House has been providing comprehensive cardiac evaluation of families affected by sudden cardiac death due to SADS (Sudden Arrhythmic Death Syndrome) or an inherited cardiac disease since 2007.

The clinic provides families with access to expert evaluation in an appropriate, family-based setting, away from the busy general cardiology clinics. Demand for the service has soared and the remit of the clinic's activities has broadened to include not just initial screening but follow-up of families diagnosed with inherited cardiomyopathy (chronic disease of the heart muscle) or channelopathy.

SADS conditions are

- ▶ Brugada Syndrome
- ▶ Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)
- ▶ Long QT Syndrome (LQTS)
- ▶ Short QT Syndrome (SQTS)
- ▶ Timothy Syndrome
- ▶ Wolff Parkinson White (WPW)

The clinic is a national referral centre for patients with known or suspected inherited cardiovascular disease

There are three consultant-provided and one senior registrar clinic sessions every week. There is a monthly case conference using video link with Health in Code who provide genetic test results for each of the family or individual phenotype presentations. This meeting is attended by clinic consultants, the arrhythmia fellows, cardiology specialist registrars, pathologists, paediatric cardiologists, geneticists, genetic counsellors and medical students.

CLINICAL GENETICS

The clinical genetics services at the Mater Misericordiae University Hospital includes

- ▶ Cancer genetics service that screens patients have a hereditary cancer risk
- ▶ Screening programmes for people with a high risk colorectal cancer
- ▶ Comprehensive cardiac evaluation of families affected by sudden cardiac death due to SADS or an inherited cardiac disease

Cancer Genetics

The Cancer Genetics Service provides risk assessment, counselling and genetic testing for individuals and families at increased risk of cancer. The service aims to provide

- ▶ Risk assessment and screening recommendations
- ▶ Counselling and education for patients and families
- ▶ Diagnostic testing
- ▶ Predictive testing
- ▶ Specific pre- and post-test counselling
- ▶ Collaborative participation in relevant basic/translational/clinical research

The Cancer Genetics Service at the Mater Hospital offers individuals and families the opportunity to make informed decisions with regard to cancer risk assessment, early detection, prevention and treatment. Individuals assessed to have a higher than average risk of cancer can discuss potential options, like having screening to detect any signs of cancer as early as possible thereby ensuring prompt treatment and more successful outcomes.

Family Heart Screening Clinic

The Family Heart Screening Clinic at the Mater Heart House has been providing comprehensive cardiac evaluation of families affected by sudden cardiac death due to SADS or an inherited cardiac disease since it opened in 2007.

The remit of the clinic has also broadened to include not just initial screening but follow-up of families diagnosed with inherited cardiomyopathy or channelopathy.

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- ▶ Wolff Parkinson White (WPW)

The clinic is a national referral centre for patients with known or suspected inherited cardiovascular disease

Family Screening Clinic

Colorectal cancer can run in families, and about 5-10 percent of colorectal cancer is thought to be hereditary. The team at the Mater Hospital provide family screening programmes for Hereditary Non-Polyposis Colorectal Cancer (Lynch Syndrome) and Familial Adenomatous Polyposis (FAP) to determine an individual's risk for colorectal cancer. The service follows patients who have an increased risk for polyps, colorectal cancers, gastrointestinal cancers, pancreatic cancer and related cancers.

Almost 2,700 patients are involved in the screening process

In excess of 90 families are referred annually to the screening service to evaluate cancer risk and implement a screening and cancer prevention strategy. This can comprise of a single individual or up to 20 family members. To date we have assessed 1,823 families since starting this service. The team collaborate closely with clinicians in other specialties so that individuals are risk stratified and offered colonoscopy +/- gastroscopy, genetic testing and gynaecology surveillance where appropriate. Ongoing surveillance is a central component of this service with patients returning for screening at 1-5year intervals. To date, our database includes in excess of 2688 patients.

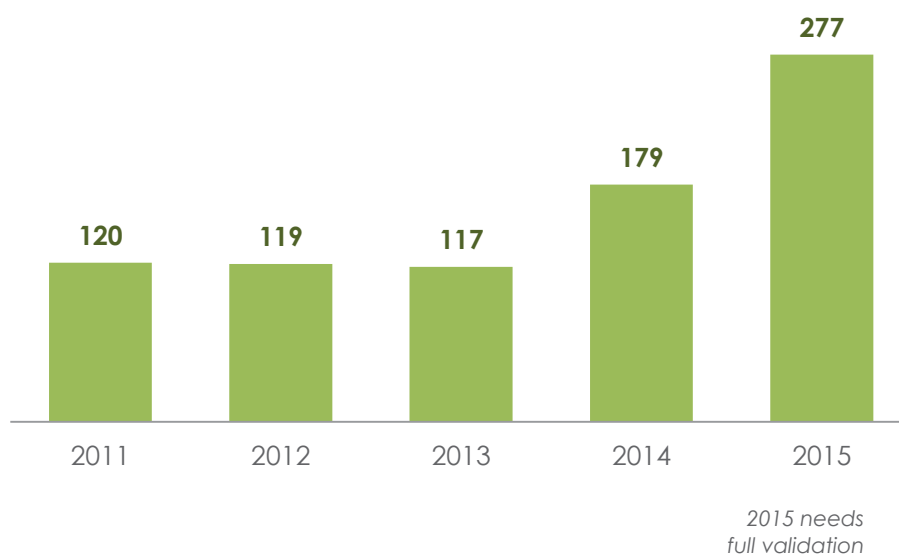


COLORECTAL SURGERY

Using state-of-the-art technology and leading-edge medical and surgical interventions, the colorectal surgery team provides patients with advanced and timely diagnosis of their condition as well as individualised, ongoing care for the entire spectrum of colorectal disease. The surgical team performs hundreds of surgeries every year, and we are the National Centre for Cytoreductive Surgery and Heated Intraperitoneal Chemotherapy (HIPEC).

The hospital is also a centre for BowelScreen, the National Bowel Screening Programme and patients who require further treatment following screening are referred to Mater Hospital as one of the National Rectal Cancer Centres.

Diagnosed Colorectal Cancers



The Mater Hospital has 4 colorectal surgeons, with a special interest in colorectal cancer. In 2015 over 270 colon cancers were diagnosed and treated at the hospital with approximately 180 of those patients having surgery.

BowelScreen

Colorectal cancer is the second most commonly diagnosed cancer in Ireland and the 2nd leading cause of cancer death. The incidence is expected to increase sharply in line with the aging of our population. The National Bowel Screening Programme is designed to improve the early diagnosis of cancerous and pre-cancerous conditions in both men and women. The programme began in late 2012 and covers all geographical locations and all those within the ages of 60-69.

For the team in the Mater Hospital the National Colorectal Screening Programme accounts for about 20 surgeries annually. With the vast majority of cancers identified being early stage colorectal cancers.

Multidisciplinary Team

The Mater Hospital is committed to a multidisciplinary approach to colorectal cancer care, providing the most advanced care through patient education, screening, polyp and cancer detection and treatment. Our team approach brings together experts in colorectal surgery, gastroenterology, medical oncology, radiation oncology and genetic counselling. The team works with patients and their families to develop treatment plans tailored to their individual needs. This approach offers patients the greatest chance of cure and the best possible quality of life.

Our experts also continually seek to improve colorectal cancer care through weekly team meetings where they review colorectal cancer cases for multidisciplinary clinical management decisions, including discussing new treatments or experimental therapies.

Surgery

Innovative Minimally Invasive Surgery

New innovative techniques have led to the development of organ preserving strategies for patients with early stage rectal cancers. Trans-anal minimally invasive surgery provides a less invasive surgical option for patients with early stage cancer. Techniques like Trans-anal endoscopic microsurgery (TEM) reduces pain and recovery time for patients. Previously, surgery to remove these tumours' required an abdominal incision. Now using innovative approaches certain early stage cancers or benign rectal polyps may be removed without a surgical incision.

Colon Resection

Removal of a segment of the colon, also called a colectomy, is often done as a minimally invasive laparoscopic procedure, because of its benefits and comparable outcomes to open surgical procedures. Laparoscopy has evolved from requiring three or four incisions to a single-incision surgery. Depending on the location of the tumour, the segmental colectomy (removal of a portion of the colon) could be referred to as a right or left colectomy.

Total Colectomy

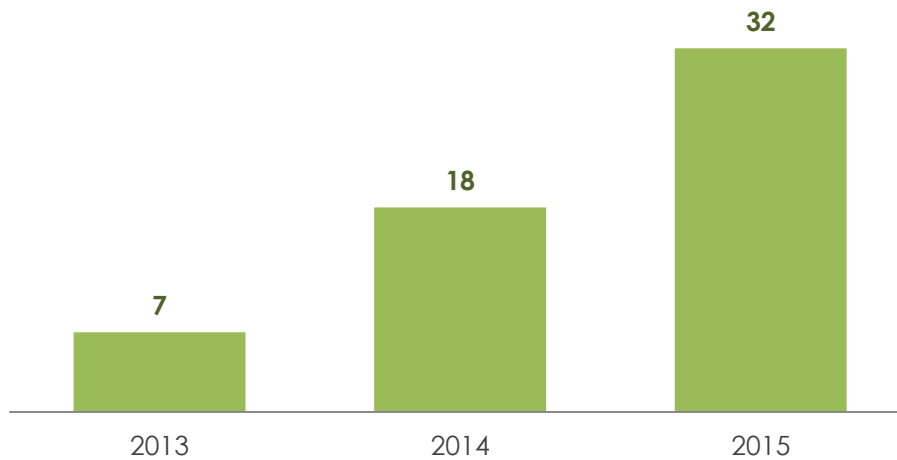
A total colectomy is the removal of the entire colon where the small bowel is reattached to the top of the rectum. This procedure is only used on occasions where patients have synchronous tumours (more than one cancer in the colon or rectum at the same time), or a strong family history of colorectal cancer.



All Ireland Expertise: Heated Intraperitoneal Chemotherapy (HIPEC)/ Cytoreductive Surgery

This multidisciplinary approach is used to treat hard-to-treat colorectal cancers that have spread to the lining of the abdominal cavity. HIPEC circulates a heated chemotherapy solution through the abdominal cavity for up to two hours to try and kill any cancer cells that may remain following surgery to remove all visible tumours (Cytoreductive surgery). This new treatment option may significantly improve survival rates for patients with Stage IV colorectal cancer.

HIPEC/ Cytoreductive Surgery



Integrated Care

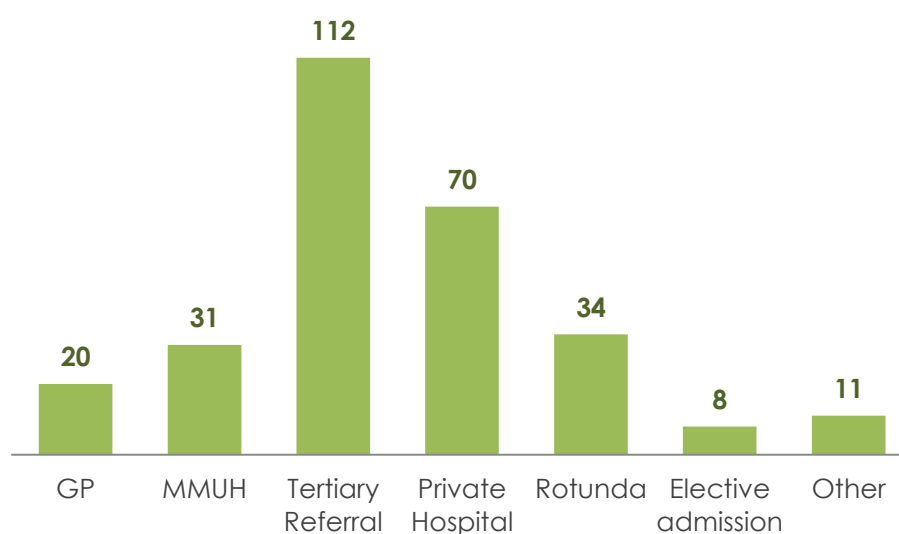
Some patients will develop a metastatic tumour from their original colorectal cancer. For those patients the expertise of National Spinal Unit and the specialties of Urology, Gynaecology, Hepatobiliary and Thoracic Surgery are part of the integrated care team that will treat the patient.

Long term survival is possible even when the colorectal tumour has spread to the liver (liver metastases). The combination of chemotherapy and advanced liver surgery, when possible and indicated, is usually well tolerated by patients and represents the good treatment option for colorectal liver metastasis. The liver is able to rapidly regenerate which allows surgeons to remove large amount of it when needed. Liver resection (removal of the tumour along with part of the healthy liver) can be achieved either using minimally invasive surgical techniques (laparoscopy) or through an incision (open liver resection). The technique used depends on location, number and size of liver metastasis.

GYNAECOLOGY

The Gynaecological Oncology service offers women comprehensive care supported by surgical innovation, research and clinical trials in all types and stages of gynaecological cancer. The Mater Hospital is one of the largest providers of gynaecological cancer services in the country and is a tertiary referral service, with approximately 40% of patients being referred to the service from other hospitals.

Referral Analysis



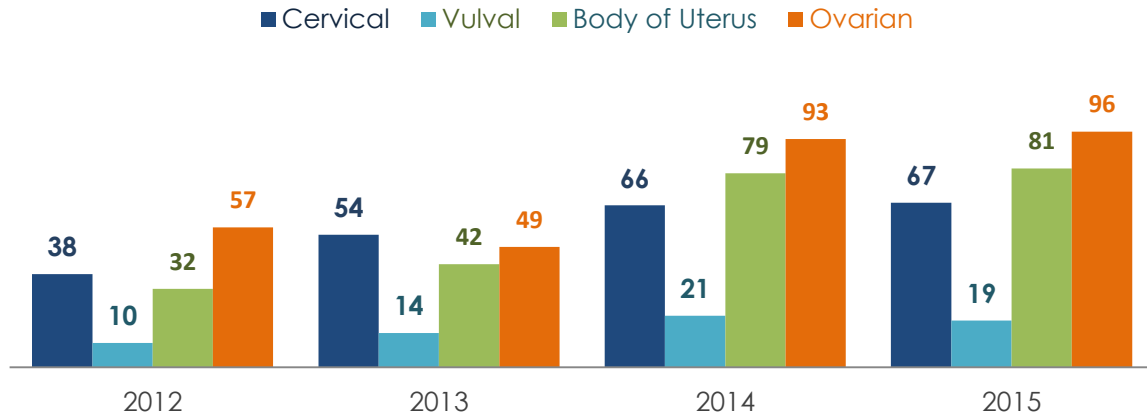
The hospital provides individualised, compassionate care and the most advanced treatments for women with all gynaecologic cancers, including

- ▶ Cervical cancer
- ▶ Endometrial cancer
- ▶ Ovarian cancer
- ▶ Uterine cancer
- ▶ Vaginal cancer
- ▶ Vulvar cancer

Diagnosis

The Mater Hospital provides a specialist service for the staging, treatment and care of gynaecological cancer. A complete and accurate pathology report is crucial to getting a precise diagnosis and deciding on the best treatment plan for each patient. Patients at the Mater Hospital benefit from the experience and expertise of our teams of disease-specific pathologists who provide precise type and stage of each cancer.

Gynaecological Cancer Breakdown

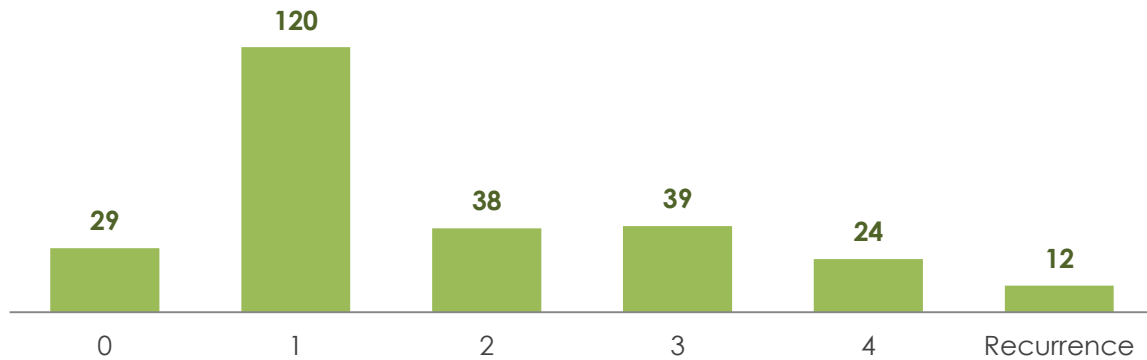


Our teams provide individualised, compassionate care and the most advanced treatments for women with gynaecologic cancers

Multidisciplinary Team Meetings

The Multidisciplinary Team approach of involving multiple specialists can be the most important factor in cancer treatment. Pathologists, radiologists, radiation oncologists, medical oncologists, gynaecologists and other specialists collaborate to provide accurate diagnosis, advanced surgical techniques, leading-edge treatments, and advanced chemotherapy/targeted therapy. Precise diagnosis, tumour characterization and staging are the basis for designing the most appropriate treatment plan for each individual patient.

FIGO Staging

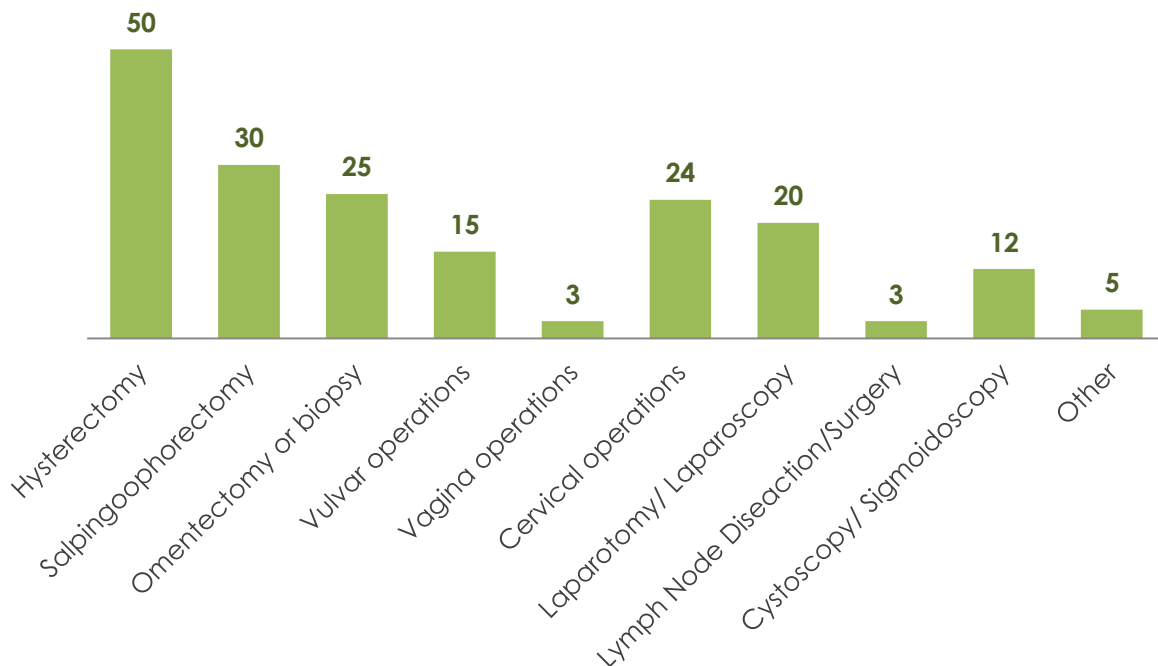


Treatment

Surgeons at the Mater utilise minimally invasive techniques such as laparoscopic surgery when appropriate. Minimal invasive approaches allow treatment of complex problems with smaller incisions and improved recovery. The range of surgical services includes

- ▶ Minimally invasive laparoscopic surgery
- ▶ Fertility-sparing surgery
- ▶ Advanced radical pelvic surgery for the treatment of ovarian, cervical, endometrial and vulvar cancer

Gynaecological Procedures



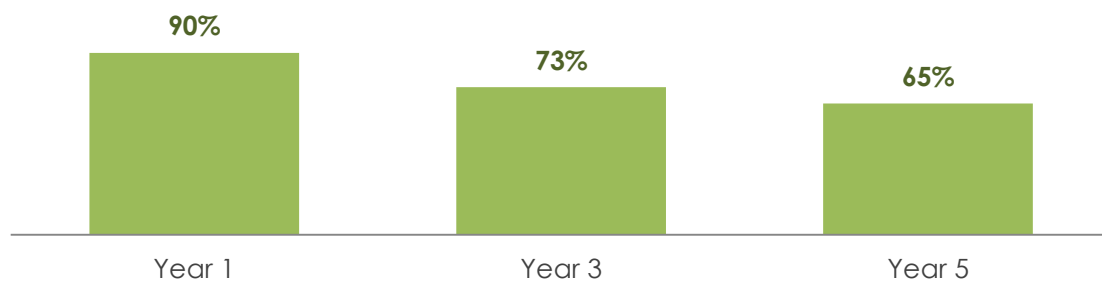


Innovative treatment options

Patients benefit from innovative and highly effective treatment options including

- ▶ **Advanced laparoscopic surgery**, a minimally invasive technique that results in effective treatment, shorter hospital stays, less discomfort and a shorter recovery period.
- ▶ **Cytoreductive Surgery for Advanced Ovarian Cancer**, is the surgical removal of part of a malignant tumour which cannot be completely excised, so as to enhance the effectiveness of radiation or chemotherapy.
- ▶ **Intraperitoneal chemotherapy** involves the direct delivery of chemotherapy into the abdomen for some patients with ovarian cancer. International research has shown intraperitoneal chemotherapy to provide a better survival advantage, compared to intravenous chemotherapy alone.

Five Year Survival Rates for Patients Diagnosed in 2010



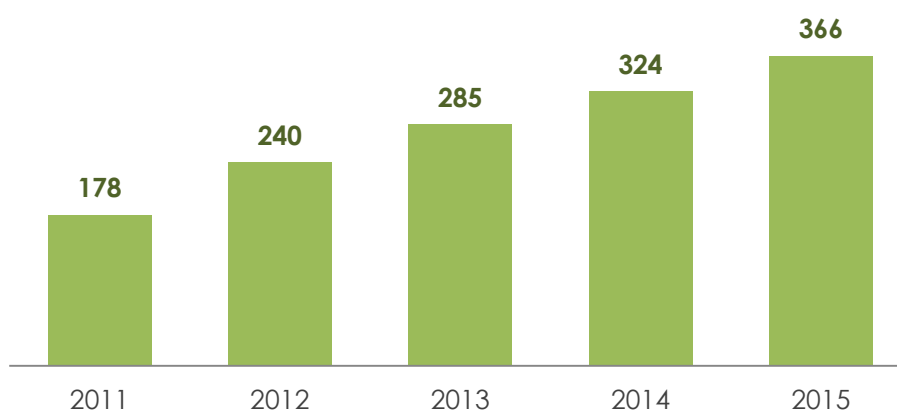
LUNG CANCER

Our consultants provide state-of-the-art surgical techniques and cancer therapies, with a major focus on early diagnosis, better cancer staging, and prediction of recurrent disease in lung cancer. We take a multi-disciplinary approach to the treatment of lung cancer and other diseases of the chest, so we can streamline the patient experience with all thoracic specialists.

Rapid Access Lung Cancer Clinic (RALC)

The Mater Hospital is one of the eight National Cancer Control Programme (NCCP) centres for the diagnosis of Lung Cancers in Ireland. Our Rapid Access Lung Cancer Clinics provides a fast track diagnostic service where lung cancer is suspected. In 2015 our rapid access clinics saw over 350 patients, representing an increase of over 100% in the last 5 years.

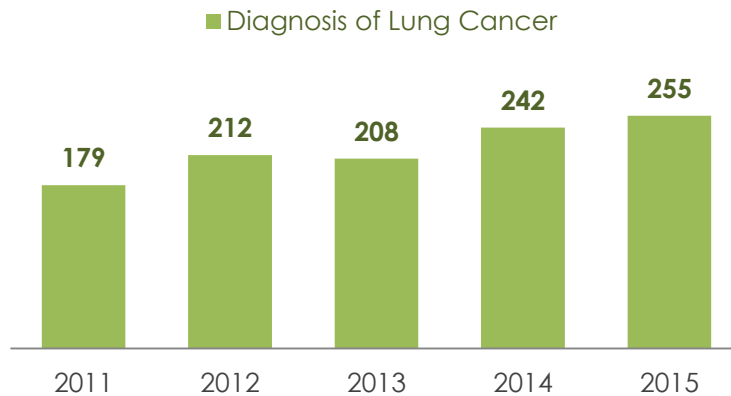
Rapid Access Lung Cancer Clinic New Attendances



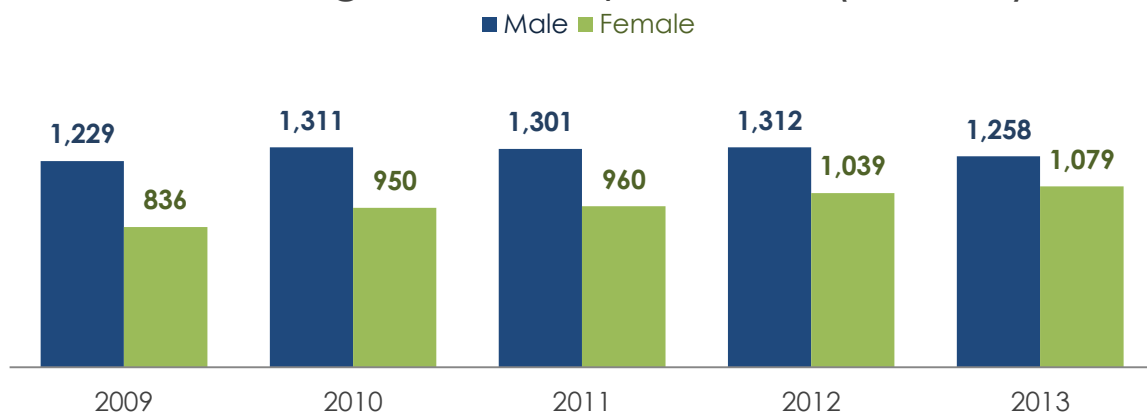
Diagnosis

In 2015 there were 255 new diagnoses of primary lung cancer made. Of those 122 patients (47%) were made via the RALC. Since 2011 lung cancer has become the leading cause of cancer related death among women in Ireland, overtaking breast cancer for the first time, reflecting the changing smoking patterns among women in the last three decades.

Diagnosis of Lung Cancer



Lung Cancer by Gender (Ireland)



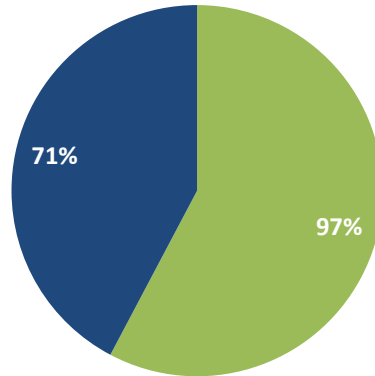
Source: National Cancer Registry, Incidence Statistics

Multi-disciplinary Team Meetings

The lung cancer MDMs brings together clinical staff with the necessary skill mix to provide high quality diagnostic and treatment expertise to all patients with a suspected or confirmed diagnosis of lung cancer. The MDMs are attended by Respiratory Physicians, Thoracic Surgeons, Diagnostic and Interventional Radiologists, Histopathologists, Medical and Radiation Oncologists, nurse coordinators, data managers and Non-Consultant Hospital Doctors.

% of Patients

■ Discussed at MDM ■ TNM Staging recorded at MDM

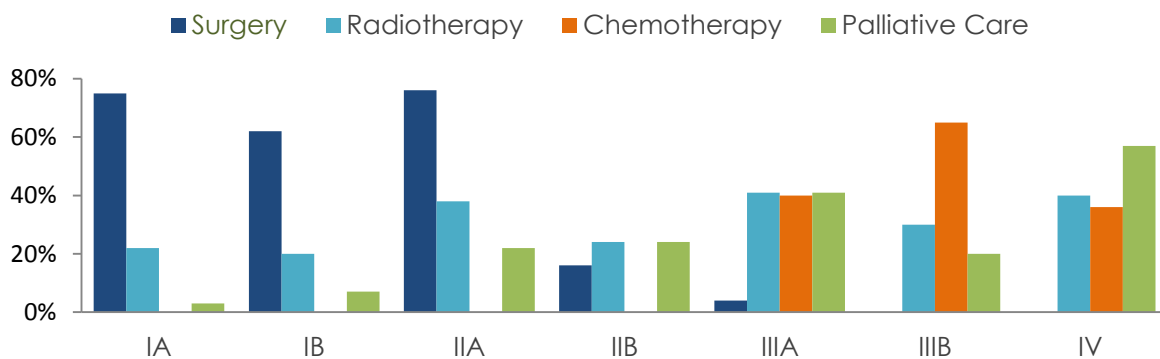


Treatment

Surgery

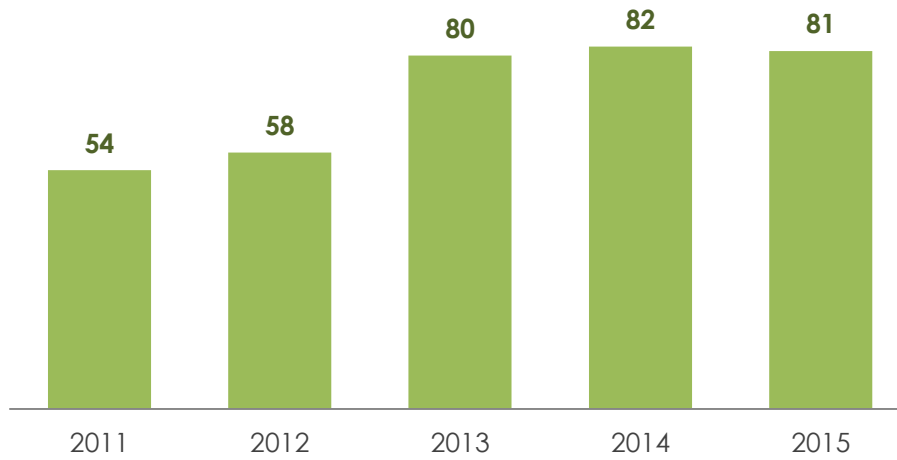
In addition to a vibrant transplantation programme the thoracic surgery service has grown significantly in the last few years. The unit performs the full spectrum of procedures for lung cancer including open resections and video assisted resections. The team performs a large amount of Video-Assisted Thoracoscopic surgery (VATS) to diagnose and treat a variety of lung conditions including spontaneous pneumothorax.

Treatment by Stage



The rates of primary lung cancer resections have doubled since 2010. The Mater Hospitals thoracic, transplant and Extracorporeal Membrane Oxygenation (ECMO) services are national referral centres for both benign and thoracic oncology surgical referrals. Over half of all lobectomies are now carried out using Video-Assisted Thoracic Surgery (VATS) Lobectomy. A minimally invasive technique which allows our surgeons to work through 3 or 4 small incisions rather than the traditional rib spreading technique.

Primary Lung Cancer Resections



The service accepts all elective referrals for diagnostics, staging procedures and curative resections, including primary lung cancer and secondary metastatectomies. The full range of complex extended resections is performed, with multidisciplinary input into the chest wall resections and reconstructions (plastic surgery) and vertebrectomies (spinal surgery).

Medical Oncology

Medical oncology at the Mater Hospital provides in-patient and out-patient chemotherapy along with access to clinical trials through the Clinical Trials Research Unit.

MEDICAL ONCOLOGY

The Mater Misericordiae University Hospital is one of the eight National Cancer Control Programme (NCCP) Cancer Centres of Excellence in Ireland. The medical oncology service has grown over the past ten years with the increasing numbers of people being diagnosed and treated for cancer. The three medical oncologists provide specialised services to patients with the full range of cancers. Services are tightly aligned with our colleagues in other specialities through a large programme of multidisciplinary conferences and optimal care is facilitated by rapid access clinics in breast, lung and prostate cancer.

Total Oncology/Haematology Day Ward Visits



We provide in-patient and out-patient chemotherapy and a full range of facilities for the treatment of patients with cancer. Reflecting the specialist surgical oncologic expertise in the hospital and the centralisation of services nationally there have been particularly large increases in the numbers of patients with colorectal, prostate, upper GI and breast cancers seen in the last 5 years.

Leading-Edge Medical Oncology

Our medical oncologists follow their patients through every step of their cancer experience. Every patient is unique, and treatments are customised for each patient's cancer. In addition to chemotherapy, there are a range of other drugs the medical oncologist can use to manage cancers, including

- ▶ targeted therapy
- ▶ biological therapy
- ▶ vaccine therapy
- ▶ immunotherapy
- ▶ hormone therapy

The Mater Hospital's medical oncologists are at the leading edge in the use of targeted therapies. These drugs target specific mutations to stop the proliferation of cancer cells while leaving normal cells unharmed. Many cancers are responding to these new drugs.

Haematology

The haematology department in the Mater Hospital provides care for patients with general and malignant haematological disorders including leukaemia, myeloma and lymphoma. Multidisciplinary working is integral to haematology and at the Mater this involves several weekly multidisciplinary team meetings (MDT's).

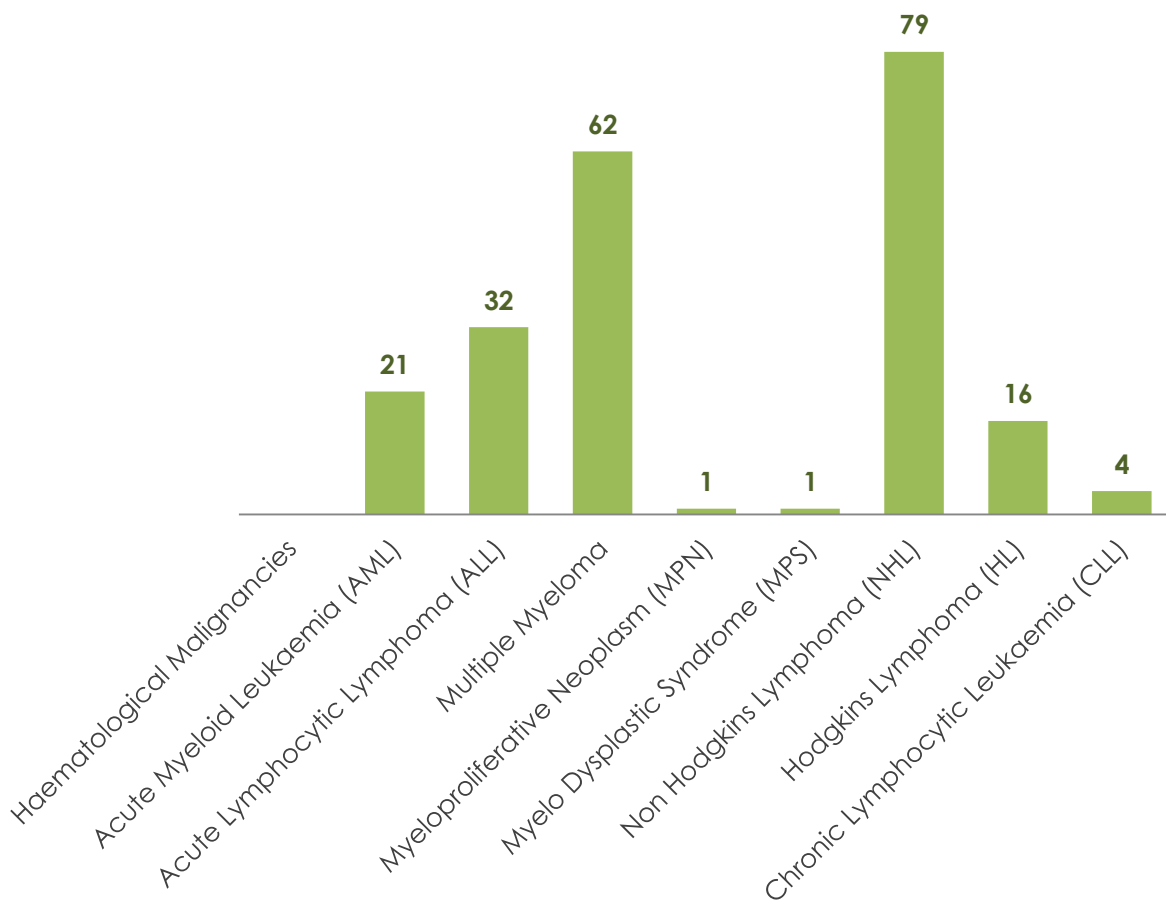
An accurate diagnosis is crucial to developing a successful treatment plan. The Mater hospitals team of haematologists, pathologist and histopathologists has expertise in the diagnosis of blood diseases. Our specialists have extensive experience identifying even the less common disorders. State-of-the art technology further enhances the capabilities of the pathology department.

The haematology team manage blood diseases using the following

- ▶ Addition and removal of blood components
- ▶ Biological therapy for benign and malignant blood disorders
- ▶ Chemotherapy
- ▶ Growth factor drugs
- ▶ Immunosuppressive drugs

Mater haematologists work close with colleagues medical and radiation oncology, transplantation and other specialities in the care of their patients.

Haematological Malignancies



Treatment

Our clinicians are actively involved in clinical research, working closely with laboratory investigators to examine a variety of treatment strategies, including

- ▶ Chemotherapies and combinations of existing treatments
- ▶ Radiation therapies
- ▶ Novel targeted therapies, which block specific molecules involved in the growth and progression of cancer cells
- ▶ Immune therapies, such as vaccine and cellular therapy and
- ▶ Bone marrow/stem cell transplantation, including traditional and reduced-intensity transplant, using related, unrelated or umbilical cord blood cells for transplant

Clinical Trials

Participation in a clinical trial is a treatment option at the Mater Hospital, particularly for patients where the current (approved) treatments have not worked. The Clinical Trials Research Unit (CTRU) at the Mater Campus was established in 2000 and incorporates Mater Misericordiae University Hospital, the Mater Private Hospital and Cavan General Hospital as an extension of the Oncology/Haematology Centre of the Mater Misericordiae service.

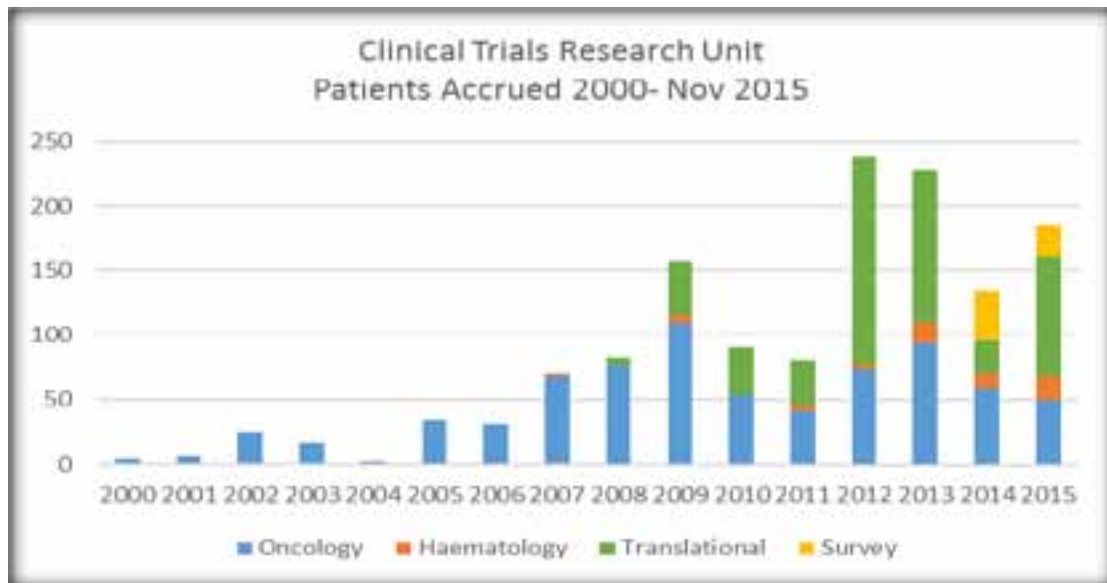
The clinical trials research team is an integral part of the cancer service and delivery of patient care across the campus. In 2012 Haematology Clinical Trials service was incorporated into the unit, which became part of the Cancer and Surgery Directorate of the hospital in 2014.



ICORG

(All Ireland Cooperative Oncology Research Group)

The Clinical Trials Unit works in close collaboration with ICORG and has participated in numerous studies in the following areas: Breast, Lung, Gastrointestinal, Genitourinary, Gynaecology, Haematology/ Lymphoma, Head & Neck, Melanoma and Translational.



At the end of 2015 another 5 studies were fully approved and scheduled to open in early 2016.

Palliative Care

Palliative care is an approach that improves the quality of life of patients facing problems associated with life-threatening illnesses, like cancer. It focuses on the prevention and relief of suffering by means of early identification, assessment and treatment of pain and good symptom control.

The specialist palliative care team at the Mater Misericordiae University Hospital comprises of three Clinical Nurse Specialists with input from a consultant, registrar, social worker, occupational therapist and pharmacist. The team works in close collaboration with St Francis' Hospice and other hospices around the country so patients can continue to receive palliative care in their own community following discharge.

NATIONAL CENTRE FOR INHERITED METABOLIC DISORDERS

The National Centre for Inherited Metabolic Disease (NCIMD) is a referral centre for people who are diagnosed with or suspected of having a metabolic genetic disorder. The paediatric service is based in the Children's University Hospital, Temple Street with the adult service is based at the Mater Misericordiae University Hospital. The Unit in the Mater is designed to address the specific needs of patients diagnosed with inborn errors of metabolism (IEM) that are over the age of 18.

The NCIMD also plays a major role in the treatment of metabolic disorders for the Irish population. The NCIMD screens for Phenylketonuria, Homocystinuria, Maple Syrup Urine Disease and Galactosaemia and provides a programme for the investigation, counselling and lifelong treatment of patients with metabolic disorders detected through new born screening, family screening and through diagnostic testing.

The management of metabolic disorders is complex and demands dedicated input from the multidisciplinary team led by a Metabolic Consultant. A holistic and family centred approach is used by our teams, with input from medical, nursing, dietetic, psychology, social work, genetic counselling, physiotherapy, laboratory staff and play specialist staff.





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EXIT

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CAFÉ & BOLS



OPHTHALMOLOGY

The Ophthalmology Department at the Mater Misericordiae University Hospital is the main hub for the provision of Ophthalmology services in North Dublin and the North East area. It has established clinical links with Eye Departments in Beaumont Hospital, Children's University Hospital Temple Street, Dundalk Hospital and Connolly Hospital Blanchardstown.

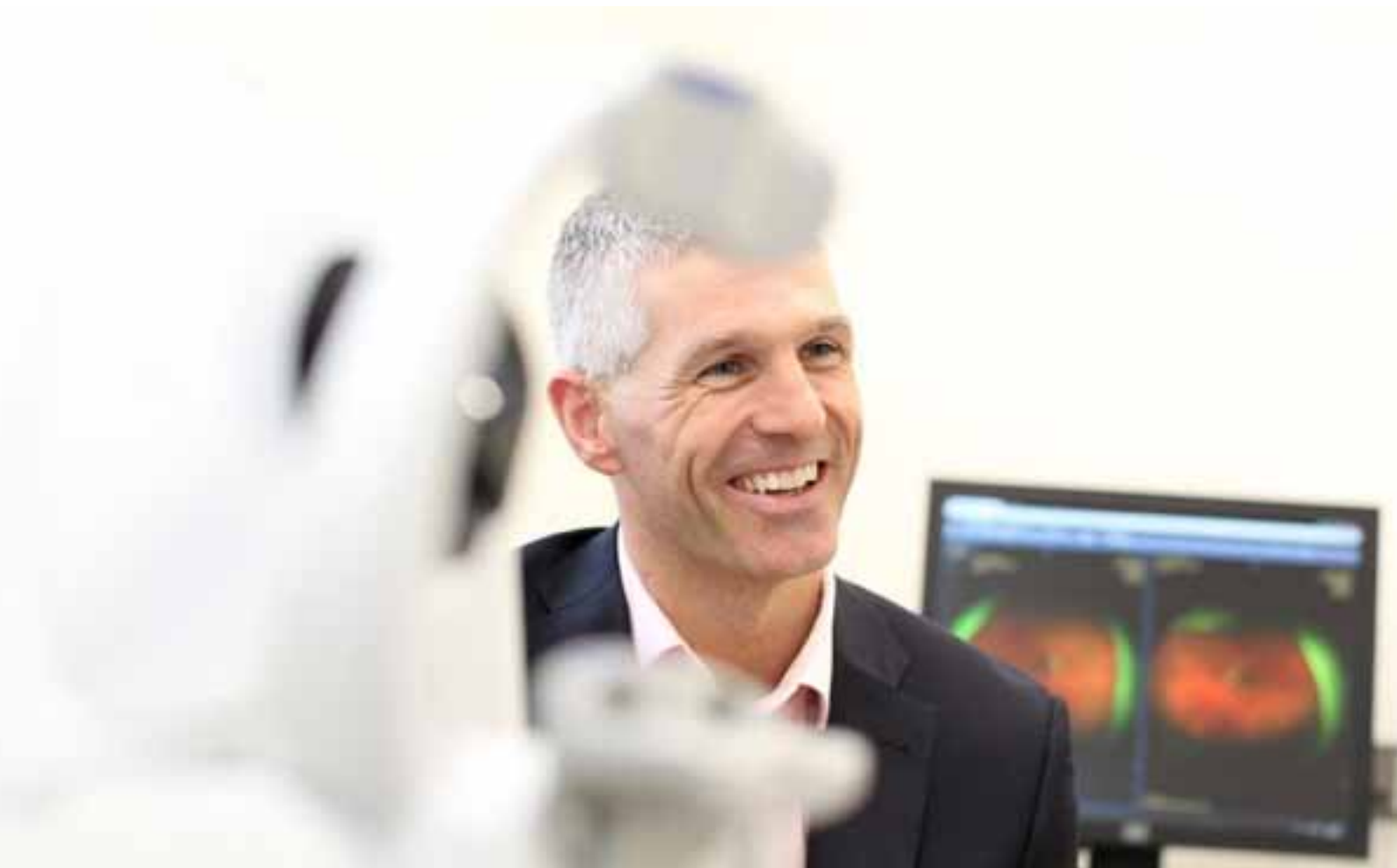
It is the main Ophthalmology teaching hospital for University College Dublin and is one of the main post-graduate training units in Ophthalmology and Ophthalmic surgery at both Basic Specialist Training and Higher Surgical Training levels. It also provides training for optometry students from DIT, Kevin Street.

The hospital provides a comprehensive Ophthalmology service and specialist, tertiary expertise in Retina, Glaucoma, Cornea and External Eye Disease, Eyelid, Lacrimal and Orbital Disease, Neuro-Ophthalmology, Strabismus, Cataract and Refractive Surgery.

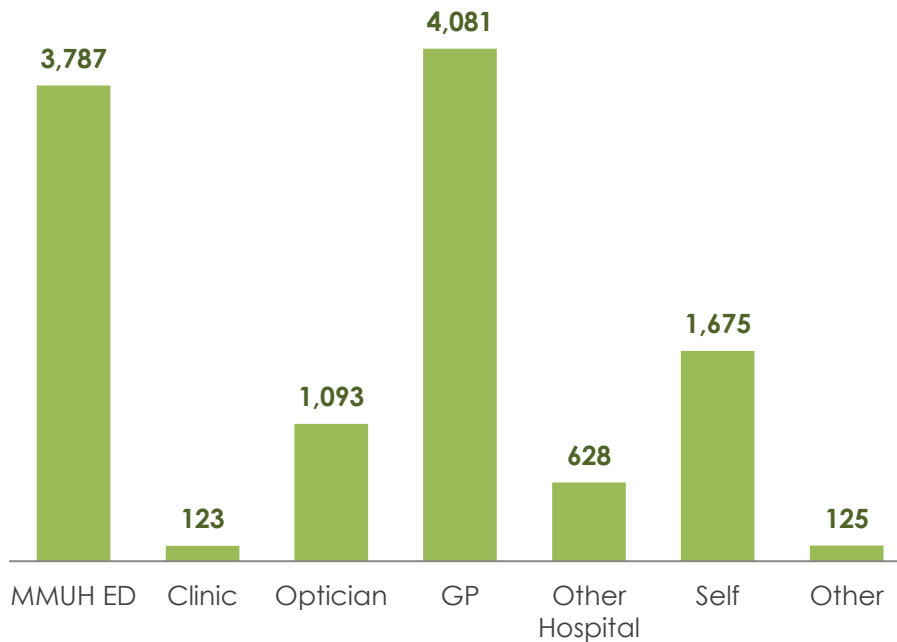
Eye Casualty

The Eye Casualty Department saw over 11,500 patients in 2015. The service currently works on a Monday to Friday basis from 8am to 8pm with the consultant team on call outside of those hours. The Mater provides accident and emergency treatment for urgent, sight-threatening problems and for issues that cannot wait for a routine appointment. Patients are assessed, on arrival, by a nurse who will determine the seriousness of the condition with patients treated in a clear and prioritised manner.

Attendances at Eye Casualty have increased by over 25% in the past 5 years, and it is anticipated that we will soon be looking after 15,000 patients a year. In order to ensure that the ophthalmology service is able to continue to provide a responsive service as the number of patients grows, the team completed a review to consider how we should organise and resource our urgent care services.



Ophthalmology Eye Emergency Department Activity 2015 (by attendance type)



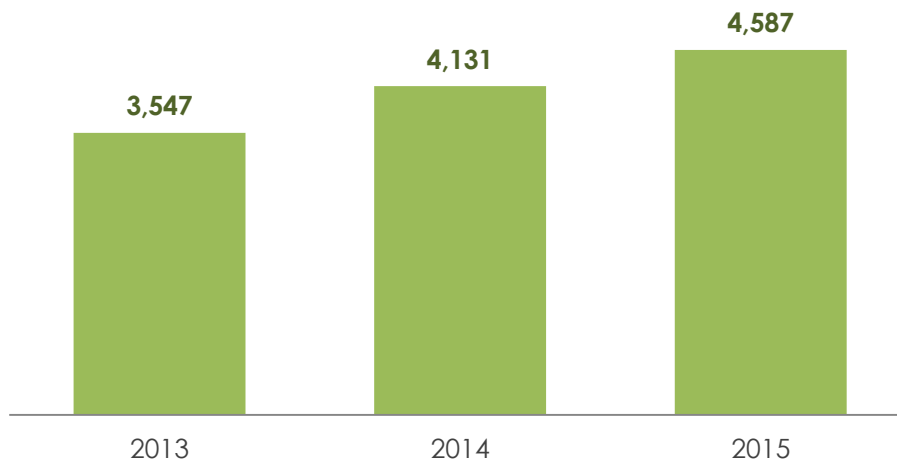
The Mater Hospital undertook a complete redevelopment of its Eye Casualty Department in 2015 to manage the increasing and projected demand for the service. The new standalone Eye Casualty will

- ▶ Improved patient flow through the Eye Casualty Department
- ▶ Improved patient experience and quality of care
- ▶ Significantly reduce the overcrowded Out Patient Department

Ophthalmic Imaging & Diagnostics

Ophthalmic diagnostics are an essential and vital part of the Ophthalmology Department and are integral to the delivery of appropriate care to ophthalmic patients. As the demand to access the Ophthalmology service increases the demand for ophthalmic investigations increases in tandem.

OCT Attendances



Investigations are carried out by clinical/ophthalmic photographers and technicians with the primary goal of providing all diagnostic investigations on the same day as the clinic review

Tertiary Referral Centre

The specialist team at the Mater Hospital provides a comprehensive Ophthalmology service and specialist tertiary referral expertise in

- ▶ Retina
- ▶ Glaucoma
- ▶ Cornea and External Eye Disease
- ▶ Eyelid, Lacrimal and Orbital Disease
- ▶ Neuro-Ophthalmology
- ▶ Strabismus
- ▶ Cataract and Refractive Surgery

Expansion of Community Based Services

In a drive to ensure that patients are seen at the most appropriate level of care the hospital has developed a care model with Medical Optics to reduce the waiting times for patients and ensure that they are reviewed and treated in a safe, streamlined, timely, cost effective manner. The initiative will facilitate GP and Optometry referrals to a service equipped to manage non-surgical and chronic eye conditions outside of the hospital setting.

Patients that require access back to Mater Hospital for surgery or treatment for more complex or acute eye care can do so in a streamlined manner. The benefits of the initiative are

- ▶ Reduce access waiting times for Out Patient and Day Case Ophthalmic care
- ▶ Reviewing routine patients outside of the acute hospital setting
- ▶ Providing access to the Mater Hospital for patients who require surgery or treatment for more complex eye care
- ▶ Direct referral for surgery in Mater Hospital

Over 1,300 patients were referred to the service in 2015,
with a 95% take up rate from patients

Diabetic Retinopathy Treatment Programme

The Mater Misericordiae University Hospital is a fast track treatment centre for the National Diabetic Retinal Screening Programme. Diabetic Retina Screen is the programme that offers free, regular diabetic retinopathy screening to people with diabetes. Diabetic retinopathy is the most common cause of blindness in working age individuals' in Ireland and there are approximately 190,000 people in Ireland with diabetes and 10per cent of them are at risk of sight threatening retinopathy.

EMERGENCY CARE

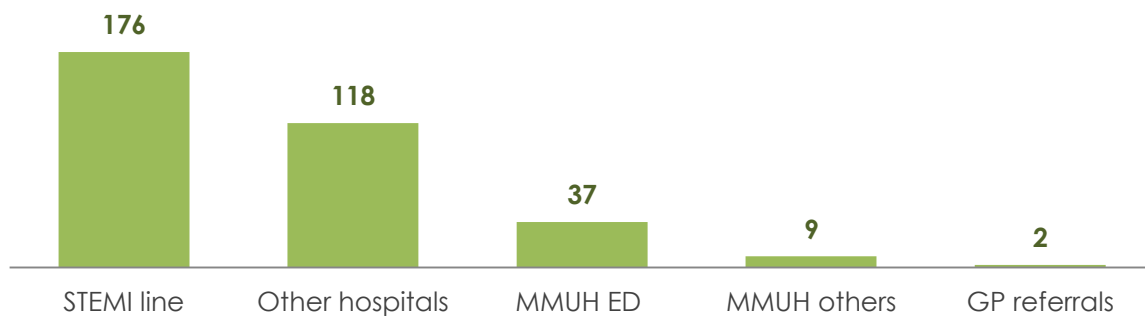
Acute Myocardial Infarction
Emergency Department
Stroke



ACUTE MYOCARDIAL INFARCTION

The treatment options for a heart attack depend on whether the patient is having an ST segment elevation myocardial infarction (STEMI), or another type of heart attack. A STEMI is the most serious form of heart attack and requires emergency assessment and treatment. It is important that patients are treated quickly to minimise damage to the heart. If an electrocardiogram (ECG) shows that the patient has a STEMI, they will be assessed for treatment to unblock the coronary arteries.

Source of Urgent PCI Interventions



The treatment used will depend on when the symptoms started and how soon the patient can access treatment. If the symptoms started within the past 12 hours, the patient will usually be offered primary percutaneous coronary intervention (PCI). The Mater Hospital is the designated primary PCI (percutaneous coronary intervention) centre for north Dublin and the North East of the country. All major heart attacks out of hours from this catchment are sent to the hospital.

In 2015 an Urgent PCI procedure was performed every
25.6 hours

EMERGENCY DEPARTMENT

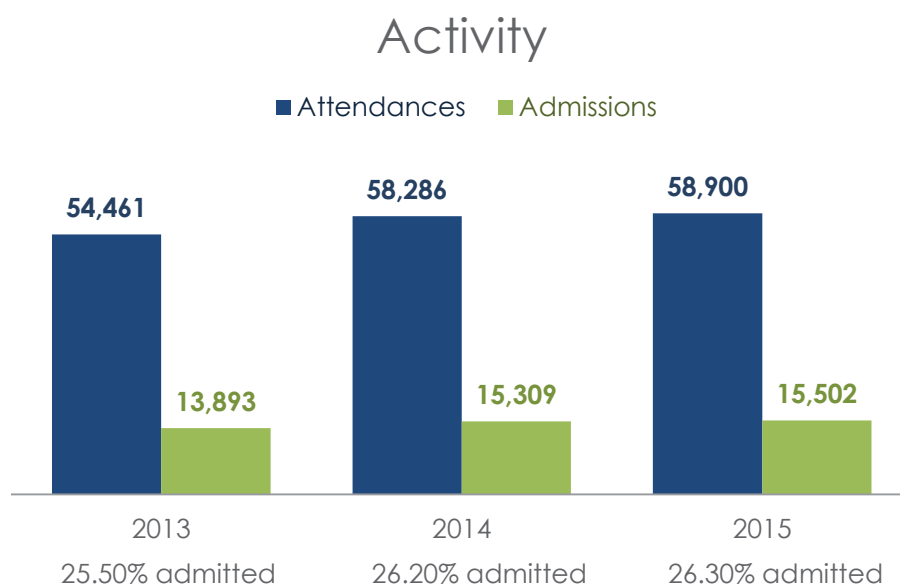
The Mater Misericordiae University Hospital's Emergency Department is a full service, state-of-the-art facility that is equipped to handle any emergency. The department provides a 24-hour emergency service, 365 days a year for the broadest spectrum of patients from minor injuries to most acute complex patients. Patients presenting to the department undergo an initial assessment (triage) soon after arrival to determine the nature and severity of their problem.

In response to the increasing volumes attending the Emergency Department and the continuing increase in acuity levels and triage categories, the Mater opened an Acute Medical Assessment Unit and a Rapid Injury Clinic. They allow better management of patient flow and enables the ED to better treat patients according to clinical need as soon as possible.

Patients attending the Emergency Department

- ▶ 60% of patients are seen and discharged in under 6 hours.
- ▶ 74% of patients are seen and discharged in under 9 hours.
- ▶ Average attendance to discharge time for all ED patients was 8 hours.²
- ▶ Average attendance to discharge time for discharged patients was 4.6hours.³

8% increase in ED attendances between 2013-2011



² MMUH ED data

³ MMUH ED data

71% of in-patient admissions to the Mater Hospital in 2015 were from ED

The Acute Medical Assessment Unit (AMAU) manages acute medical admissions for a variety of patients with the following conditions

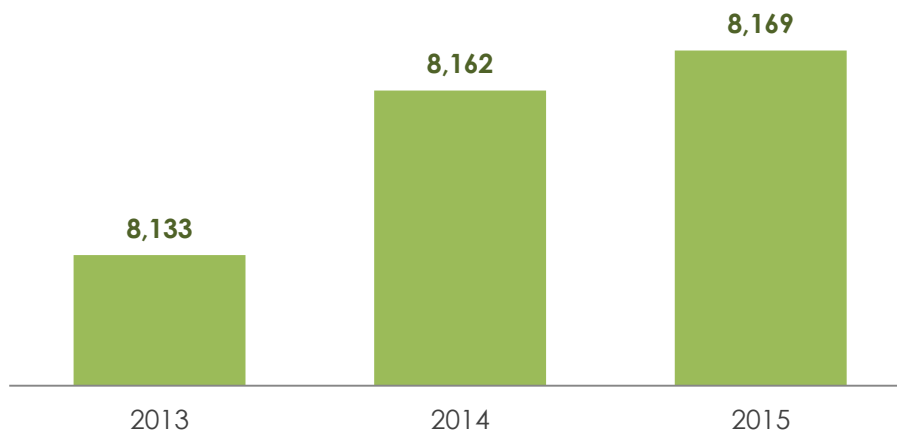
- ▶ Respiratory
- ▶ Endocrine
- ▶ Renal
- ▶ Neurological
- ▶ Cardiac

This short stay ward utilises the Multidisciplinary Team and Community Services to facilitate a safe and early discharge. Almost 3,500 patients used the AMAU in 2015.

Rapid Injury Clinic

In April 2010 the Mater University Hospital Emergency Department opened Dublin's first public Rapid Injury Clinic. The Clinic provides high quality, expert and timely care to patients presenting with non-life threatening injuries and illness. It is open Monday to Friday from 8am to 6pm and is staffed by a Registered Advanced Nurse Practitioner and a Doctor.

Rapid Injury Clinic Attendances



Based in Smithfield the Rapid Injury Clinic now treats approximately 8,000 patients annually for injuries such as fractures, acute wounds, falls and assaults. The volume of patients is about 15% of total Annual Mater ED attendance.

STROKE

Hyper Acute Stroke Unit (HASU)

The Stroke Service at the Mater Hospital aims to provide the highest standard of care including diagnosis, prevention and treatment, for patients with stroke. We are known for the quality of our patient care and our important contributions to the understanding of stroke, which is a major cause of death and disability in Ireland.

The Hospital has a Hyper-Acute Stroke Unit or a HASU as they are known. The unit at the Mater brings experts and equipment under one roof to provide world-class treatment 24 hours a day, reducing death rates and long-term disability. The HASU at the Mater Hospital admits acute stroke patients from across North Dublin and the north east of the country. The unit includes

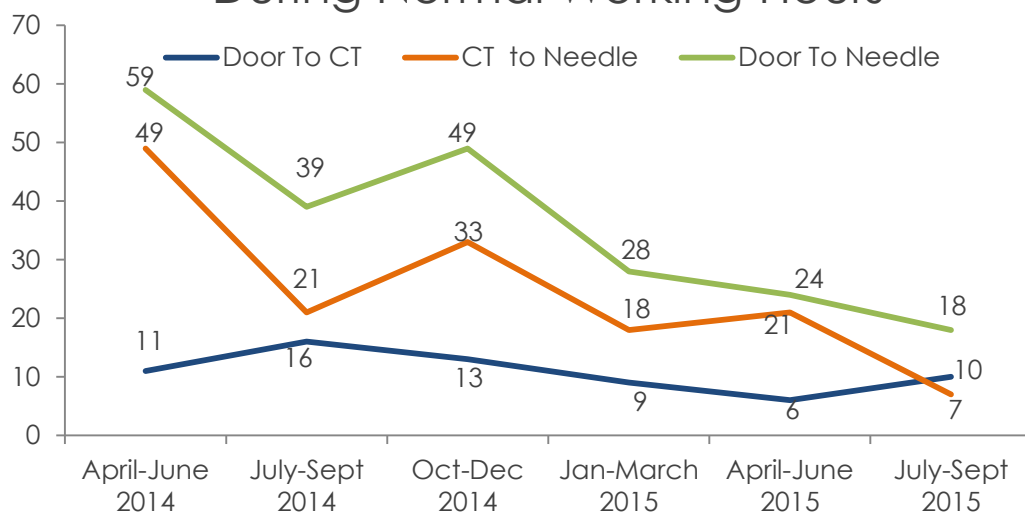
- ▶ Rapid assessment – our patients will arrive at the hospital Emergency Department and be rapidly assessed by the specialist team at the earliest opportunity
- ▶ Early treatment - using thrombolysis, if the scan shows they are needed
- ▶ 24 hours a day, 7 days a week monitoring and physiological intervention in a high-dependency bed
- ▶ A multidisciplinary specialist team on call 24 hours a day, 7 days a week. This includes consultant neurologists, stroke specialists, geriatricians, interventional radiologists, specialist nurses and therapists
- ▶ Smooth transfer of care to onward hospitals (if needed)

In 2014 the hospital's Hyper Acute Stroke Unit, in conjunction with the Mater's Lean Academy, initiated a project to reduce the median Door to Needle Time from 80 minutes to 60 minutes in line with international best practice guidelines. Following a full review of the patient's pathway and the identification of key barriers to quicker treatment a revised Acute Stroke Thrombolysis Pathway was developed.

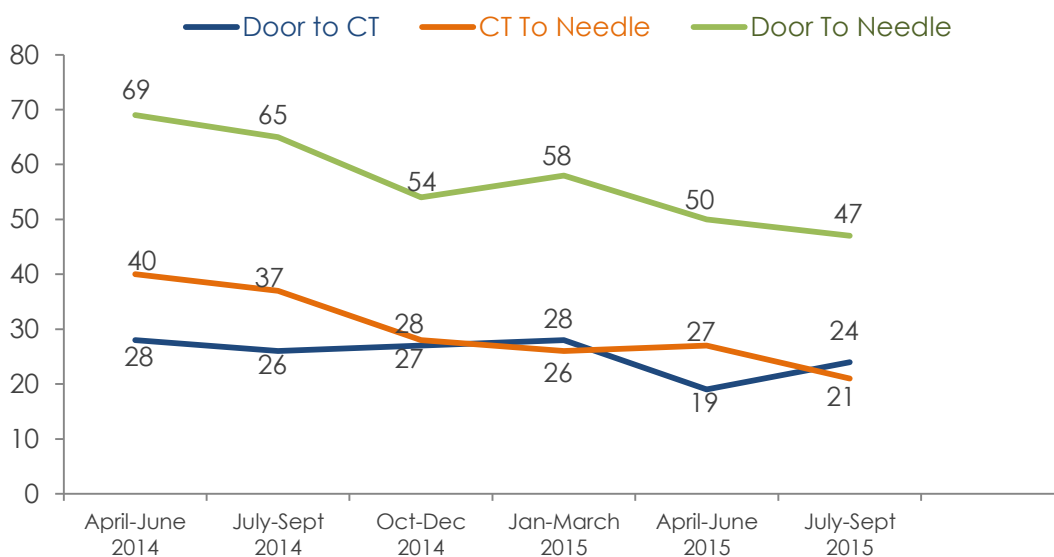
In 2015 thrombolysis rate for ischaemic stroke patients at the Mater was 25%

The new streamlined Acute Stroke Thrombolysis Pathway was implemented on the 10th March 2014. The median door to needle time 'in hours' now is 18 minutes and 47 minutes for 'out of hours'.

During Normal Working Hours



Out Of Hours



LOS for stroke in the Mater has dropped by over 50% in the past 5 years

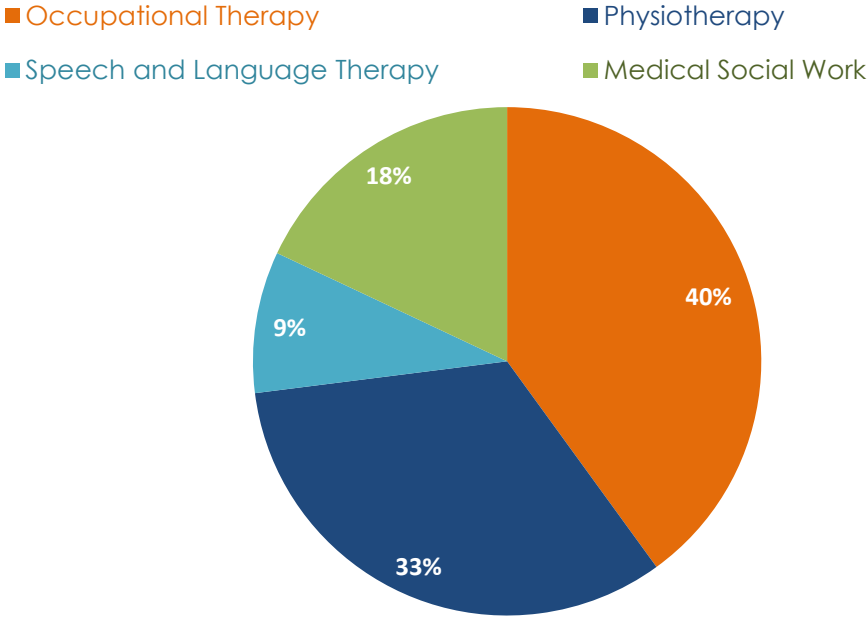
The team at the Mater also run a Rapid Access Transient Ischaemic Attack (TIA) assessment service in the Medical Assessment Unit. These patients, at high risk for stroke, are fast tracked and managed on an ambulatory basis (avoiding hospital admission in the vast majority of cases) with full assessment, including MRI and rapidly treated using latest scientific evidence so as to minimise stroke risk. The service sees approx. 180 patients per annum.



Early Supported Discharge for Stroke (ESD)

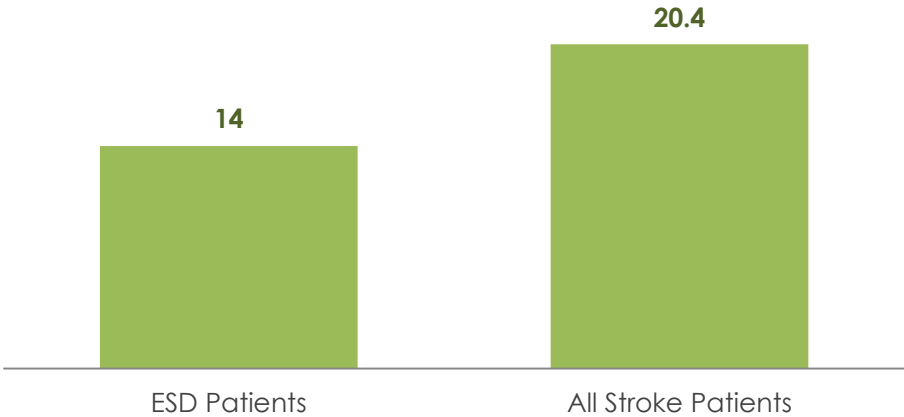
The Mater Early Supported Discharge team is well established and continues to facilitate greater than the target of 4-6 discharges per month from the acute stroke services in the Mater Hospital for patients within the Dublin North catchment area. This specialised stroke rehabilitation/support is carried out in the person's home. Appropriate patients are selected at a weekly multidisciplinary stroke meeting and each patient has a key worker assigned. Patients receive up to 5 visits/treatments per week per discipline as required for up to 8 weeks. Working in the home setting means that the team can target therapy to meet patient's individual needs, setting goals that are specific to their set of circumstances and meaningful in their day to day lives.

Profile of Support Provided

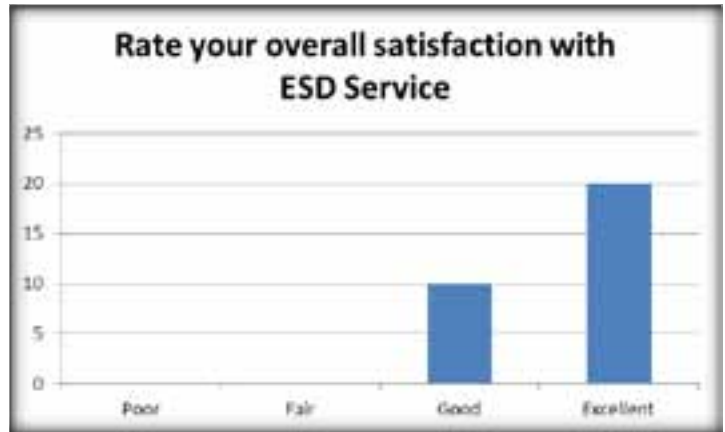


Patients leave the hospital, under the Early Supported Discharge programme, on average 7 days earlier than other stroke patients. 81 patients benefitted from the programme in 2015. Satisfaction levels from both patients and their carers are very high, with the programme improving the patients functional and quality of life outcomes.

Average Length of Stay (Days)



Patient Experience with ESD



32 patient satisfaction surveys were returned in 2015



Clinical Trials

Convince

Prospective, Randomised Open-label, Blinded Endpoint assessment (PROBE) controlled clinical trial. This is an international phase 3 trial to compare low-dose colchicine (0.5mg/day) plus usual care, to usual care alone, to prevent recurrent ischaemic stroke and coronary events after non-cardio embolic stroke and TIA.

Early development work of trial is near completion with the national regulatory approval process ongoing

Transient Ischaemic Attack (TIA) Individual patient data international collaboration project.

This international collaborative pooled data 16 centre validation project robustly demonstrated the external validity of the ABCD3-I risk prediction tool for use in transient ischaemic attack patients. A group lead from Mater Misericordiae University Hospital in 2010 derived a stroke prediction score (ABCD3-I) for use in TIA patients and published the results in Lancet Neurology. In this current study, led by Prof Peter J Kelly and Dr Áine Merwick, centres from Europe, United States, and Asia contributed individual-patient data from 3,535 patients with TIA, with 2,176 patients meeting pre-specified eligibility criteria.

The ABCD3-I score reliably identified highest-risk patients after TIA with improved risk prediction compared with the ABCD2-I and ABCD2 scores.

The specificity of an ABCD3-I score of ≥ 8 for identification of TIA patients who had subsequent stroke by 7 days was 85%, The negative predictive value (probability that 7-day stroke will not occur in patients with ABCD3-I 0-7) was 98.7%.

The work was prepared and presented as a podium presentation at the European Stroke Organisation annual conference and currently in review /re-submission for leading peer reviewed clinical neurology journal. This study has the potential to shape clinical practice and international guidelines.

Mater Misericordiae University Hospital has been an enrolment centre for the TIA registry project, which published it's one-year stroke outcome work in a landmark paper in the New England Journal of Medicine (see page 177 for details).

The study showed multiple infarctions on brain imaging, large-artery atherosclerosis, and an ABCD2 score of 6 or 7 were each associated with more than a doubling of the risk of stroke. The 1-year event rate of a composite cardiovascular outcome (stroke, an acute coronary syndrome, or death from cardiovascular causes) was 6.2%.

Regional Care

Care of the Elderly
Gastroenterology
General Surgery
Hepatology
Neurology
Otolaryngology (Ear, Nose & Throat)
Plastic Surgery
Radiology
Respiratory
Rheumatology
Urology
Vascular Surgery



CARE OF THE ELDERLY

Individual patient needs are at the centre of our approach to Care of the Elderly at the Mater Misericordiae University Hospital. Our approach is always comprehensive with care provided by specialists in geriatric medicine. Our team focuses on prevention as well as providing expert care to manage acute and chronic conditions. The care team at the services outpatient department works closely with the community services to provide the most appropriate care for patients including:

- ▶ Consultative geriatric care
- ▶ Medication assessment
- ▶ Functional assessment
- ▶ Memory and cognitive skills evaluation
- ▶ Dementia care for patients and caregivers
- ▶ Advance care planning
- ▶ Onward referrals as needed

Geriatric Rapid Access Clinic

The Rapid Access Clinic is a GP referral service providing rapid assessment, diagnostics and treatment plans, for older people in the community. The clinic provides rapid assessment with access to diagnostics for patients who are 70 years of age or older. The service provided in Charter's state of the art medical facility and utilises the expertise of Consultant Geriatricians and a specially trained medical and nursing team. The main function of the centre is to proactively diagnose and treat patients deemed to be at risk of requiring emergency admission to hospital. The service provides

- ▶ Specialist assessment of older people within 72 hours of a possible deterioration of a medical problem, to prevent admission into acute hospital
- ▶ Prevent/reduce multiple visits to hospital by providing a medical, diagnostic workup and multidisciplinary assessment
- ▶ Reduce bottlenecks by freeing up urgent slots in outpatient's clinics
- ▶ Improve patient satisfaction by keeping older people services local
- ▶ Enable older people to maximise their independence and prevent premature entry into long-term care.

Mater Community Medicine for Older Person

The Mater Community Medicine for Older Person (MCMOP) was set up in May 2009 to meet the growing healthcare needs of frail older persons in the community, where attendance at the day hospital and outpatients might not be possible. The service provides an outreach specialist geriatric consult service to the general practitioner for their patients in nursing homes and in the older persons' homes in the North Dublin City region. The service collaborates closely with the multidisciplinary team in the community and provides follow up for the frail older patients who have been discharged from the hospital.

The service enables patients to be treated at the most appropriate point of care for their medical needs and

- ▶ Facilitates appropriate hospital avoidance through collaboration of hospital, primary care, long term care staff and admissions to an intermediate care bed at St Mary's Hospital
- ▶ Reduces the number of nursing home transfers to hospitals Emergency Department for end of life care
- ▶ Facilitates appropriate discharge from Emergency Department and early discharge from hospital ward
- ▶ Provides specialist geriatrician opinion for some frail older patients in the community through domiciliary visits

Post-Acute Care Service

In 2015 the Care of the Elderly service at the Mater utilised a total of 75 beds based off the main campus at the Fairview Community Unit in St Vincent's Hospital, Fairview. The unit provides a nursing led service, caring for patients, who have finished the acute phase of treatment but cannot be discharged for various reasons, which can include waiting for the Fair Deal Scheme or community funding. The care is focused on developing and implementing individualised discharge plans away from the acute hospital setting.

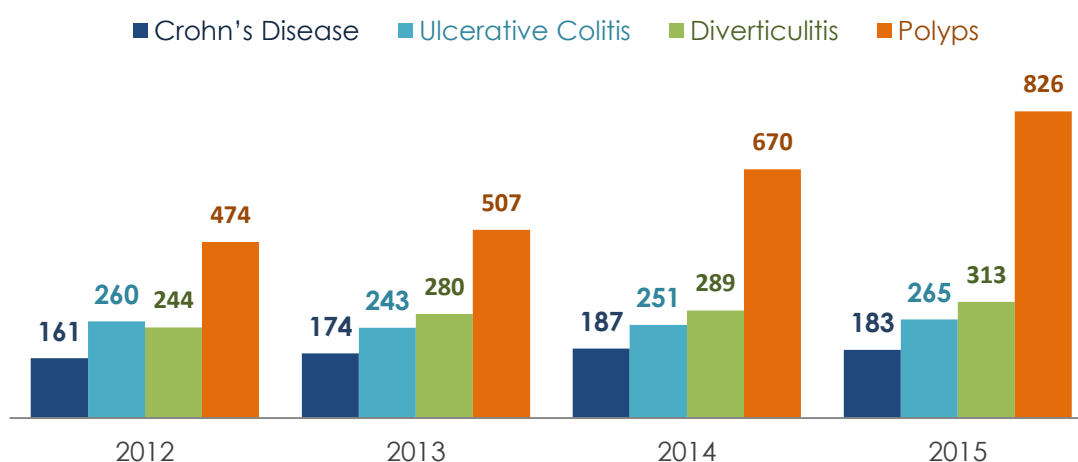
The Post-Acute Care Service provides frail elderly patients with the environment, time and focus that the discharge destination is the right destination for them. In addition, there are 2 direct community admission beds, with the aim of preventing patients presenting to the emergency department and 2 palliative care beds.



GASTROENERGOLOGY

The Mater Hospitals Gastroenterology service offers comprehensive, leading-edge care for patients with all types of diseases of the gastrointestinal tract. Our collaborative team of four gastroenterologists and a clinical endoscopist are dedicated to the prevention, diagnosis, treatment and management of these gastrointestinal disorders. We utilise the latest and most appropriate interventions to provide patients with timely diagnosis and individualised, ongoing care for their specific condition.

Diagnosed Conditions



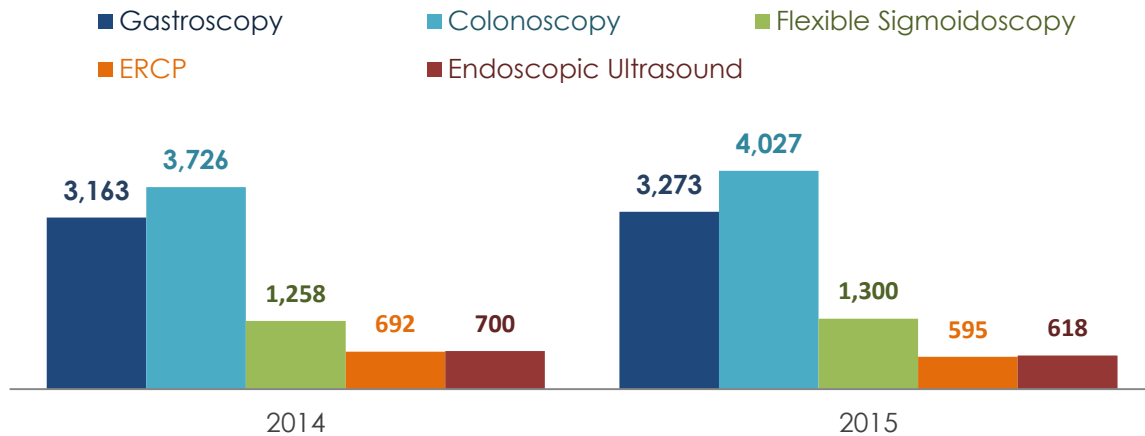
The Mater Hospital is a tertiary referral centre and one of the National Leads in ERCP (Endoscopic Retrograde Cholangio-Pancreatography). In certain cases, patients require a more specialised endoscopic procedure with greater sensitivity and an ability to detect gastrointestinal abnormalities that a regular endoscopy may miss. ERCP is a diagnostic procedure used to examine the gallbladder, bile and pancreatic ducts. ERCP combines X-ray and endoscopy, allowing the consultant to obtain high-quality images of the anatomy.

ERCP is used when it is suspected that the person's bile or pancreatic ducts may be narrowed or blocked due to

- ▶ tumours
- ▶ gallstones that form in the gallbladder and become stuck in the ducts
- ▶ inflammation due to trauma or illness, such as pancreatitis
- ▶ infection
- ▶ valves in the ducts, called sphincters, that won't open properly
- ▶ scarring of the ducts, called sclerosis
- ▶ pseudocysts—accumulations of fluid and tissue debris

ERCP is a technically demanding procedure with the National Guidelines recommending between 200-300 procedures performed annually by each endoscopist to maintain the relevant competence level.

Procedures



BowelScreen

The national bowel cancer screening programme (BowelScreen) is a national population screening programme for bowel cancer. It offers screening every 2 years to all men and women aged 60 to 69. Patients who have an abnormal screening test are offered a colonoscopy procedure. This investigational procedure is carried out in one of 14 designated hospitals around the country. The hospital is one of those 14 designated hospitals for BowelScreen and in addition it provides the full symptomatic service for patients that are diagnosed with cancer.

The service is accredited by the Joint Advisory Group on Gastrointestinal Endoscopy (JAG) whose purpose is to ensure that each endoscopy services have the skills, resources and motivation necessary to provide the highest quality, timely, patient-centred care.

Family Screening Clinic

Colorectal cancer can run in families, and about 5-10 percent of colorectal cancer is thought to be hereditary. We offer family screening programmes for Hereditary Non-Polyposis Colorectal Cancer (Lynch Syndrome) and Familial Adenomatous Polyposis (FAP) to determine an individual's risk for colorectal cancer. Our practice follows patients who have an increased risk for polyps, colorectal cancers, gastrointestinal cancers, pancreatic cancer and related cancers.

Almost 2,700 patients are involved in the screening process

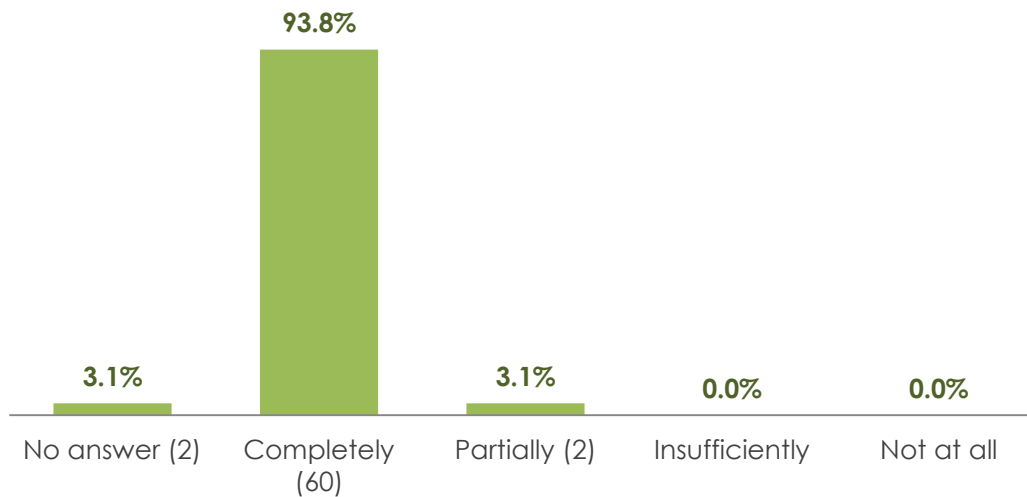
In excess of 90 families are referred annually to the screening service to evaluate cancer risk and implement a screening and cancer prevention strategy. This can comprise of a single individual or up to 20 family members. To date we have assessed 1,823 families since starting this service. The team collaborate closely with clinicians in other specialties so that individuals are risk stratified and offered colonoscopy +/- gastroscopy, genetic testing and gynaecology surveillance where appropriate. On-going surveillance is a central component of this service with patients returning for screening at 1-5year intervals. To date, our database includes in excess of 2688 patients.

Patient Experience

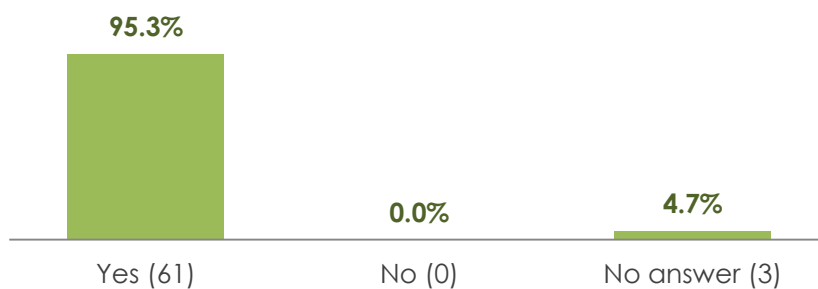
The Mater Hospital strives to put the patient at the centre of everything that we do. Measuring patient satisfaction is an important part of that process. It allows us to be constantly improving the care we deliver.

The GI Unit runs patient's satisfaction surveys that cover many areas including hygiene, courtesy to patients, privacy and their overall satisfaction with the service. The data below is from the patient experience survey was carried out in the GI Unit in October.

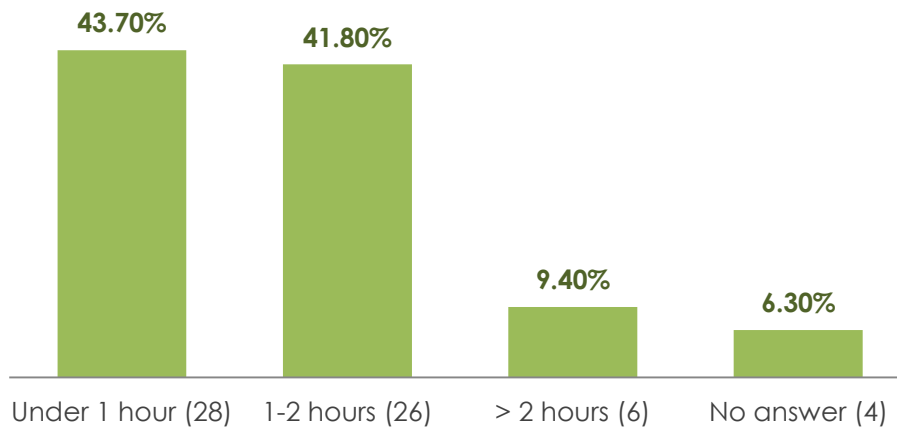
Overall were you treated politely and with respect in the Endoscopy Unit?



Were you satisfied with the cleanliness of the Endoscopy Suite?



How long after your appointment time was your procedure carried out?

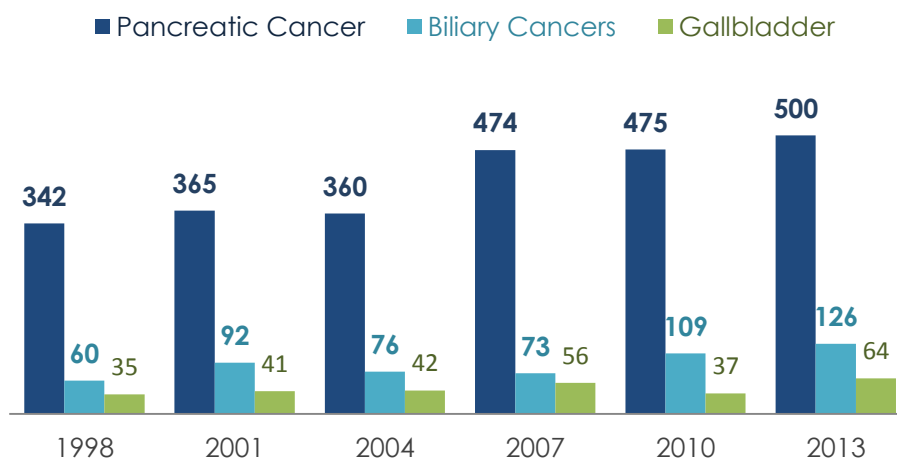


GENERAL SURGERY

A comprehensive General Surgery service is provided at Mater Misericordiae University Hospital, encompassing emergency care, inpatient care and day surgical practice. The team of general surgeons provide emergency surgery on an on-call rota basis. The Hepato-Pancreato-Biliary (HPB) surgical teams at the Mater Misericordiae University Hospital provides local, tertiary and national referral service for patients and is one of the four national referral centres for HPB diseases. We work closely with our colleagues St Vincent's University Hospital who provide the National Surgical Centre for Pancreatic Cancer (NSCPC) and the National Liver Transplant Programme.

The HPB team includes surgeons, diagnostic/interventional radiologists, hepatologists, gastroenterologists, oncologists, and pathologists with special interest in biliary, liver and pancreatic diseases. Our hospitals provide a comprehensive range of treatments for primary and secondary liver cancers and biliary tract cancers.

National Cancer Incidence

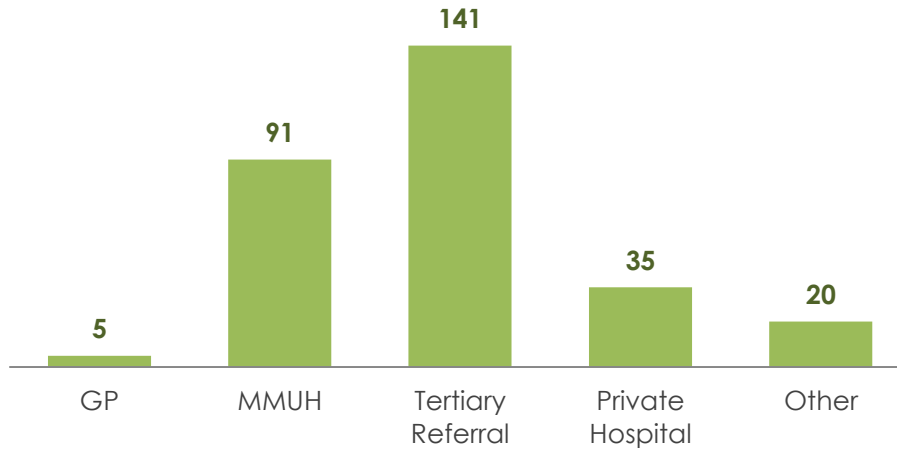


Diagnosis

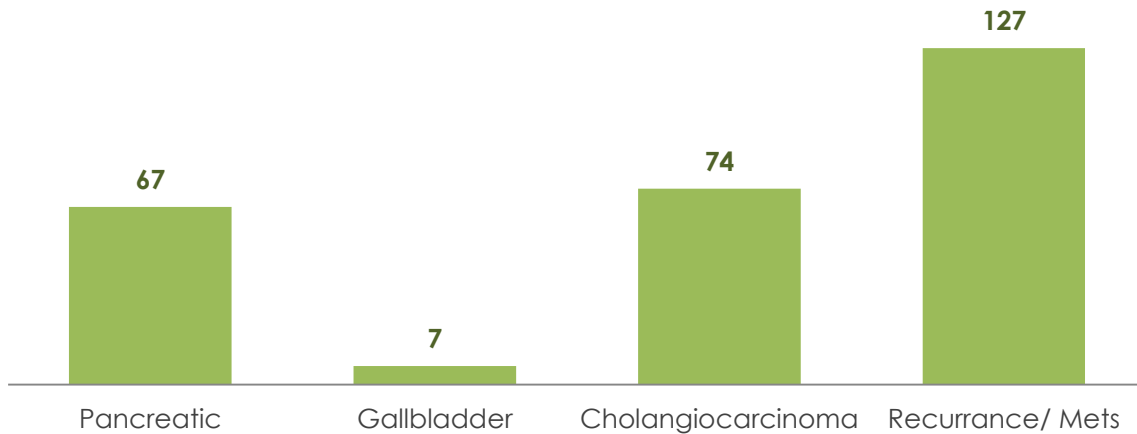
As one of the four national referral centres the Hepato-Pancreato-Biliary services accepts a large proportion of tertiary referrals. In 2015 tertiary referrals accounted for almost half of all referrals to the service.

Our diagnostic and imaging facilities are some of the most sophisticated and up to date of their kind. The specialist radiologists undertake complex interventional procedures, supported by our highly experienced senior radiographers and specialist nurses. From computerised tomography (CT) and magnetic resonance imaging (MRI) to positron emission tomography (PET) and ultrasound scans, we are able to deliver high quality images which speed the time from diagnosis to treatment and help to identify the most appropriate treatments for patients and their condition.

Referral Analysis (MMUH)



2014 Diagnosis



Treatment

The Hepato-Pancreato-Biliary (HPB) surgical team is one of the four tertiary referral centres nationally for HPB diseases along with Cork University Hospital, Galway University Hospital and St. Vincent's University Hospital. The unit has specialist expertise in the management of liver, pancreatic and biliary disease. This includes treatment of both benign and malignant conditions.

The HPB team includes surgeons, diagnostic/interventional radiologists, hepatologists, gastroenterologists, oncologists, and pathologists with special interest in biliary, liver and pancreatic diseases. They use innovative techniques to provide quality care to patients with an increasingly large proportion of liver resections is now performed laparoscopically, enhancing a prompt recovery. With minimally invasive techniques, patients are usually discharged within a few days of the operation and return to a normal activity and lifestyle in two to three weeks.

Long term survival is possible even when the colorectal tumour has spread to the liver (liver metastases). The combination of chemotherapy and advanced liver surgery, when possible and indicated, is very safe, usually very well tolerated by patients and represents the best treatment for colorectal liver metastasis. The liver is able to rapidly regenerate in case of need. This allows our surgeons to remove large amount of liver when needed.

Liver resection (removal of the tumour along with part of the healthy liver) can be achieved either using minimally invasive surgical techniques (laparoscopy) or through an incision (open liver resection). The technique used depends on location, number and size of liver metastasis.



Interventional Radiology

Close interaction with Diagnostic and Interventional Radiology and Pathology services is crucial to the delivery of HPB services. The Interventional Radiology (IR) group delivers an increasing number of treatments for hepatocellular carcinoma with TACE and local ablative techniques, principally radiofrequency and microwave ablation. IR also faces an increasing workload to support pancreatic cancer patients with biliary drainage procedures and techniques such as portal vein embolization to support extensive liver resection procedures.

For patients whose colon cancer has spread to the liver (stage IV), liver-directed therapies may be offered if it is not possible to remove the cancer surgically. These therapies, which may be used alone or with biologic agents, include

I. Ablation

Which uses extreme temperatures to destroy tumour cells.

Types of ablation include

- ▶ **Radiofrequency ablation** – uses a needle-like probe to deliver heat to the tumour
- ▶ **Cryotherapy** – uses a probe that is super-cooled using argon gas, causing tumour cell death
- ▶ **Microwave ablation** – uses microwave to deliver heat to the tumour
- ▶ **Irreversible electroporation** – uses electrical fields to cause cancer cells to die while protecting non-cellular structures such as blood vessels and bile ducts.

II. CHEMOEMBOLISATION

Chemoembolisation of the hepatic artery, the liver's main blood supplier, involves blocking the artery and injecting anticancer drugs between the blockage and the liver. The liver's arteries then deliver the drugs throughout the organ. Only a small amount of the drug reaches other parts of the body.

III. RADIOEMBOLISATION

This procedure uses radioactive (Y90) resin (SIR-Spheres®) is being offered in the Mater Misericordiae University Hospital for the treatment of unresectable colorectal liver metastases. There is increasing evidence in the International literature supporting this therapy, including increased survival. The Mater is currently the only hospital offering this therapy in Ireland.

All cases are discussed at GI Surgical Oncology MDM and require careful coordination between Interventional Radiology and Oncology. 10 patients have been treated in the first year and referrals, from outside institutions, are increasing.

Downstaging Chemotherapy

Approximately 15% of patients with initially inoperable liver metastases from bowel cancer are ultimately resected, after neo-adjuvant chemotherapy. The treatment is available to patients and have been associated with a better response rate than conventional regimens.

HEPATOLOGY

At the Mater Hospital, our liver specialists have the experience and expertise to accurately diagnose and offer world-class treatments for all forms of liver disease, including viral hepatitis, fatty liver, alcoholic liver disease, autoimmune liver diseases and liver cancer.

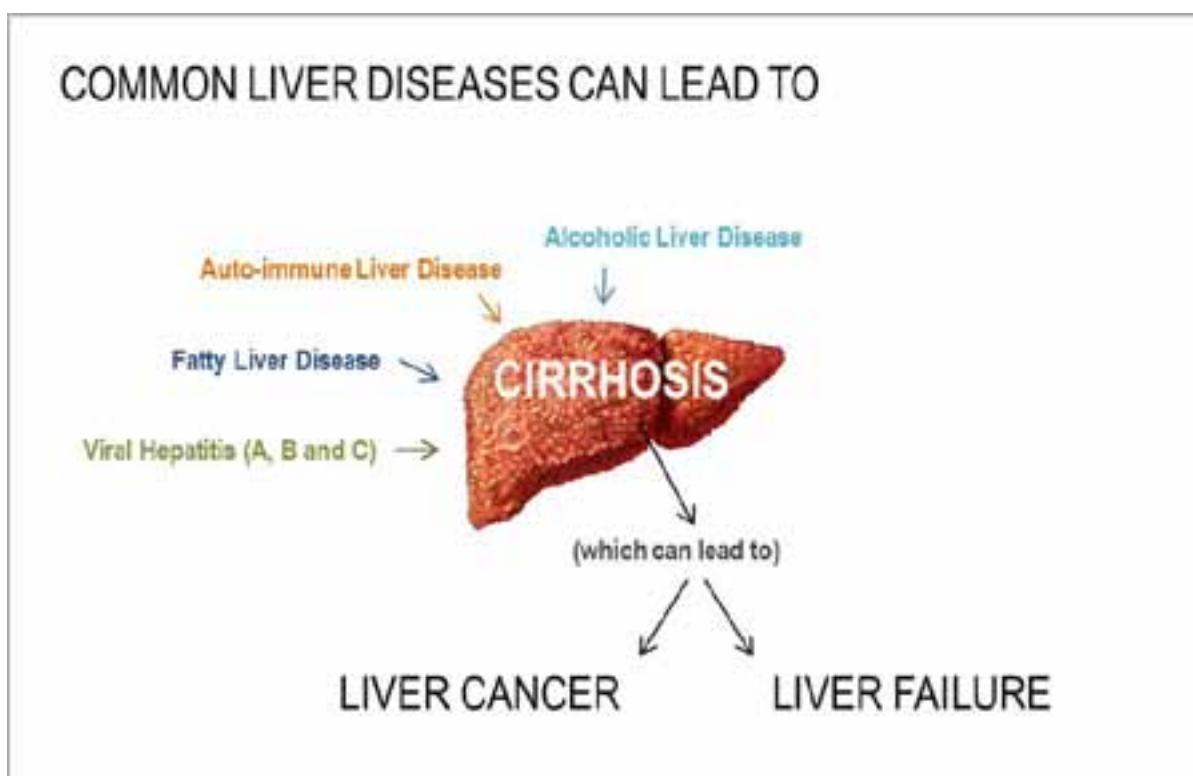
Many common liver diseases can cause the organ to become inflamed. This inflammation can progress to scarring, or cirrhosis. Patients with cirrhosis, due to any type of liver disease, are at an increased risk for liver cancer or liver failure. Liver cancer and liver failure can be treated by a multidisciplinary approach including radiation, medication, or surgery, including transplant.

Multi-disciplinary Team

We provide a multidisciplinary team approach, utilising the experience and expertise of specialists in imaging, pathology, surgery and oncology to provide our patients with comprehensive care of their liver disease.

The Mater Hospital's diagnostic radiology team uses the most advanced imaging tools to diagnose and stage liver cancer and to detect tumour changes. Our imaging technologies include

- ▶ High-speed two- and three-dimensional CT studies with volumetric analyses
- ▶ Positron Emission Tomography/Computed Tomography (PET/CT)
- ▶ Magnetic Resonance Imaging (MRI)
- ▶ Intraoperative Ultrasound



Liver Cancer (Hepatocellular Carcinoma)

Liver cancer is diagnosed and treated by a multidisciplinary team that includes our hepatologists and experts from a number of other departments, including hepato-pancreato-biliary surgery, interventional radiology and medical oncology. As with any cancer, early diagnosis is critical. Patients with certain liver diseases are susceptible to liver cancer and should be screened regularly. Our hepatologists have experience in determining who needs to be screened and how often.

Treating the Underlying Causes

In early cirrhosis, it may be possible to minimise damage to the liver by treating the underlying cause. The options include

- ▶ **Treatment for alcohol dependency**
- ▶ **Weight loss.** People with cirrhosis caused by nonalcoholic fatty liver disease often benefit if they lose weight and control their blood sugar levels
- ▶ **Medicines to control hepatitis.** Medications may control damage to liver cells caused by hepatitis B or C

Treatment

Treatment depends on the cause and extent of the damage to the liver. At the Mater Hospital we provide the latest, most effective treatments including many innovative approaches to clinical care and promising new therapies, including

- ▶ Radiofrequency ablation
- ▶ Innovative endoscopy approaches
- ▶ Laparoscopic liver resections
- ▶ Complex liver resections.
- ▶ Liver transplantation in conjunction with our colleagues in St Vincent's University Hospital
- ▶ Percutaneous Portal Vein Embolization to induce liver regeneration before surgery



NEUROLOGY

The Department of Neurology integrates compassionate care with state-of-the-art care and a rigorous research focus. Our expert subspecialty care is aided by the latest medical technology, and provides multi-disciplinary, high-quality and compassionate care to patients suffering from Neurological conditions. The department is a leader in the treatment of diseases of the nervous system, and the leading academic department in Neurology in Ireland. The Mater Hospital's multi-disciplinary team comprises of

- ▶ 4 Consultant Neurologists
- ▶ 2 Consultant Physicians
- ▶ 1 Consultant Psychiatrist
- ▶ 1 Psychologist
- ▶ 1 Fellow in Movement Disorders

Dublin Neurological Institute

The Dublin Neurological Institute provides a centre of excellence where clinical care and research thrive together linking clinical service with the basic sciences at the Conway Institute, UCD to study Neurological degenerative diseases including Stroke and Multiple Sclerosis. The Institute provides a framework to a network of Neurological Institutions both nationwide and internationally.

This year approximately 44,000 people across Ireland will be diagnosed with a neurological condition

Specialist Clinics

Diagnostic tests for all patients are carried out on the day ward, which also specialises in the administration of IV medication for neurology patients. In addition, the team also runs the following specialist clinics

- ▶ Headache clinic
- ▶ Stroke/Hypertension clinic
- ▶ Young Brain and Vascular clinic
- ▶ Neuromuscular clinic
- ▶ Complex Epilepsy clinic
- ▶ Physiotherapy clinic
- ▶ Relaxation Therapy
- ▶ Neurogenetics Research clinic
- ▶ Parkinson's clinic
- ▶ Family Care Support clinic
- ▶ Headache clinic
- ▶ Neuroimmunology clinic



OTOLARYNGOLOGY (EAR, NOSE & THROAT)

The Otolaryngology (ENT) service at the Mater Hospital provides comprehensive patient care and treatment for patients with ear, nose and throat conditions. Our Ear, Nose & Throat (ENT) consultants bring extensive experience and expertise to the care of each individual patient. Consultants at the hospital provide a full spectrum of services including

- ▶ Allergy
- ▶ Ear Surgery (Otology)
- ▶ Facial Plastic Surgery
- ▶ Head & Neck Cancer
- ▶ Sinus Disease (Rhinology)
- ▶ Swallowing Disorders
- ▶ Thyroid Surgery
- ▶ Voice Disorders (Laryngology)

Our Otolaryngologists provide comprehensive evaluation and medical/surgical treatment for patients with all Ear Nose and Throat conditions. We deal with all aspects of ENT from minor procedures such as the removal of tonsils or adenoids to major complex head and neck surgery.



Head & Neck Cancers

The Head and Neck Cancer teams at the Mater Hospital are highly experienced in using state of the art approaches for cancer care. The multidisciplinary team structure excels in providing personalised clinical care and, when appropriate, participating in leading edge clinical research.

Treatment of head and neck cancer often impacts speech, swallowing, and appearance. And it is a priority of our care teams to maximize the patient's quality of life, and we strive to minimise the impact of the cancer and to help patients cope with side effects of intervention. Minimally invasive surgery and reconstructive surgery options are carefully integrated into overall treatment recommendations.

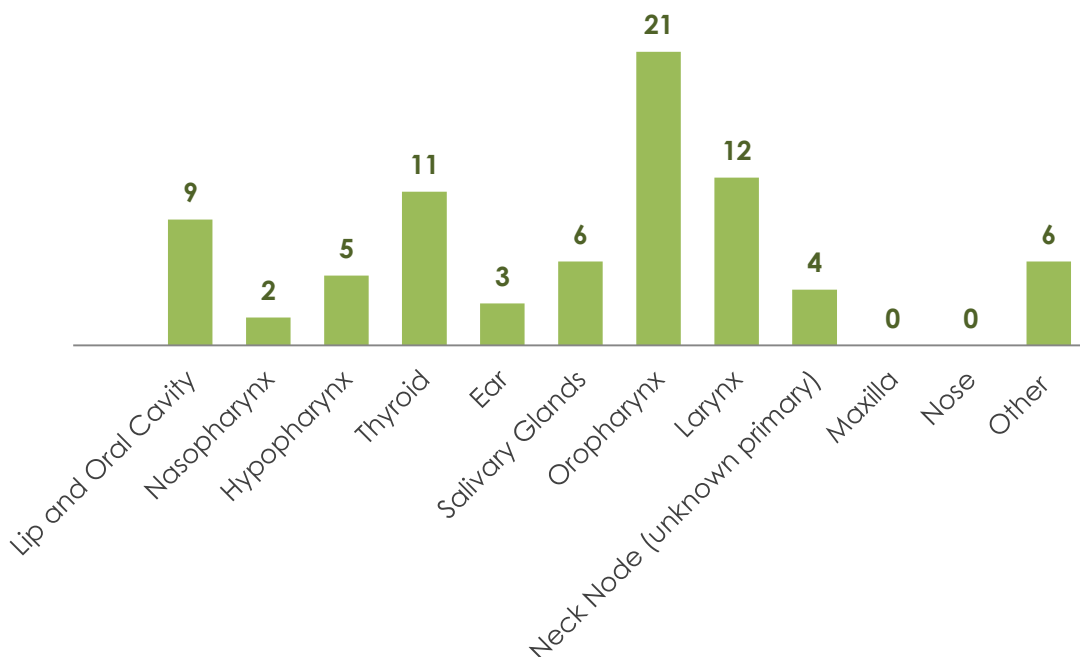
Multidisciplinary Team Care

Multidisciplinary Meetings bring a range of relevant expertise together to collaboratively to review a patient's condition and determine the best treatment plan. Through this multidisciplinary approach, patients have access to a diverse team of cancer experts instead of relying on a single opinion. Our otolaryngologist and medical oncology specialists collaborate with imaging and other surgical experts to provide comprehensive care for every patient.

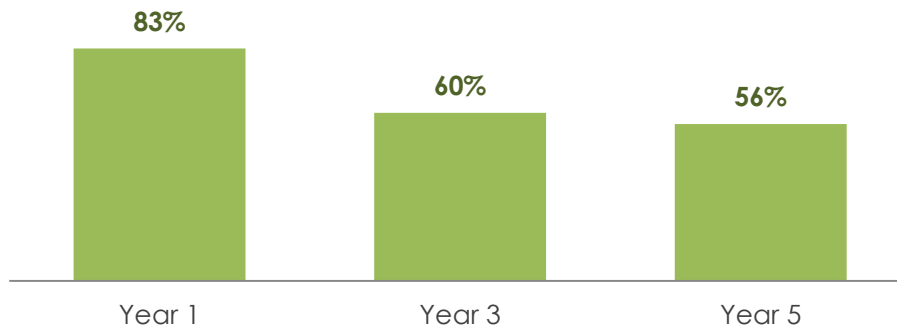
After providing a diagnosis, our specialists meet with each patient to develop an individualised treatment plan for their cancer and preserving each patient's quality of life. Our services include

- ▶ Approaches to head and neck cancers focusing on preserving function and appearance
- ▶ Minimally invasive surgery, when possible
- ▶ State-of-the-art reconstructive surgery and rehabilitation to minimize the morbidity of treatment

Head and Neck Cancer Breakdown



Head and Neck Cancer 5 Year Survival Rates for Patients Diagnosed in 2010



MATER HOSPITAL



PLASTIC SURGERY

Plastic Surgery is a broad field that includes not only cosmetic or aesthetic surgery, but also surgical repair of congenital deformities such as cleft lip and palate, laser surgery, post-surgical reconstruction such as breast and head-and-neck defects, microsurgery and hand surgery.

As a team, our plastic surgeons collaborate with consultants from other medical and surgical specialties to give our patients comprehensive care of their needs. These include specialists in Otolaryngology (ENT), Colorectal, Gynaecology, General Surgery, Orthopaedics, Thoracic and Dermatology.

Lower Limb Trauma

The Mater Misericordiae University Hospital receive patients with major trauma, including multiple serious injuries that could lead to death or serious disabilities. Our team treat the full range of leg and general trauma conditions requiring plastic surgery, including scarring and acute and secondary reconstruction in upper and lower limbs.

This includes patients with serious injuries to their legs (lower limbs). Patients who have suffered serious injuries to these parts of their bodies, such as open fractures, often need surgery to fix the bones and reconstruct their skin and soft tissues. At the Mater Hospital our expert team, which includes consultant surgeons from plastic surgery and orthopaedics work together to optimum care for each individual patient.

Cancer

Plastic surgery represents an important component of the comprehensive care of cancer patients with breast, gynaecological, head and neck, colorectal, skin, and orthopaedic cancers. One of the primary roles of plastic surgery is to extend the ability of other surgeons and specialists to more radically treat cancer, thereby offering patients the best opportunity for cure. Many of the advances in this field are in surgical treatment of head and neck cancer, sarcoma, and tumours of the breast and chest wall. Surgeons at the Mater Misericordiae University Hospital use high-tech imaging and sophisticated perforator flap procedures to ensure that our patients benefit from

- ▶ minimal site discomfort
- ▶ less postoperative pain
- ▶ faster recovery times

Breast Cancer

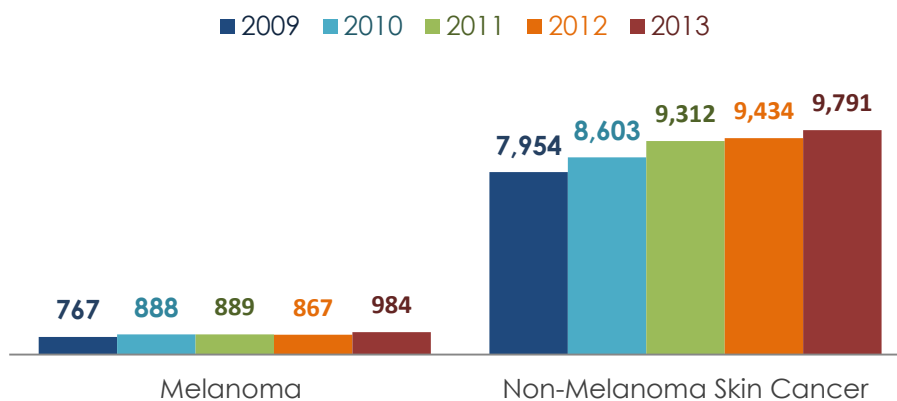
The Mater Hospital's plastic and reconstructive surgeons specialise in complex breast reconstruction procedures and have successfully completed reconstructions for hundreds of women, restoring their self-image after cancer treatment.

Our consultants are experienced in all forms of reconstruction, including microvascular surgical options that use a patient's own tissue, such as the DIEP flap. This state-of-the-art breast reconstruction procedure utilises the patients' abdominal excess skin and fat tissue without the sacrifice of abdominal muscle. This allows for the preservation of abdominal strength and integrity and requires a significant microsurgical expertise to perform.

Skin and Soft-Tissue Cancer Reconstruction

Skin Cancer is the commonest cancer in Ireland, with over 10,000 cases being diagnosed in 2013 and the number of cases increasing by over 23% in the 5-year period 2009-2013. However, in most cases it is completely curable. It is also the commonest cancer in the 15-44 age group. Skin cancer is divided into two main groups: Melanoma, and Non-Melanoma Skin Cancer such as Basal cell or Squamous cell carcinoma.

National Incidence of Skin Cancer



Source: National Cancer Registry of Ireland

Melanoma can be the more serious form of skin cancer, and can be fatal. However, if diagnosed and treated early, it can be cured.

Our surgeons utilise advanced surgical techniques, to ensure that patients experience the lowest possible recurrence rates, minimised scarring, and improved aesthetic outcomes. The collaboration between our plastic surgeons and dermatology specialists means that most patients have reconstruction surgery on a same-day basis, decreasing recovery time.

Reconstructive Surgery

Plastic surgeons in the Mater Hospital provide reconstructive surgery services that restores patient's appearance, functionality and mobility. The team use a variety of leading-edge reconstruction techniques for patients with head and neck cancers. Using sophisticated software and imaging, our surgical team prepares tailored plans and perform advanced microvascular surgery to ensure minimal disruption at the reconstruction donor site and to help achieve optimal outcomes.

In colorectal surgery the removal of large tumours, often results in large open wounds or the loss of a large area of tissue in the perineal area. Perineal reconstructive surgeries are often indicated when the tissue defects are large and primary closure is impossible.

Reconstructive surgery is performed by our expert plastic surgeons for patients who have had a simple or radical vulvectomy. Procedures that remove a large area of skin from the vulva, usually require skin grafts from other parts of the body to cover the wound. If a skin graft is required, the plastic surgeon does the procedure after the gynaecologist has carried out the vulvectomy.



Fáilte / welcome

An Roinn Reideolaíochta
Department of Radiology

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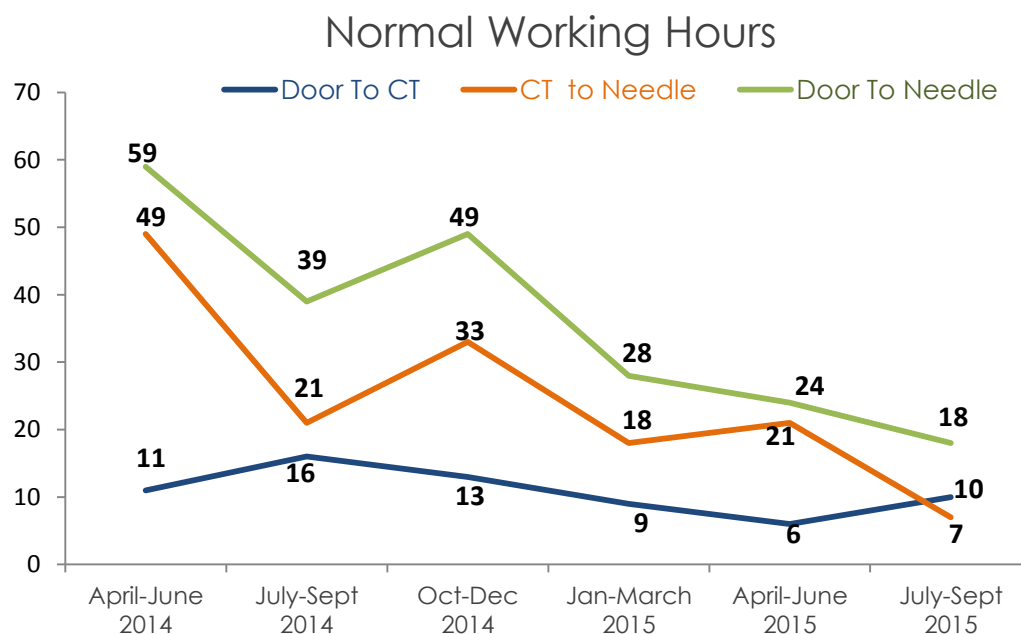
RADIOLOGY

The Mater's Department of Radiology provides the complete range of diagnostic imaging and interventional services integrated with services provided by the disciplines and specialities of the hospital. The team utilises the latest imaging technology to diagnose and treat patients at all stages of care. The consultants at the Mater Hospital provide sub-specialty expertise in contemporary imaging modalities for diagnostic and therapeutic procedures. This expert team provides a range of services for emergency, elective and urgent care for all areas of the hospital including cancer, cardiovascular, spinal trauma and stroke.

Emergency Department Diagnosis

Rapid response and early intervention are considered of paramount importance for patients with acute stroke. Computed tomography (CT) has revolutionised the assessment of patients who present with an acute neurologic deficit with the head CT scan now playing an integral role in the screening and treatment of stroke patients. In 2014 the Stroke Unit, working closely with the Radiology Department, the Emergency Department and the Mater's Lean Academy, initiated a project to reduce the median Door to Needle Time from 80 minutes to 60 minutes for stroke patients.

The radiology team of consultants and radiographers provide high quality patient centred radiology services to the Emergency Department 24 hours a day, and are a core part of the team that have reduced the key Door to Needle time from 80 minutes in early 2014 to 18 minutes at the end of 2015.



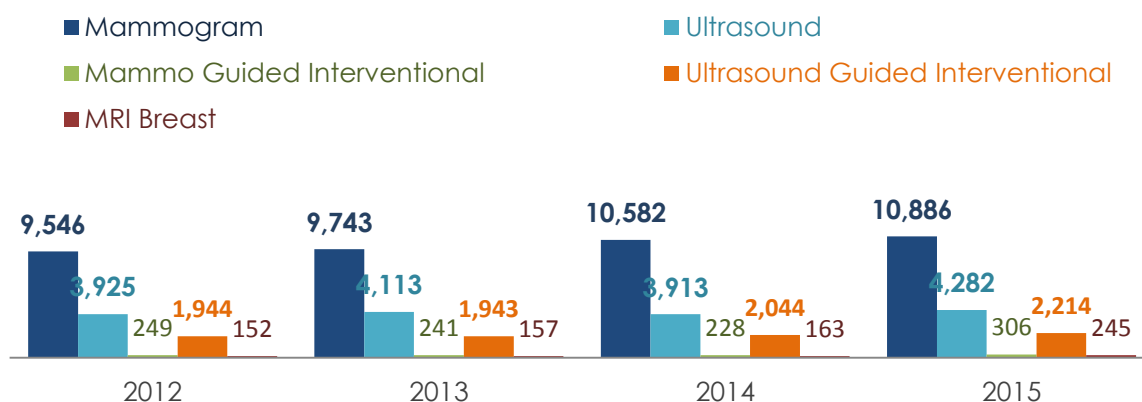
One of the key components of the project was reducing the Door to CT time, the diagnostic scan. In 2013 the median Door to CT time for stroke patients was 47 minutes. Following a thorough review of the process and the introduction of a new Acute Stroke Thrombolysis Pathway the Door to CT time reduced from 47 minutes to 10 minutes. A major component of the reduction in the average the Door to Needle time from 80 minutes to 18 minutes.

Breast Imaging

The Breast Imaging service at the Mater Misericordiae University Hospital provides comprehensive breast-imaging services, including screening and diagnostic mammography, through the Symptomatic Breast Health service. The team provide a range of clinics specially tailored to the needs of the patients including the Triple Assessment Clinics (TAC) where a woman may receive her clinical examination, radiological investigation and, if necessary, tissue sampling on the same day.

Breast MR is now the screening test of choice for detecting breast cancer in women with a high risk of developing breast cancer. The state of the art 3Tesla magnet machine, installed in 2014, allows for more advanced imaging, and when combined with the move from stereotactic core breast biopsies to vacuum assisted breast biopsies, enables significantly improved diagnostic accuracy.

Breast Health Imaging



The Clinic was established in 2000 and is located beside the Eccles Unit of the National Breast Screening Programme (BreastCheck) with our consultants providing their expertise in both centres. The unit also offers dedicated Family History Clinics for women with a strong family history of breast cancer.

MRI-Guided Breast Biopsy

Our specially trained radiologists use MRI-guided breast biopsy to precisely locate and remove cells from a suspicious area in the breast for diagnosis and treatment planning. This minimally invasive, image-guided procedure, allows our radiologists to position the coils as close to the breast as possible to achieve higher quality images and faster scan times. During the biopsy, the needle rotates positions without having to withdraw and reinsert it, allowing us to collect additional tissue samples.

Breast Tomosynthesis

Digital breast tomosynthesis creates a 3D image of the breast and overcomes some inherent limitations of mammography clinical performance caused by overlapping of normal and abnormal tissues during the standard 2D projections. It has improved cancer detection rates and reduces recall rates. It is particularly helpful in women with dense breasts in which the sensitivity of mammography is reduced significantly. It will be used in the diagnostic work up of patients where it has been shown to improve diagnostic accuracy.

Nuclear Medicine

Using state of the art facilities, the Nuclear Medicine service at the Mater Hospital provides a full range of clinically focused diagnostic and therapeutic nuclear medicine procedures, including

- ▶ Bone imaging
- ▶ Functional studies of renal and gastrointestinal physiology
- ▶ Tumour imaging
- ▶ PET/CT,
- ▶ SPECT
- ▶ SPECT/CT

As X-rays pass through soft tissue, such as intestines, muscles, and blood vessels, these tissues are difficult to see on a standard X-ray. Nuclear imaging allows visualisation of organ and tissue structure as well as function.

A new state of the art gamma camera is now available at the Mater Hospital. The SPECT/CT provides true 3D information and improves diagnostic sensitivity. The introduction of this technique provides improved detailed anatomical images for a range of conditions.

Xofigo

Xofigo(r) Radium 223 therapy is a radioisotope therapy for patients with metastatic Prostate carcinoma. The treatment is provided in the Department of Nuclear Medicine in Radiology and is a cooperative effort between Radiology, Radiation Oncology and Oncology. Xofigo is injected through a peripheral vein and targets cancer tissue in bone which is often the most significant manifestation of prostate cancer spread. The treatment is well tolerated and is often less toxic than other therapies. Patients can leave the department and go home within 10 minutes of the injection being completed. Xofigo has become the standard of care for some patients with Prostate cancer has spread and is available to all appropriate Mater Hospital patients with funding support from the NCCP.

Cardiac MRI

At the Mater Hospital our 1.5 Tesla and 3 Tesla MRI allows state of the art Cardiovascular Imaging. A cardiac MRI is a special type of MRI (magnetic resonance imaging) exam designed to look at the structure and function of the heart. It may also be used to assess blood vessels in the body. Every exam is interpreted by a cardiac-imaging specialist with additional expertise and advanced training in MRI. Cardiac MRI offers superior images of the heart muscle when compared to other Imaging techniques such as echocardiography (cardiac ultrasound) or CT (computed tomography). It may involve contrast—an injection that makes the images more vivid and informative—but uses no X-rays or radioactivity, unlike some imaging exams. It produces high-quality moving or still images and is usually performed to offer complementary information that other exams cannot provide.

High quality cardiac MRI is essential for The National Centre for Adult Congenital Heart Disease, which is based in the Mater Hospital

Cardiac MRI has become the standard of reference for measurement of right ventricular volume and function. Reproducible right ventricular assessment is of particular importance in the Adult Congenital Heart Disease (ACHD) population, as clinical decisions are usually based on a change in serial data rather than single absolute values.

Interventional Radiology

The importance of imaging technology extends well beyond diagnosis and into treatment. Real-time imaging techniques allow specially-trained clinicians to perform minimally invasive procedures for a number of different conditions. These interventional procedures often require smaller incisions, carry fewer risks of complication, and take less recovery time than traditional surgery.

The interventional radiologists who perform procedures at the Mater Hospital are specialists in the area of the body and the condition under treatment, as well as the procedure itself. In addition to the training that all radiologists receive, these specialists have additional education, plus extensive real-world experience.

Our teams of interventional radiologists and allied healthcare professionals coordinate a patient's complete care, from imaging evaluation to post-procedure follow-up, maintaining a high level of communication with the patient and the referring physician throughout the process.

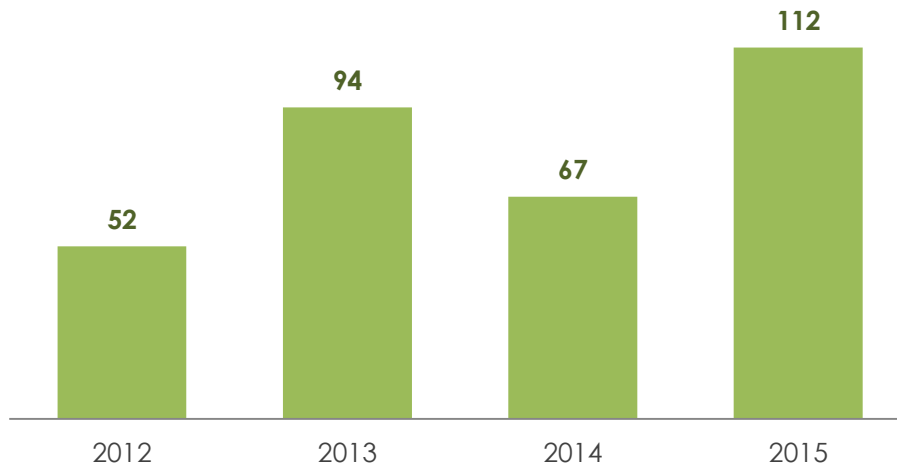
Radioembolization

The Mater Misericordiae University Hospital is currently the only hospital in the country offering Y90 Radioembolization as a procedure for the treatment of unresectable colorectal liver metastases. The introduction of the programme is based on the increasing evidence (including survival) in the International literature supporting this therapy.

All cases are discussed at GI Surgical Oncology MDM and require careful coordination between Interventional Radiology and Oncology. Setting up this service required proctoring with Physicians from Oxford University which entailed 7 visits to the Mater. Each therapy involves an outpatient meeting with an Interventional Radiologist to discuss risks, potential benefits and practicalities of the treatment. One admission for planning angiography, prophylactic embolization and nuclear medicine calculation of lung shunt fraction is necessary with a second admission required for the treatment session.

10 patients have been treated in its first year

Embolisation Procedures



Percutaneous ablation

Percutaneous ablation is now a well-established potentially curative therapy for certain renal, lung and liver tumours. In addition, there is an increasing evidence base supporting its use in oligometastatic disease. These procedures require careful planning and administration by trained Radiologists. They are minimally invasive and can potentially save the patient invasive surgery and its associated morbidities.

The Mater Misericordiae University Hospital offers the full range of thermal ablation procedures including radiofrequency ablation, microwave ablation and most recently cryotherapy. All potential cases are discussed at Multi-Disciplinary Meetings. Careful attention is given to correct patient selection and appropriate ablative technology. Cryotherapy is now a treatment option for renal tumours. The therapy offers improved real time monitoring of the patient and less risk of damage to the renal collecting systems compared to other ablative procedures such as radiofrequency ablation. Conversely, microwave therapy in the liver potentially offers a larger ablation zone with less risk of bleeding.

As minimally invasive therapies, generally requiring no more than one-night admission, they also offer benefits to both the patient and the hospital.

MRI Guided Targeted Prostate Biopsy Programme

The Mater Hospital, as a dedicated Prostate Cancer center, performs a complete diagnostic and interventional radiology service including trans-rectal prostate biopsy (TRUS), lymph node biopsy, isotope bone scan, MRI of prostate and CT and PET/CT for staging. Each patient's case is discussed at the dedicated weekly prostate cancer/urology multidisciplinary meeting.

A new targeted biopsy technique using image guidance has been shown to diagnose 30% more high-risk cancers and 17% fewer low-risk cancers compared to standard biopsy. According to published research, the results suggest that targeted biopsy could significantly enhance the ability to identify high-risk prostate cancer patients who need more aggressive treatment.

In 2014 radiologists at the hospital began the Targeted Prostate Biopsy programme

Musculoskeletal Radiology

The Musculoskeletal Radiology service of the Mater Hospital is a leading provider of diagnostic services and image-guided therapies to patients with joint and spine disorders. The team specialises in all areas of musculoskeletal imaging, including arthritis, infection, metabolic disease, trauma, tumour, sports medicine and congenital abnormalities and strives to achieve the highest quality of care for each patient.



RESPIRATORY

The Mater Misericordiae University Hospital is a major national respiratory centre providing care to patients with a whole range of respiratory disease. The services at the hospital include

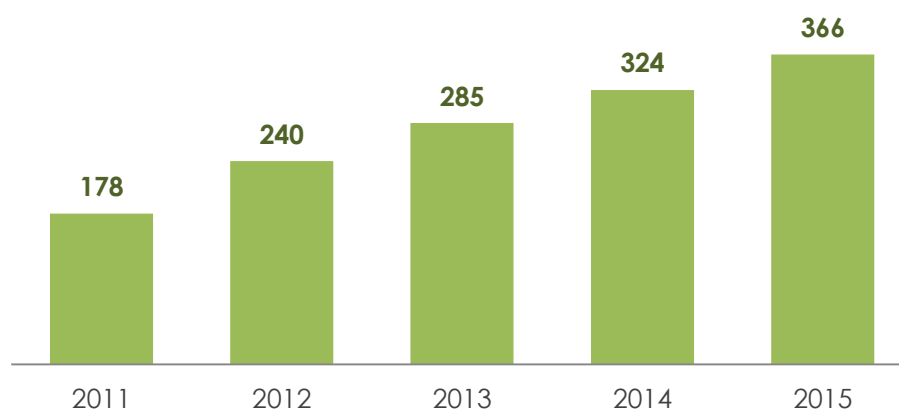
- ▶ National Lung Transplantation Unit
- ▶ National Referral Centre for patients with Pulmonary Arterial Hypertension
- ▶ One of the eight National Cancer Control Programme (NCCP) centres for Lung Cancers in Ireland

The hospital is also a regional referral centre for many other respiratory services.

Rapid Access Lung Cancer Clinic

The Mater Hospital is one of the eight National Cancer Control Programme (NCCP) centres for the diagnosis of Lung Cancers in Ireland. Our Rapid Access Lung Cancer Clinics provides a fast track diagnostic service where lung cancer is suspected. In 2015 our rapid access clinics saw over 350 patients, representing an increase of over 100% in the last 5 years.

Rapid Access Lung Cancer Clinic New Attendances



Over 98% of patients referred to the Rapid Access Clinic were offered an appointment within 10 working days

National Lung Transplant Programme

The National Lung Transplant Programme at the Mater Hospital brings together state-of-the-art technology and leading-edge medical and surgical interventions to provide patients with individualised care before and after their lung transplants.

One of the main goals of lung transplantation is to help patients live longer, better quality lives. At the Mater, we bring together a personal care team of lung disease specialists to provide comprehensive treatment for every patient. This team meets regularly including

- ▶ Respiratory consultants
- ▶ Thoracic surgeons
- ▶ Cardiologists
- ▶ Endocrinologists
- ▶ Thoracic nurses
- ▶ Transplant coordinator

Our dedicated transplant team provides comprehensive treatment for patients who require transplantation due to a variety of conditions, including

- ▶ Chronic obstructive pulmonary disease (COPD)
- ▶ Bronchiectasis
- ▶ Cystic fibrosis
- ▶ Pulmonary fibrosis
- ▶ Pulmonary hypertension
- ▶ Sarcoidosis
- ▶ Other interstitial lung diseases



Nearly half of all patients receiving lung transplantation in Ireland have Cystic Fibrosis

Pulmonary Hypertension

The Mater is also the National Centre for Pulmonary Hypertension (PH). Pulmonary Hypertension is a rare lung disorder in which the arteries that carry blood from the heart to the lungs become narrowed, making it difficult for blood to flow through the vessels. It is a severe disease with untreated patients surviving on average between 2-3 years.

The estimate prevalence (total number of people with PH) in Ireland is 26 per million with the number of new cases annually (incidence) of 7.6 per million.

Treatment of patients with Pulmonary Hypertension requires a high level of integrated care across several specialities. The specialities most frequently involved in patient's care are

- ▶ Rheumatology for Connective Tissue Services
- ▶ Thoracic Surgery for Lung Transplant and Pulmonary Endarterectomy
- ▶ Cardiology for Adult Congenital Heart Disease



RHEUMATOLOGY

Consultant Rheumatologists at the Mater Misericordiae University Hospital provide innovative and comprehensive diagnosis, treatment and management for arthritis and a wide spectrum of other rheumatic diseases.

The team is led by 4 Consultant Rheumatologists with specialist interests

- ▶ Dr Suzanne Donnelly: Pregnancy and connective tissue, medical education and pulmonary hypertension
- ▶ Dr Conor McCarthy: Osteoporosis, Rheumatoid Arthritis, Spondylitis, Shoulder and Back Pain
- ▶ Prof Geraldine McCarthy: Crystal-Induced Arthritis. Osteoarthritis. Osteoarthritis and Calcium Crystal Deposition. Rheumatoid Arthritis. Systemic Lupus Erythematosus
- ▶ Prof Gerry Wilson: Inflammatory Arthritis, Osteoarthritis, Epigenetics in Rheumatic Diseases



Gout and Crystal Arthropathy

The Gout and Crystal Arthropathy service at the Mater Hospital provides individualised, high-quality care to patients with gout, pseudogout, and other crystal arthropathies. Our team of experts is dedicated to providing excellence in patient care through early diagnosis, personalised treatment, and research in these conditions.

The diagnosis and treatment of gout and crystal arthropathy requires a careful review of the patient's symptoms, physical findings, and previous testing. Once the diagnosis is confirmed, our team delivers optimal gout care with a coordinated long-term approach that involves

- ▶ Patient education
- ▶ Individualised lifestyle advice
- ▶ Appropriate use of anti-gout medications

Inflammatory Arthritis Service

It is now recognised that the best outcome for patients with rheumatoid arthritis are achieved when it is treated early. The Mater Hospital provides an emergency review clinic that aims to quickly assess, and if appropriate, start treatment for patients with suspected inflammatory arthritis (IA).

The clinic performs clinical assessments, laboratory investigations and imaging, including ultrasound examinations where indicated. This can be more sensitive than clinical examination alone for picking up the presence of inflammatory arthritis.

The information from these investigations is used to optimise treatment, and identify patients who are at high risk of developing erosive disease. These patients are offered treatment as early as possible, ideally within four months of their symptoms starting.

UROLOGY

The Urology Service at Mater Misericordiae University Hospital provides expert, individualised care for a range of urologic conditions, from the common to complex — including national service for penile cancer and urethroplasty and is one of the 6 National Prostate Cancer Centres.

Our multidisciplinary approach integrates the needs of patients with the expertise of urologists and a team of multidisciplinary experts creating a patient-centred environment that ensures optimal care. The urology service at the hospital combines patient convenience with the latest technology, including minimally invasive surgical options.

Almost 400 people were diagnosed with a urological cancer in 2015, with half of those diagnosed with prostate cancer

Rapid Access Prostate Clinics

The Mater Hospital is a designated centre for prostate cancer and provides a Rapid Access Prostate Clinics (RAPC) as part of that service. These clinics provide rapid access to a prostate clinic where they will be assessed by a Urologist. The clinics were established to speed up the process of referring men with a possible prostate cancer, to bypass waiting times for out-patient clinics and to provide access to prostate biopsy more quickly for those who need it.

Rapid Access Prostate Clinic (New Patients)



In conjunction with the Mater Private Hospital, our surgeons have carried out over 900 robotically assisted prostate cancer surgeries in the last 5 years.



Renal Cancer

In addition, the prostate cancer programme the team treat large complex renal tumours that have spread to the inferior vena cava. These tumours are usually associated with significant mortality and morbidity. Urologists at the Mater Hospital work in collaboration with their colleagues in cardiac surgery, general surgery and anaesthesiology in caring for these patients.

Penile Cancer

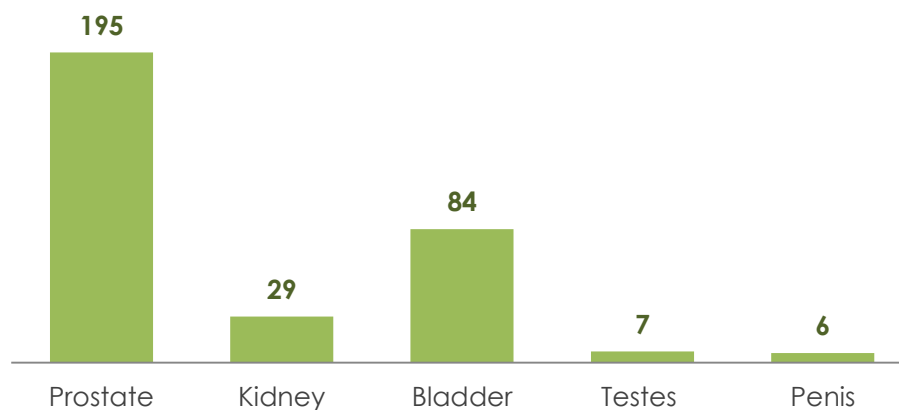
In 2014 a multidisciplinary team was set up for the management of penile cancer, under the lead of Mr Paul Hegarty. This is a rare malignancy affecting 25-30 men in Ireland each year. The team now receives tertiary referrals for the management of these patients and in the team sees over 50% of the new cases in the country. This programme now includes organ preserving surgery to achieve optimal functional, cosmetic and psychological outcomes.

The first Sentinel Node Lymph Node Biopsy for penile cancer in Ireland was performed at the Mater Hospital and the team have set up Dynamic Sentinel Lymph Node biopsy for the management of regional lymph nodes.

Multidisciplinary Team Meeting

Our multidisciplinary team incorporates Radiologists, Pathologists, Medical and Radiation Oncologists, with the support of Clinical Nurse Specialists. We interact extensively with our Interventional Radiology Colleagues in the management of Renal Obstruction.

Urological Cancers



Source: MMUH Data 2014

The multidisciplinary meeting is an essential component of the service. Patients with a definitive diagnosis of cancer have their further management decided by the team. All patient cases are reviewed at the multi-disciplinary meetings, where our specialists review and discuss the condition and treatment options for a patient.

All patients who have tissue sampling are discussed at the MDM meeting within one week

MRI Guided Targeted Prostate Biopsy Programme

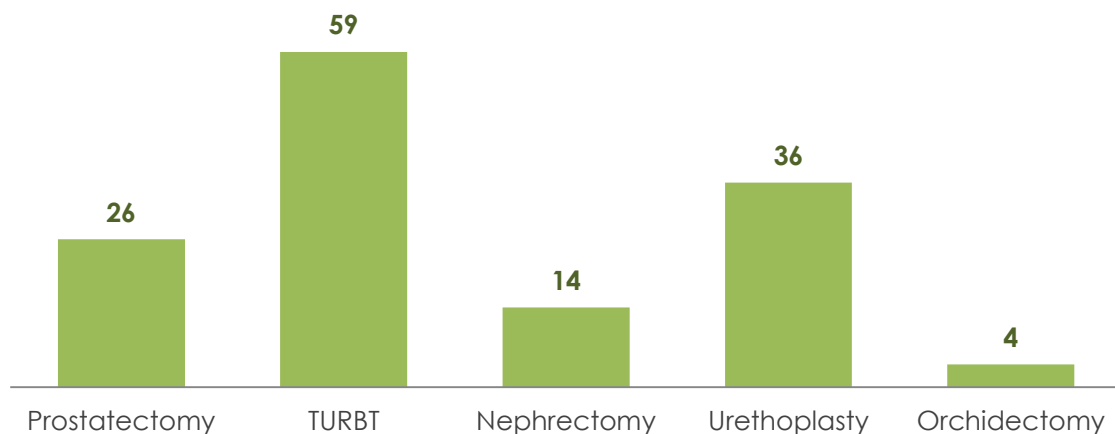
The Radiology team at the Mater perform a complete diagnostic and interventional radiology service for prostate patients including trans-rectal prostate biopsy (TRUS), lymph node biopsy, isotope bone scan, MRI of prostate and CT and PET/CT for staging.

In 2015 the team began a Targeted Prostate Biopsy programme. Targeted biopsy refers to direct tissue sampling of suspicious areas, as opposed to the older method of random, systematic sampling. The new method employs sophisticated MRI (magnetic resonance imaging) technology, to visualise the prostate cancer, and fusion of the MR images with real-time ultrasound. This method enables better sampling of suspicious prostate lesions detected at MRI and has been shown to detect 30% more high-grade prostate cancers.

Treatment

The hospital is one of the 8 prostate cancer diagnostic centres and 6 prostate cancer treatment centres in the country. In conjunction with the Mater Private Hospital, our surgeons have carried out over 900 robotically assisted prostate cancer surgeries in the last number of years. Patients travel from all over the country to avail of this innovative surgical technique and the advantages it can offer to recovery, which include a shorter hospital stay, less blood loss and a quicker return to normal activities. The Mater is looking at developing this service to include bladder and kidney cancer.

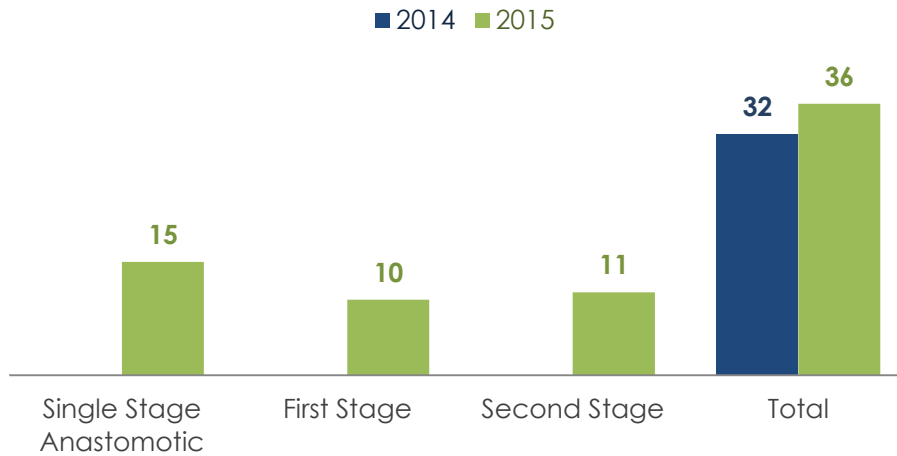
Procedures (2015)



Urethra Reconstruction Centre

The Mater Hospital is the major referral centre for urethral reconstruction surgery (urethroplasty) and accounted for over 90% of all cases performed in the country in 2015. The service is a consultant to consultant referral service with the vast majority of patients referred to the hospital by urologists from around the country.

Urethroplasty



Urethroplasty is the surgical procedure that repairs an injury or a defect within the walls of the urethra. The two main sources of patients for surgery are

- ▶ Urethral stricture: A narrowing of the urethra most commonly from injury, previous surgery, infection and some non-infectious inflammatory conditions of the urethra. Patients can suffer with a range of complications with some patients suffering acute urinary retention.
- ▶ Pelvic bone fractures from motor vehicle trauma or crush injuries which result in urethral tears or disruptions. Often the urethra is completely torn

Patients who suffer traumatic urethral injuries (from road traffic accidents) often have associated vascular and nerve damage affecting the penis and urethra, and over half suffer erectile dysfunction as a result of the injury.

A two-stage urethroplasty is indicated in patients with complex stricture disease

Stones Unit

The Urology Service provide a tertiary referral service for complex or exceptionally large kidney stones. Treatment is with a thin fibre-optic telescope that is introduced into the kidney from the bladder via the urethra. The stones are pulverised in situ using a laser that is part of the telescope. The procedure effectively fragments the stones, and gives better clearance for the patient. The lifetime risk of developing stones is estimated to be around 10% and can be higher in certain populations. As stones tend to recur, surveillance is an important for any person with a history of stones. For non-complex patients' treatment usually consists of breaking up the stones with non-invasive shock waves (lithotripsy).



VASCULAR SURGERY

Vascular and Endovascular Surgery at the Mater Misericordiae University Hospital, has a long tradition of excellence in clinical care, innovative methods of evaluation and treatment, education and training, and clinical and research in the treatment of vascular diseases.

Successful treatment of vascular disease requires a multidisciplinary approach. The Vascular team at the hospital work to provide surgical options to help patients achieve their treatment goals. Our surgeons treat an increasing percentage of patients with vascular disease using minimally invasive or endovascular surgical methods. We offer the full spectrum of diagnostic and interventional procedures, including non-invasive vascular laboratory testing, state-of-the-art imaging techniques and the latest minimally invasive technologies to treat conditions such as

- ▶ Aortic aneurysms
- ▶ Arterial occlusive disease of the carotid, renal/mesenteric and lower extremity arteries
- ▶ Cerebrovascular disease
- ▶ Complex aneurysm disease
- ▶ Varicose veins

Our surgeons employ state-of-the-art techniques in vascular and endovascular surgery and collaborate with cardiologists, cardiac surgeons, interventional cardiologists, and many other specialists to provide advanced care for people with complex vascular conditions. Vascular surgeons at the Mater Hospital offer a full range of procedures, including

- ▶ Minimally invasive endovascular repair
- ▶ Carotid endarterectomy
- ▶ Carotid artery stenting
- ▶ Surgical bypass procedures to restore circulation and prevent limb loss





HEALTH & SOCIAL CARE PROFESSIONS

Audiology
Pharmacy
Physiotherapy
Speech & Language Therapy



AUDIOLOGY

The Mater Hospitals audiologists provides comprehensive, collaborative and patient-centred hearing healthcare for patients. Our audiologists assess hearing prior to consultation with the otolaryngologist, provide pre-operative and post-operative evaluations and assist in the diagnosis of hearing and vestibular problems. The service that includes precision testing, informed interpretation, and care plan development towards workable hearing loss solutions with aural rehabilitation and assistive devices including hearing aids and cochlear implants.

In 2015 the team at the Mater Hospital implanted the first BAHA (bone-anchored hearing aid). The BAHA is a surgically implanted device that is used for patients with certain types of hearing loss. The BAHA hearing aid is comprised of a speech processor and a titanium implant. The speech processor sends vibrational energy to the titanium implant and helps overcome a problem of the middle or inner ear (due to multiple ear surgeries, a congenital abnormality or absence of the middle ear, or single sided deafness) and stimulates a functional inner ear directly.



PHARMACY

The pharmacy provides and supervises the use of all medicines prescribed in the hospital. It also provides a range of patient centred, safety-oriented services with cost effectiveness as a cornerstone. The service is delivered through five discrete services

- ▶ Dispensary
- ▶ Aseptic Compounding
- ▶ Clinical
- ▶ Medicines Information
- ▶ Drug Safety

Drug Expenditure Interventions

Expenditure on drugs has increased dramatically in recent years as our population ages, the trend of medically managing chronic diseases and the increase in the number of new, high-cost, speciality, drugs. Optimal management of drug expenditure and pharmacy procurement are critical in order for the hospital to optimise patient care and outcomes at a sustainable cost. The pharmacy department's initiatives for cost containment and maximisation of the drug budget include

- ▶ Tenders, contract pricing and procurement processes, particularly for patent expired drugs, generic drugs, and biologics.
- ▶ Drug evaluation and 'purchasing for safety' initiatives
- ▶ Clinical pharmacy interventions like formulary adherence, medicines safety and efficacy
- ▶ Drug Expenditure Monitoring Review group to review new drugs or extended use of existing drugs

Dispensary Services

In 2015, the Dispensary Service processed 41,741 drug requisitions, and increase of 10% on 2014. To manage the increased demands from the clinical areas, the Dispensary increased the use of technology and re-organised work flow to create efficiencies and enable the provision of timely drug therapy for patients, including:

- ▶ Expansion of the hospital Wi-Fi network to move to 100% transmission of real time stock top up data from the wards.
- ▶ Training rolled out to all dispensary staff on trouble-shooting for the robotic automated dispensing process.
- ▶ Utilisation of Lean 5S methodologies leading to workplace layout re-organisation that maximises floor space.
- ▶ A Lean Green Belt project to review the supply of controlled drugs in the hospital. Leading to a 40% drop in nurse visits to Pharmacy with no decrease in the volume of drugs supplied (approximately 455 bags/month)

Clinical Pharmacy Services

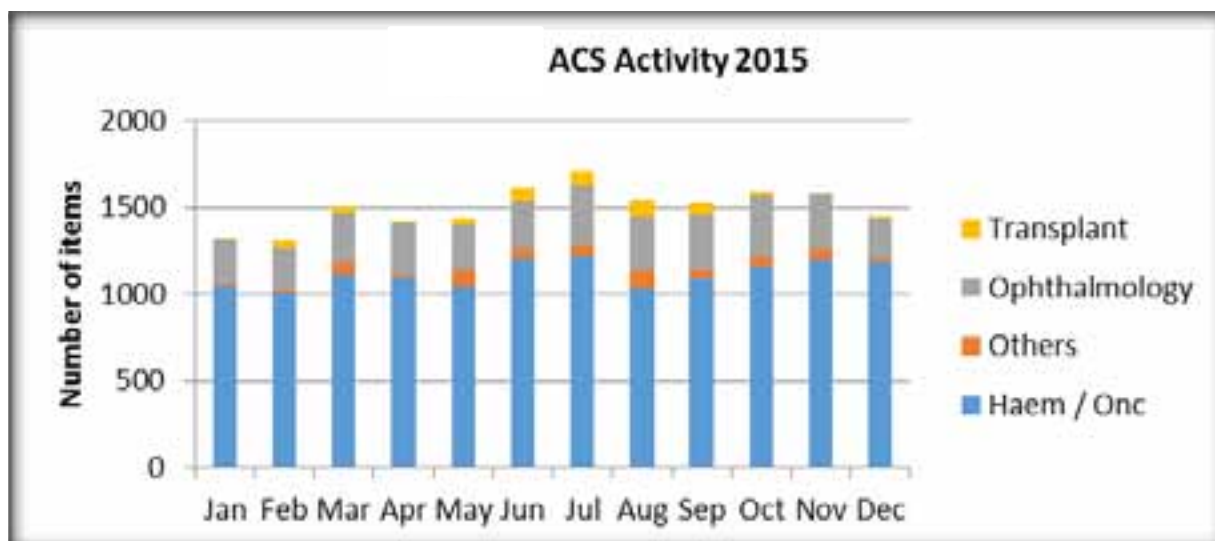
The Clinical Pharmacy Service received approval from the CEO for the introduction of a formal Medicines Reconciliation Service. This service will link strategic initiatives with operational performance and national and international medication safety goals. It will be rolled out in accordance with the World Health Organization High 5S Medicines Reconciliation Implementation protocol and will commence in 2016.

Medicines Reconciliation is recognised as a strategy to reduce the risk of medication discrepancies at transitions of care in Irish healthcare services

In 2015 Patient Medicines Education was focused on targeted patient groups, or groups using specific drugs, based on safety and administration issues associated with those drugs. Between June – December 2015, clinical pharmacists educated 125 patients on medicines including anticoagulants and post-transplant medicines.

Aseptic Compounding Services (ACS)

In 2015, the ACS delivered aseptically manufactured products for the Oncology, Haematology, Ophthalmology, Neurology, Renal, Respiratory, Surgical and other specialities. The average production rate was 1,500 items per month (Figure 1).



Electronic Prescribing of Chemotherapy

The Mater Hospital successfully introduced Computer Aided Technology for Oncology (CATO), an electronic prescribing, compounding and drug administration system for Haematology and Oncology Patients in 2015. CATO has been utilised at pharmacy department level for the manufacture of chemotherapy since 2013. The proposal to roll CATO out to prescribing and administration was endorsed by the consultants and nursing staff with a phased implementation of prescribing in July 2015, followed in September 2015 with electronic nurse administration of chemotherapy.

Medicines Information (MI)

The Medicines Information (MI) service processed 1,138 enquiries in 2015. With the time taken to manage the enquiries continuing to rise as a result of an increase in both the volume and complexity of enquiries. The service develops protocols / prescribing guidelines and content for the Mater Hospitals Prescribers' Guide. The Guide serves to maximise the safe, effective and efficient use of medications and directly enhance patient care. The review of the hospital's intravenous drug administration protocols in 2015 resulted in the development of 43 new protocols.

Drug Safety

There has been a consistent increase in medication variance reporting in the hospital over the past number of years. A series of drug safety initiatives were undertaken in 2015 to minimise medicine-related incidents including:

- ▶ New Oral Anticoagulants (NOACs) presentation at Medical Grand Rounds, Surgical Grand Rounds, various medical team journal clubs and nursing education sessions
- ▶ NOAC mini-quiz developed and disseminated over a one-week period at interactive information stands during morning coffee breaks
- ▶ Medication Safety Alerts on Heparin Infusions in Feb 2015 and Hypoglycaemia in June 2015
- ▶ Several Drug Safety policies updated including 'Guidelines on the Management of Insulin Preparations' and 'Policy for the Assessment and Documentation of Drug Allergies and Other Adverse Drug Reactions'
- ▶ Safety alert 'Novel Oral Anticoagulants' developed in collaboration with the Irish Medication Safety Network (IMSN)
- ▶ 'Learning from Medication Errors' presentation to Anaesthetic staff in February 2015



Institute for Safe Medication Practices (ISMP) Visit

The ISMP were in Dublin to provide a two-day Medication Safety Intensive Course which was organised by the Irish Medication Safety Network (IMSN), chaired by Prof. Ciaran Meegan, Head of Pharmacy Services at the Mater Hospital with the support of the HSE Quality Improvement Division and the Rotunda Hospital. It is the first time that this course was run in Europe and the ISMP translated their very highly rated course to the Irish setting.

Infectious Diseases (ID) Pharmacy Services

The primary focus of the ID Pharmacy service is the delivery of highly specialist clinical care to patients with HIV and Hepatitis C. As patients are living longer with HIV and the cohort is getting older, maintaining effective, lifelong treatment along with limiting the impact from treatment toxicity and co-morbidities results in a more complex and specialist treatment paradigm. The treatment of Hepatitis C has evolved significantly in the last three years, with a previously unprecedented cure rate of over 95% in patients treated in the Mater Misericordiae University Hospital in 2015.

- ▶ Patients dispensed medications for HIV has increased from approximately 300 patients in 2007 to 905 in 2015
- ▶ The number of patients dispensed HIV Post Exposure Prophylaxis (PEP) continues to increase; in 2015 there were 192 patients
- ▶ The number of patients treated with Directly Acting Antivirals for Hepatitis C increased from 31 patients in 2014 to 96 patients in 2015
- ▶ A comprehensive medicines education service is provided with a total of 1,759 patient education sessions taking place in second half of 2015

A Clinical Trial Pharmacist was appointed in 2015 to accommodate the increased clinical trial workload. This has contributed to providing substantial savings in drug costs for the HSE and demonstrable academic output for the Dublin Academic Medical Centre in the field of HIV. Participation contributes to improving the quality of care to patients with HIV and to the hospital's reputation as an international leading clinical research institution.

Pharmacy Department Awards and Achievements

The Pharmacy Department was selected as finalists in five categories of the Hospital Pharmacy News Awards, 2015. The finalists were

- ▶ Ms. Laura Lyons, Senior Pharmacy Technician – Winner; Hospital Pharmacy Technician of the Year
- ▶ Ms. Jennifer Brown, Pharmacy Head of Operations – Winner; Hospital Pharmacy Manager of the Year
- ▶ Ms Deirdre Lenehan, Drug Safety Facilitator, & Prof. Ciarán Meegan, Head of Pharmacy Services – Winner Excellence in Patient Safety Award
- ▶ Pharmacy Department – Hospital Pharmacy Team of the Year.
- ▶ Ms. Brona Kehoe, Senior Pharmacist – Young Pharmacist of the Year

PHYSIOTHERAPY

The physiotherapy department provides extensive services to inpatients and outpatients in all areas of the Mater Hospital. Physiotherapy aims to restore well-being to people following injury, illness, pain or disability through the delivery of patient centred, high quality accessible care.



Clinical Academic Physiotherapy Group

In 2015 the first Physiotherapy Clinical Academic Physiotherapy Group was launched. The group, consisting of the Physiotherapy Clinical Departments of the Mater Misericordiae University Hospital, St. Vincent's University Hospital and the Academic Unit of Physiotherapy in UCD School of Public Health, Physiotherapy and Population Science, held its first meeting on the 3rd December. The vision of this Clinical Academic Physiotherapy Group is to be the premier Irish physiotherapy group; leading the way in clinical service delivery, education, research and professional development through collaboration and shared working. This is all underpinned by the ethos and values of the clinical centres and the academic institution.

The launch coincided with the 60th celebrations to mark the opening of the first school of physiotherapy in Ireland, at the Mater Hospital

SPEECH & LANGUAGE THERAPY

The Mater's Speech and Language Therapy Department works with patients, to assist them in reaching their maximum potential for communication and swallowing, with a focus on evidence driven holistic intervention.

Early Supported Discharge

The department is a core element in the Early Supported Discharge for Stroke patients. This multidisciplinary team initiative, developed at the Mater Hospital, provides rehabilitation at home for people who have suffered a stroke. Speech and Language Therapists provide high quality level of rehabilitation and support to stroke survivors with specific treatment aims of

- ▶ Restoring lost function
- ▶ Identifying and capitalising on remaining skills and abilities
- ▶ Teaching new skills to patients to facilitate conversation



Centre of Excellence

The Speech and Language Therapy department ran the first course in Ireland for Introduction to Fibreoptic Endoscopic Evaluation of Swallowing (FEES). The procedure is used to assess individuals with suspected difficulty swallowing where the problem is caused by decreased airway protection during swallowing. In this test, a very thin endoscope is inserted gently into the nostril while the patient eats or drinks various consistencies of food or liquids. This exam also enables the clinician to see how well the food or liquid is cleared from the throat and to determine which therapeutic strategies improve swallowing safety and efficiency. The study is digitally recorded for later analysis.

This is a first step towards the Mater Hospital becoming
a Centre of Excellence for FEES

ICT



Electronic Patient Record (EPR)

The Information Management Service at the Mater Hospital are working with clinicians and management, in evaluating an Electronic Patient Record (EPR) for the hospital and for the Ireland East Hospital Group. The opportunity to use healthcare data/information intelligently has never been greater. The intelligence generated from healthcare data is essential in improving the quality, safety and efficiency of patient care.

Patient Benefits of an EPR include

- ▶ Improved diagnosis and treatment leading to better outcomes
- ▶ Significantly fewer errors
- ▶ Faster care and quicker clinical decision making (as clinical notes always available when needed)

Advantages of an EPR for the Hospital

- ▶ The ability to quickly access and share patient data between departments.
- ▶ Improved capacity to treat our growing and aging population.
- ▶ Eliminating the storage and space requirements needed for paper



Electronic General Referrals

The National Electronic General GP Referral Pilot Project was established in 2011 to deliver electronic general referrals, using the Health Information and Quality Authority (HIQA) and Irish College of General Practitioners (ICGP) standard referral template. This project was run as a collaboration between Healthlink, the HSE, ICGP, the National Cancer Control Programme (NCCP) and the Outpatients Performance Improvement Programme. Following a successful pilot in seven hospitals in Cork and Kerry, phase 1 of the project went officially live in August 2014.

The Mater Misericordiae University Hospital is the first site to go live with Phase II of the referrals project having achieved full integration with PatientCentre, the hospital's Electronic Patient Record system. From the hospital's point of view, the referral is no longer printed on arrival resulting in substantial savings in administrative time due to automation of this key step in the process.

Critical Care Quality and Audit

The ICT team were a core part of the delivery team for the measurement of the quality of care in the hospital's Critical Care Unit. In 2015 the Mater's ICU was the pilot centre for the roll-out of the National ICU Audit as part of the National Office for Clinical Audit (NOCA). The requirement for regular, reliable and robust data for the measurement of the quality of care delivered is essential. The NOCA ICU programme shall now report case mix adjusted outcomes through the UK Intensive Care National Audit & Research Centre (ICNARC) along with a suite of agreed quality metrics. Preliminary data for 2015 is currently undergoing a validation process with ICNARC and shall be reported later in the year.

RESEARCH & INNOVATION

Lean Academy
Research and Academic Collaboration
Publications



LEAN ACADEMY

The Mater Misericordiae University Hospital's Lean Academy is part of the Mater Transformation Office. The mission of the Lean Academy is to improve healthcare quality and safety for patients and their families and to generate efficiencies for all healthcare professionals and support staff, by applying the principles of Lean engineering, management and science. The Academy, through its Lean Six Sigma Green Belt courses, offers quality improvement projects that incorporate consulting, coaching, and training services for healthcare professionals, support services and staff in all capacities.

All projects have as their primary goal a direct patient benefit or outcome in addition to cost savings. To meet the HSE demand for quality healthcare at affordable prices, the Academy works on the latest strategies and competencies to improve care, manage margins, and facilitate compliance with national guidelines. Mater Lean Academy courses are accredited by our Academic Partner, UCD. The Lean Academy offers the Mater and its partner hospitals continuing education and professional development training in different formats

- ▶ White Belt programme (Intensive one-day)
- ▶ Green Belt programme (Six-month part-time)
- ▶ Black Belt programme (1 year part-time)
- ▶ Leadership training and advice on the application of Lean Six Sigma methodologies



We believe that quality improvement initiatives that result in better patient care and increased provider margins directly correlate with, and are sustained by, the skills and knowledge possessed by all levels of healthcare professionals and support staff. The Academy draws on the experience of its participants, along with our Lean Six Sigma tutors and visiting lecturers from UCD. We apply innovative approaches to Lean Six Sigma learning and leadership, and we provide our programme participants with the support to pursue their project from pilot to implementation phase.

Lean Academy Graduation

The Lean Academy Graduation ceremony to place after the 3rd Annual Lean Symposium. 50 Graduates from the Mater Misericordiae University Hospital, St Vincent's University Hospital, Sligo Regional Hospital, St Luke's Hospital Kilkenny, Midlands Regional Hospital Mullingar and the National Rehabilitation Hospital were awarded their UCD Lean Six Sigma Green Belt for Healthcare by Mary Day, CEO Ireland East Hospital Group.

2015 Mater/UCD special award winners

- ▶ Mater/UCD Scientific Poster – Louise O'Sullivan/Deirdre Beirne/Maurice Carthy/Marion Lynders
- ▶ Mater/UCD Academic Achievement – Catriona Murphy
- ▶ Mater Lean Champion – Maurice Carthy
- ▶ Mater 5S Practitioner – Ruth Greene

RESEARCH & ACADEMIC COLLABORATION

The Mater Misericordiae University Hospital is a major academic and research centre. University College Dublin is the hospital's academic partner and have been for well over a century. Working within the Dublin Academic Medical Centre (DAMC), which encompasses the Mater, UCD and St Vincent's University Hospital, teaching, treatment and research are linked to provide excellent training for health professionals and improve the health of patients.

There is an extensive programme of research across the large number of disciplines in the Mater Misericordiae University Hospitals and UCD, with hundreds of publications annually. The research programme has attracted funding from a diverse range of agencies, including the Irish Cancer Society, NIH, the Health Research Board and Science Foundation Ireland.

Clinical Research Centre (CRC)

The purpose of the Clinical Research Centre at the Mater Misericordiae University Hospital and St Vincent's University Hospital is to discover ways to improve medical care and to establish new treatments to improve the quality of life of patients. The CRC provides a range of core scientific services, which directly support its extensive portfolio of clinical trials, basic science and educational activity.

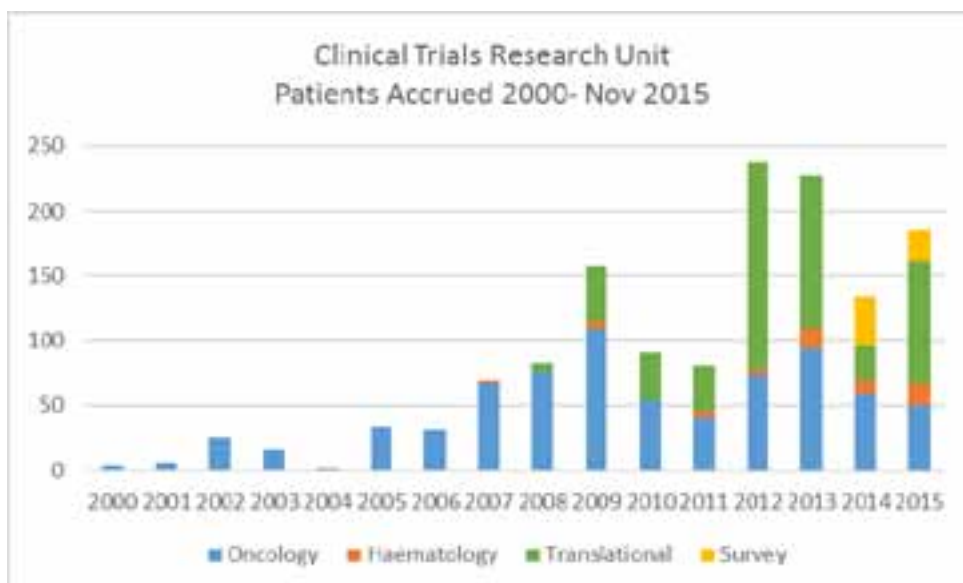
Translational research applies findings from basic science to enhance human health and well-being. In a medical research context, it aims to "translate" findings in fundamental research into medical practice and meaningful health outcomes. The CRC undertakes research into a wide range of diseases with current studies falling into the following speciality areas

- ▶ Cancer
- ▶ Dermatology
- ▶ Infectious Diseases
- ▶ Musculoskeletal
- ▶ Neurology
- ▶ Ophthalmology
- ▶ Respiratory Medicine
- ▶ Rheumatology

Clinical Trials

There is a wide range of active clinical trials occurring across all specialties in the hospital. For cancer patients participation in a clinical trial is a treatment option at the Hospital, particularly for patients where the current (approved) treatments have not worked. The Clinical Trials Research Unit (CTRU) at the Mater Campus was established in 2000 and incorporates Mater Misericordiae University Hospital, the Mater Private Hospital and Cavan General Hospital as an extension of the Oncology/Haematology Centre of the Mater Misericordiae service.

The clinical trials research team is an integral part of the cancer service and delivery of patient care across the campus. In 2012 Haematology Clinical Trials service was incorporated into the unit, which became part of the Cancer and Surgery Directorate of the hospital in 2014. The Clinical Trials Unit works in close collaboration with ICORG (All Ireland Cooperative Oncology Research Group) and has participated in numerous studies in the following areas: Breast, Lung, Gastrointestinal, Genitourinary, Gynaecology, Haematology/Lymphoma, Head & Neck, Melanoma and Translational.



Anaesthesia Clinical Trials (Prof Donal Buggy)

- ▶ NCT 00418457: Randomised prospective trial: Can anaesthetic technique during primary breast cancer surgery effect recurrence or metastasis? Instigated in MMUH 2009, running now in collaboration with Outcomes Research, Cleveland Clinic, OH;
- ▶ SIRS: Randomised prospective trial of Steroids in Cardiac Surgery, led by Ontario Outcomes Research Programme;
- ▶ BALANCED: Randomised prospective trial: Steroids in Cardiac Surgery.
- ▶ POPULAR: prospective observational Pan-European study of postoperative complications, led by ESA Clinical Trials Network.

Breast Cancer

Reconstructive Breast Surgery: TIGR® Matrix Surgical Mesh

Immediate breast reconstruction following a mastectomy has a positive psychological advantage for patients. However, reconstruction with traditional Dermal Matrix is associated with up to a 38% complication rate. A new product, the TIGR® Matrix Surgical Mesh, is the first long-term resorbable synthetic mesh, offers a suitable alternative with potentially reduced complication rate.

Surgeons at the Mater Hospital recruited a total of 47 women who were undergoing mastectomies for oncological and prophylactic surgery. The 47 patients had 36 unilateral and 11 bilateral mastectomies, with 58 immediate breast reconstructions. There was no reported reconstruction failure, infection of the implant or nipple loss and it seems to offer a safe and viable alternative to traditional Dermal Matrix in the post mastectomy reconstructive patient.

Rheumatology

European Gout Genetics Consortium (Eurogout)

The Mater Hospital is part of a Europe wide study that identifies genes that contribute to hyperuricemia and are linked to gouty arthritis and with other metabolic conditions. The study has been initiated by the department of Genetics in the University of Otago and is studying the genetic make-up of 3,000 people with the condition.

Rheumatoid Arthritis

Prof Gerry Wilson was part of the UCD team that made a significant breakthrough in Rheumatoid Arthritis. The team identified a new protein (C5orf30) which regulates the severity of tissue damage caused by rheumatoid arthritis (RA), an autoimmune disease that causes inflammation, pain, stiffness and damage to the joints of the feet, hips, knees, and hands. Following the discovery published in the

scientific journal PNAS, rheumatoid arthritis patients most likely to suffer the severest effects of the condition can now be identified early and fast-tracked to the more aggressive treatments available. Although there is no cure for RA, new effective drugs are increasingly available to treat the disease and prevent deformed joints. Self-management of the condition by patients, including exercise, is also known to reduce pain and resulting disability.

Stroke

- ▶ ESCAPE Trial (Randomized Assessment of Rapid Endovascular Treatment of Ischemic Stroke) provided 7 of the 34 cases in Ireland.
- ▶ BIOVASC is an international study led by Mater in collaboration with colleagues/researchers in UK, Spain, France, Canada and Singapore identifying high risk patients.
- ▶ Navigate ESUS Trial: The Mater are one of 2 Irish centres recruiting patients into the Navigate ESUS Trial a Secondary Prevention of Stroke and Prevention of Systemic Embolism in Patients with Recent Embolic Stroke of Undetermined Source (ESUS)

Education

Undergraduate Education

Three of the four main stages of the medical practitioner's journey –undergraduate, intern, postgraduate education and training, take place at the Mater Hospital in close collaboration with the School of Medicine at University College Dublin and other specialist post-graduate bodies. The recruitment of more specialist lecturers has been specifically undertaken to improve the student experience and the quality of the teaching with the overall goal of being nationally recognised as the medical centre that best prepares healthcare professionals for their roles.

Post-graduate Education

Intern training is a crucial formative stage in the development of doctors. At the Mater it is a highly supervised period which many doctors will complete immediately following the award of their medical school degree. The training is completed under the supervision of intern tutors who have a close working relationship with the medical school. Interns are registered doctors and contribute towards the provision of clinical care and service at the hospital, although there is a strong emphasis on supporting the development of interns' competencies through a mix of practical instruction and formal and informal teaching sessions.

Postgraduate specialist medical education and training is undertaken by doctors who wish to be registering in the Specialist Division of the Medical Council's Register. Specialist training is provided by the relevant postgraduate training bodies (Royal College of Surgeons in Ireland, Royal College of Physicians in Ireland and the College of Anaesthetists) and takes place at the Mater Hospital. The training is typically delivered in two stages with the initial (basic specialist training) stage providing a foundation for the higher specialist training. Successful completion enables doctors to register and practise as medical specialists.

Medical doctorates by thesis: - Supervisor Prof. Stephen Eustace 2015. Degrees awarded by UCD

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- ▶ Molecular MRI – immunoliposomes: design and targeting to B cell lymphoma. Ferdia Bolster.



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- ▶ Taylor WJ, Fransen J, Jansen TL, Dalbeth N, Schumacher HR, Brown M, Louthrenoo W, Vazquez-Mellado J, Eliseev M, McCarthy G, Stamp LK, Perez-Ruiz F, Sivera F, Ea HK, Gerritsen M, Scire C, Cavagna L, Lin C, Chou YY, Tausche AK, Vargas-Santos AB, Janssen M, Chen JH, Slot O, Cimmino MA, Uhlig T, Neogi T. Study for Updated Gout Classification Criteria: identification of features to classify gout *Arthritis Care Res (Hoboken)*. 2015, 67:1304-1315
- ▶ O'Neill L, Rooney P, Molloy D, Connolly M, McCormick J, Mc Carthy G, Veale DJ, Murphy C, Fearon U, Molloy E Regulation of Inflammation and Angiogenesis in Giant Cell Arteritis by Acute Serum Amyloid A. *Arthritis Rheum* 2015;67:2447-56
- ▶ Watson GA, O'Neill L, Law R, McCarthy G, Veale D. Migrating polyarthritis as a feature of occult malignancy: 2 case reports and a review of the literature. *Case Rep Oncol Med*. 2015;2015:934039
- ▶ Conway R, McCarthy GM. Obesity and arthritis: more than just mechanics. *EMJ Rheumatol* 2015;2[1]:75-83
- ▶ McCarthy GM. BCP crystal deposition disease. In: Hochberg MC, Silman AJ, Smolen JS, Weinblatt ME, Weisman MH (Eds): *Rheumatology* 6th ed. London UK, Elsevier 2015, p 1596-1603
- ▶ Stack J, Ryan J, McCarthy G. Colchicine: New Insights to an Old Drug. *Am J Ther* 2015;22:e151-e157

Stroke

- ▶ Comparison and external validation of imaging-based scores (ABCD2-I and ABCD3-I) versus ABCD2 for stroke prediction after TIA. Kelly PJ, Albers G, Chatzikonstantinou A, De Marchis GM, Ferrari J, George PM, Katan M, Knoflach M, Kim JS, Li L, Lee E, Olivot JM, Purroy F, Raposo N, Rothwell PM, Sharma VK, Song B, Tsigoulis G, Walsh C, Merwick A. Manuscript invited revision at peer reviewed leading clinical neurology journal. Abstract podium presented at ESOC 2016 meeting in Barcelona. *European Stroke Journal*, May 2016; vol. 1, 1 suppl: pp.613-780..
- ▶ One-Year Risk of Stroke after Transient Ischemic Attack or Minor Stroke Amarenco P, Lavallée PC, Labreuche J, Albers GW, Bornstein NM, Canhão P, Caplan LR, Donnan GA, Ferro JM, Hennerici MG, Molina C, Rothwell PM, Sissani L, Školoudík D, Steg PG, Touboul PJ, Uchiyama S, Vicaut É, Wong LK; TIAregistry.org Investigators. *N Engl J Med*. 2016;374(16):1533-42. doi: 10.1056/NEJMoa1412981.

FINANCE

MATER MISERICORDIAE UNIVERSITY HOSPITAL

**STATEMENT OF INCOME AND RETAINED EARNINGS
FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2015**

	<i>Notes</i>	2015 €'000	2014 €'000
Turnover			
Revenue grants		240,168	225,559
Other income		50,347	49,233
Capital grant amortisation		6,814	5,736
		<u>297,329</u>	<u>280,528</u>
Costs			
Staff costs		(192,963)	(183,464)
Non pay costs		(94,651)	(91,579)
Depreciation		(6,814)	(5,736)
		<u>(294,428)</u>	<u>(280,779)</u>
Operating surplus/(deficit)		2,901	(251)
Interest receivable and similar income		11	26
Interest payable and similar charges		(30)	(35)
Surplus/(deficit) on ordinary activities before taxation		<u>2,882</u>	<u>(260)</u>
Taxation		-	-
SURPLUS/(DEFICIT) FOR THE FINANCIAL YEAR		<u>2,882</u>	<u>(260)</u>
Retained earnings - deficit at the beginning of the reporting period		(13,889)	(13,629)
Retained earnings - deficit at the end of the reporting period		<u>(11,007)</u>	<u>(13,889)</u>

MATER MISERICORDIAE UNIVERSITY HOSPITAL

BALANCE SHEET AS AT 31 DECEMBER 2015

	<i>Notes</i>	2015 €'000	2014 €'000
Fixed Assets			
Tangible assets		20,634	25,968
Financial Assets		-	-
		<u>20,634</u>	<u>25,968</u>
Current Assets			
Debtors		44,221	40,546
Stocks		7,413	6,554
Cash at bank and in hand		20	295
		<u>51,654</u>	<u>47,395</u>
Creditors: Amounts falling due within one year			
Creditors		(48,772)	(48,037)
Bank loans and overdrafts		(13,889)	(13,247)
		<u>(62,661)</u>	<u>(61,284)</u>
Net current liabilities		(11,007)	(13,889)
Total assets less current liabilities		9,627	12,079
Capital grants		(20,634)	(25,968)
NET LIABILITIES		<u>(11,007)</u>	<u>(13,889)</u>
Financed by:			
Capital and reserves			
Called up share capital presented as equity		1	1
Retained earnings - deficit		(11,008)	(13,890)
SHAREHOLDER'S DEFICIT		<u>(11,007)</u>	<u>(13,889)</u>



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