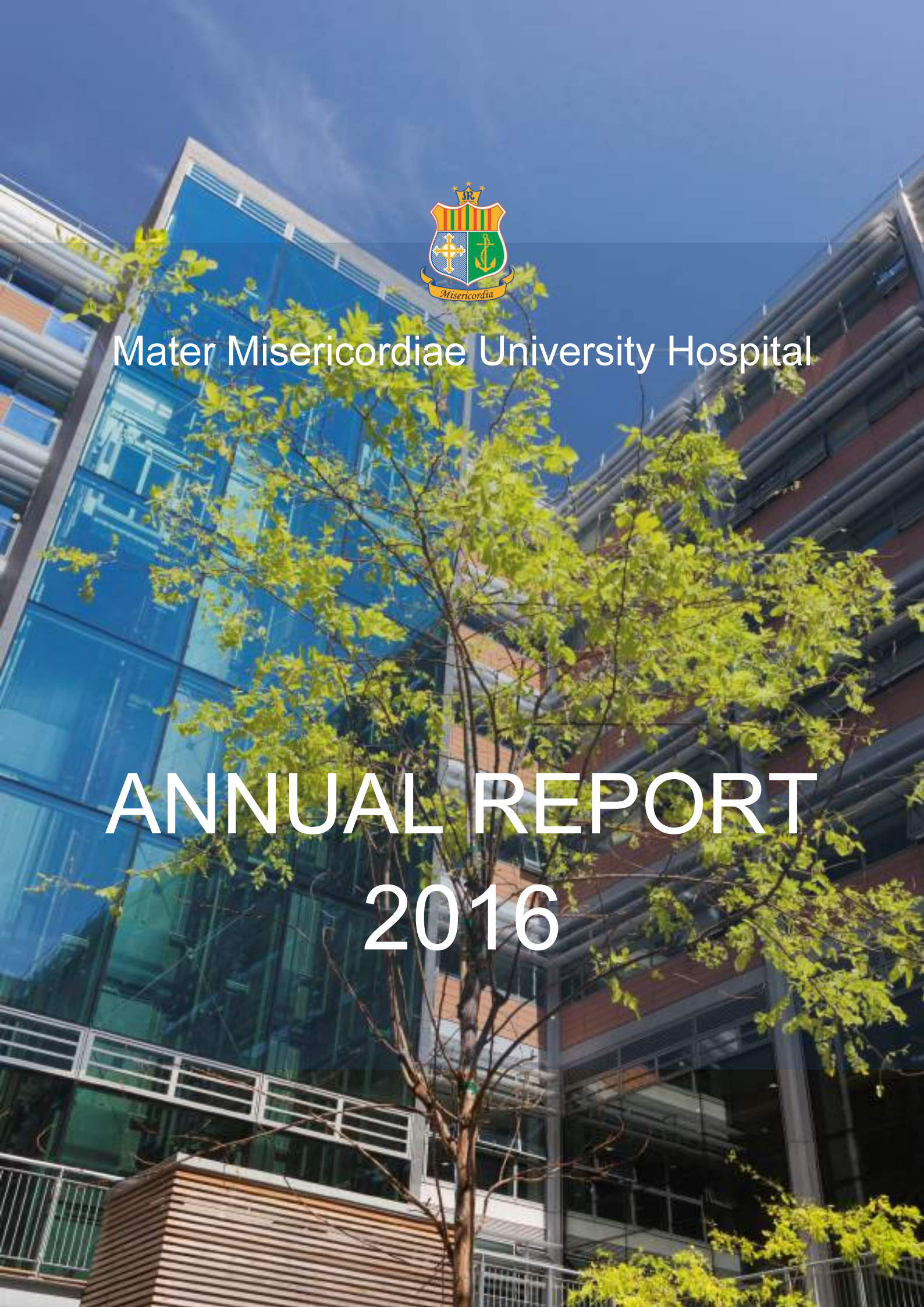

Mater Misericordiae University Hospital

ANNUAL REPORT 2016

Current Board of Directors

CHAIRMAN

Thomas Lynch
Chairman

EXECUTIVE BOARD MEMBERS 2017

Gordon Dunne
Chief Executive

Prof Brendan Kinsley
Executive Clinical Director

Caroline Pigott
Director of Finance

Prof Tim Lynch
Chairman Medical Executive

Tanya King
Director of Nursing

NON-EXECUTIVE BOARD MEMBERS

Dr Mary Carmel Burke
General Practice Representative

Sr Margherita Rock
Sister of Mercy

Sr Eugene Nolan
Sister of Mercy

Prof Mary Day
Chief Executive IEHG

Kevin O'Malley
Joint Clinical Director IEHG

Tony Garry
Company Director

Rod Ensor
Solicitor

Laura Gallagher
Partner KPMG

Dr Mary McMenamin
Departmental Lecturer, Oxford

Prof Cecily Kelleher
College Principal

Eilis O'Brien
Comms/Marketing Director UCD

Michelle Gibbons
Psychologist

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Chairman's Letter

Welcome to our annual report for 2016, a year dedicated to sustaining and improving performance for our patients, set against financial challenges and increasing numbers of patients with complex needs

This year there has been a significant amount of work undertaken to improve staff engagement and morale. In recognition of the crucial role that nurses play in delivering the best possible patient experience, we have invested significantly in nurse recruitment, and now have one of the lowest nurse vacancy rates nationally. Coincidently, we celebrated 125 years of nursing education and since the first class of 16 student nurses arrived for training in 1891, the Mater Hospital has seen almost 20,000 nurses graduate. We are also nurturing staff to develop further their skills so we can meet the demands of modern healthcare and our workforce is at the forefront of our journey of transformational improvement. The Mater Lean Academy celebrated a milestone in 2016 when it trained its 1000th person in the fundamentals of Lean. The mission of the Mater Lean Academy is to use the principles of Lean Six Sigma management and science to improve the quality of the healthcare experience for patients, their relatives and staff. The academy, through its partnership with UCD Health Systems offers quality improvement projects that incorporate consulting, coaching, and training services for all staff involved in healthcare delivery.

Our new Eye Emergency Department (EED) was formally opened by the Minister for Health, Mr Simon Harris on Tuesday 6th September. The opening of the EED represents the first phase of the planned development of the ophthalmology department at the hospital. The next phase of the development will be to build an expanded outpatient department, a diagnostics department, a new ophthalmology ward (to include in-patient beds, a day ward, an injection suite and laser rooms) and a new operating suite. Among the improvements to services at the new facility is the development of an electronic patient record for the EED visit, resulting in reduced administrative burden and facilitates audit.

The Mater aspires to the highest standards of excellence and professionalism and a strong profile in education, research and innovation is crucial in the development of the 21th century academic teaching hospital. We face unprecedented workforce challenges, seeking to recruit employees who are highly skilled, progressive and leaders of change. Multidisciplinary healthcare education and training is essential to ensure our clinical staff are fully equipped and competent to accomplish our ambition; investing in education is an investment in the health of our population. In response, the board approved the establishment of a new directorate for education, innovation and research. The increased focus in these areas will seek to improve patient outcomes by translating research and innovation into clinical practice through ensuring contemporary training and education programmes are accessible to support current policy, clinical practice and technologies. The Mater and UCD are currently in discussions on a proposal to redevelop the original landmark 1861 building to create an academic hub. Correctly designed, positioned and administrated, the academic hub will provide an ideal interface between clinical service providers, academics, regulators and industry. This ambitious plan will expand upon existing levels of collaboration and is expected to accelerate medical research, create efficiencies and improve communication.

An exciting hospital project to collect, preserve and make accessible the history of the Mater Hospital began in 2016 with the establishment of a dedicated Archive and Heritage Centre. The Centre will be open to staff, researchers and members of the public. Our heritage collection is a

wonderful resource for anybody interested in the history of the Mater and Irish medicine. The Archive and Heritage Centre will act as an exhibition space to showcase fascinating artefacts such as medical instruments, photographs, memorabilia and other archival material.

The hospital now has a new website worthy of its reputation, which is packed with improvements including an improved Consultant Finder, improved Service Finder, more concise information to ensure basic information can be easily and quickly obtained. Our website is mobile friendly, allowing access to information about the Hospital from a range of mobile devices; automatically adjusting for small screens with bigger type for easier readability and scrollable layout for quick access to our content.

The Mater is a member of the Ireland East Hospital Group which comprises 11 acute hospitals, 11,000 members of staff, a budget of €1.2 billion and caters for the needs of 1.2 million people. We are working with IEHG on a strategic and capital development plan to enable the delivery of services reflecting both demographics and efficiency. This is a major challenge as Ireland has a growing but also an ageing population. This plan will take into account the recommendations of the report of the Oireachtas Committee on the Future of Healthcare with particular focus on the provision of scheduled and unscheduled care.

Since inception the Mater has been a hospital founded and under the care of the Religious Sisters of Mercy who have made a remarkable contribution to healthcare not just in Ireland but around the world. In this regard, I want to thank Sister Margherita Rock who retired last year as Director of Mission Effectiveness after a career in the Mater which commenced in 1961. Sister Margherita has held many positions in the Mater including that of Chief Executive. Her contribution has been both remarkable and untiring. I am delighted that Sister Margherita has agreed to remain as a member of the board.

One of the most enjoyable aspects of my job as chairman of the board of directors is the privilege of meeting and working with so many inspiring people. I would like to thank my non-executive colleagues on the board of directors as well as the hospital's executive team for their continued support, in particular thanks to Chief Executive Gordon Dunne for his continued energy, leadership and wisdom.

I would like to take this opportunity also to emphasise that the progress we have made this year has only been possible thanks to the hard work, support and commitment of our workforce. It has been a difficult year, yet we have achieved a great deal. We are well prepared for the challenges that 2017 will bring and I am confident that we have gathered the momentum to drive further improvements and to achieve our goals.

Thomas Lynch
Chairman of the Board

Leadership Team 2016

Chief Executive
Mr Gordon Dunne

Executive Directors
Prof Tim Lynch, Chair Medical Executive
Prof Brendan Kinsley, Executive Clinical Director
Ms Caroline Pigott, Director of Finance
Sr Margherita Rock, Sister of Mercy
Mrs Tanya King, Director of Nursing

Non-Executive directors
Mr Thomas Lynch, Chair
Ms Mary Day
Mr Eddie Shaw
Sr Eugene Nolan
Mr Kevin O'Malley
Dr Mary Carmel Burke
Prof Desmond Fitzgerald

Company Secretary
Mr Patrick Mahony

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Auditors
Deloitte

Solicitors
Mason, Hayes and Curran

Chief Executive's Introduction

The Mater Misericordiae University Hospital is a major academic teaching hospital with a commitment to excellence in clinical care, research and education. Our fundamental purpose is the delivery of high quality healthcare to patients. We achieve this by constantly focusing on improving the care that we provide, translating the significant quantity of research undertaken at the hospital into patient benefits and by a constant focus on education that trains the doctors of the future as well as continually improving the skills and capabilities of our health care teams.

Our Annual Report 2016 is a snapshot of the scale and complexity of the work of the multiple teams that form the Mater Hospital. This year we have paid particular attention to research and education. As you read through the report you will get a sense of the scope of research that is undertaken at the hospital and in conjunction with both our academic partner University College Dublin and other partners. Research ranging from cancer clinical trials that have an immediate relevance for cancer patients to stroke research that shapes the way patients will be cared for in the future.

In education, the Mater Hospital delivers a number of high quality undergraduate, postgraduate and specialist training programmes in surgery, medicine, nursing, physiotherapy and radiography, in conjunction with our academic partner University College Dublin. That partnership, which has been in place since the hospital's founding in 1861, has established one of the foremost education centres in Ireland.

We also pride ourselves on providing patient centred clinical care that is delivered in a coordinated and integrated manner. Each specialty focuses on delivering individualised care with the purpose of achieving the best possible outcomes for patients. Quality and patient safety are the number one priority for everyone who works at the hospital and both our updated board reporting system and the significant level of clinical audit that takes place in the hospital, provide opportunities to constantly assess and improve the care we provide.

Finally, the Mater is part of the Ireland East Hospital Group (IEHG). The IEHG is moving towards an academic health sciences centre model that has at its heart a focus on clinical care and research that rapidly translates research into patient benefits. The journey began in 2016 with the creation of a Cancer Clinical Academic Directorate that brings together the cancer expertise of both the Mater Misericordiae University Hospital and St Vincent's University Hospital. You will hear more about these developments in next year's report.

I am proud of what we have achieved in 2016 and I hope you find this report interesting.

Gordon Dunne
Chief Executive

Quality & Patient Safety

At its core, quality and patient safety is the prevention of errors associated with healthcare and the mitigation of their effects. It is both the processes used to reduce harm, and the state that arises from the actions taken to secure patients from harm. A greater focus on quality and patient safety over the last decade has given us a far greater understanding of the many factors underlying adverse events. It has become clear that avoidable patient harm was far more common in health systems than previously identified, and that errors occurring at point of care were caused by more than just human lapses. Rather, the improper establishment of operations and processes, and the environment in which care is delivered, play a much more significant role in causing harm.

The Mater Misericordiae University Hospital is committed to ongoing improvement of patient care in all areas. We have embedded a strong commitment to safety and quality and this is reflected in our organisation-wide approach to

- Reviewing and improving on a continuous basis the performance of our patient safety and quality systems.
- Assisting our healthcare professionals to monitor the safety and quality of care they provide.
- Ensuring accountability for the safety and quality of care at all levels of our organisation right through to the board of the hospital.

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.

Increasing Complexity

The great advances achieved in medicine and healthcare, have significantly improved life expectancy. As a consequence, the size of the elderly, often frail, population has increased. This effect, together with the impact of a number of risk factors, such as obesity and physical inactivity, has multiplied the number of patients living with two or more chronic morbidities.

These patients require more care: studies have found that elderly individuals with multi-morbidity require over three times as many specialist consultations per year compared with elderly individuals without multi-morbidity, and are nearly six times more likely to be admitted to hospital. If hospitalised, patients with multi-morbidity stay in hospital longer due to the complexity of their care.

Hospital Governance

With a background of increasing demand for hospital care and an increasingly complex patient population, the Mater Hospital launched its Board on Board project. This quality initiative, which commenced in 2014, was to enable the board of the hospital to hold management accountable for the quality of care delivered, in the evolving clinical environment. The board is now provided with

detailed performance data that enables them to fully understand the complexities of measures of quality of clinical care. There is now a clear focus on

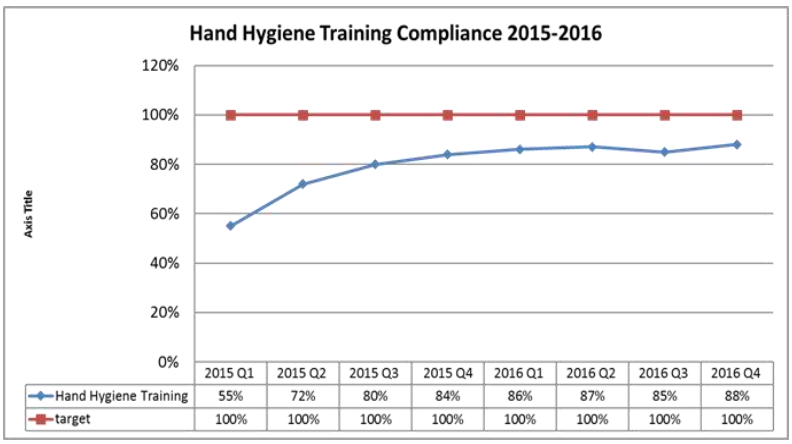
- Quality with 25% of the board agenda now on quality.
- Quality walk arounds by board members.
- Ongoing review of the quality indicators to ensure they are relevant, up to date and accurate.
- Targeted reading for board members.

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.

Hand Hygiene

Numerous studies have shown that healthcare workers can reduce hospital infections by improved hand hygiene. There has been an increased focus on hand hygiene in the Mater over the last 18 months, in accordance with the 'WHOs five moments for hand hygiene' that is; before touching a patient; before a procedure; after a procedure; after touching a patient and after touching a patient's environment.

Hand hygiene audits are conducted throughout the year in all areas where care is delivered.



Visitors to the Mater are encouraged through appropriate signage to wash their hands and use antiseptic hand rub located throughout the hospital. Above is the hand hygiene training compliance data for clinical staff.

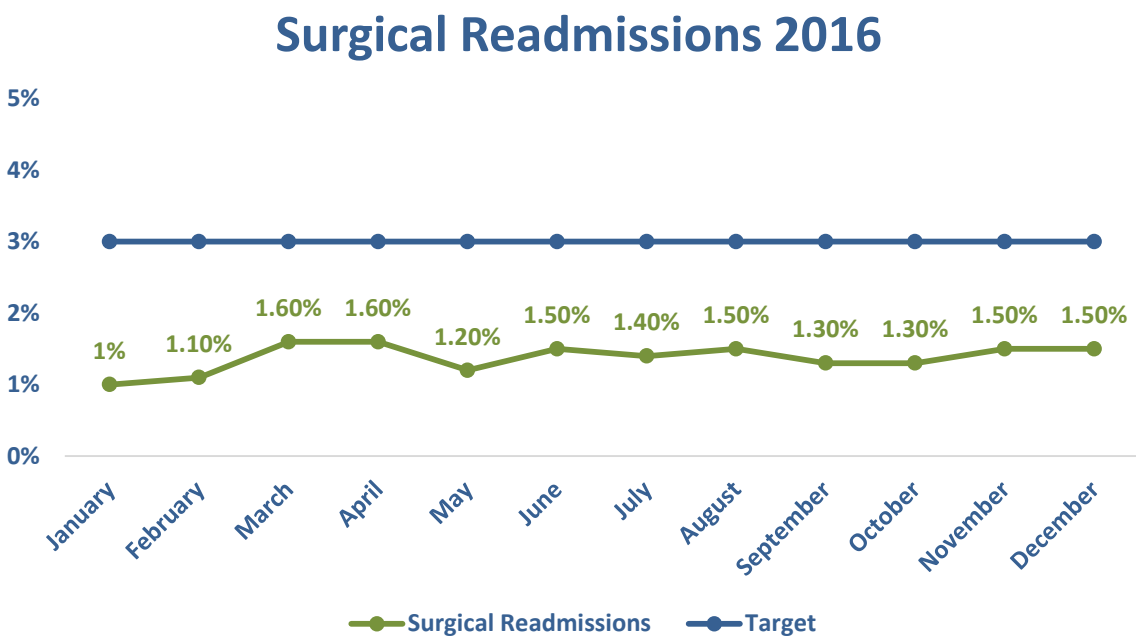
Infection Rate

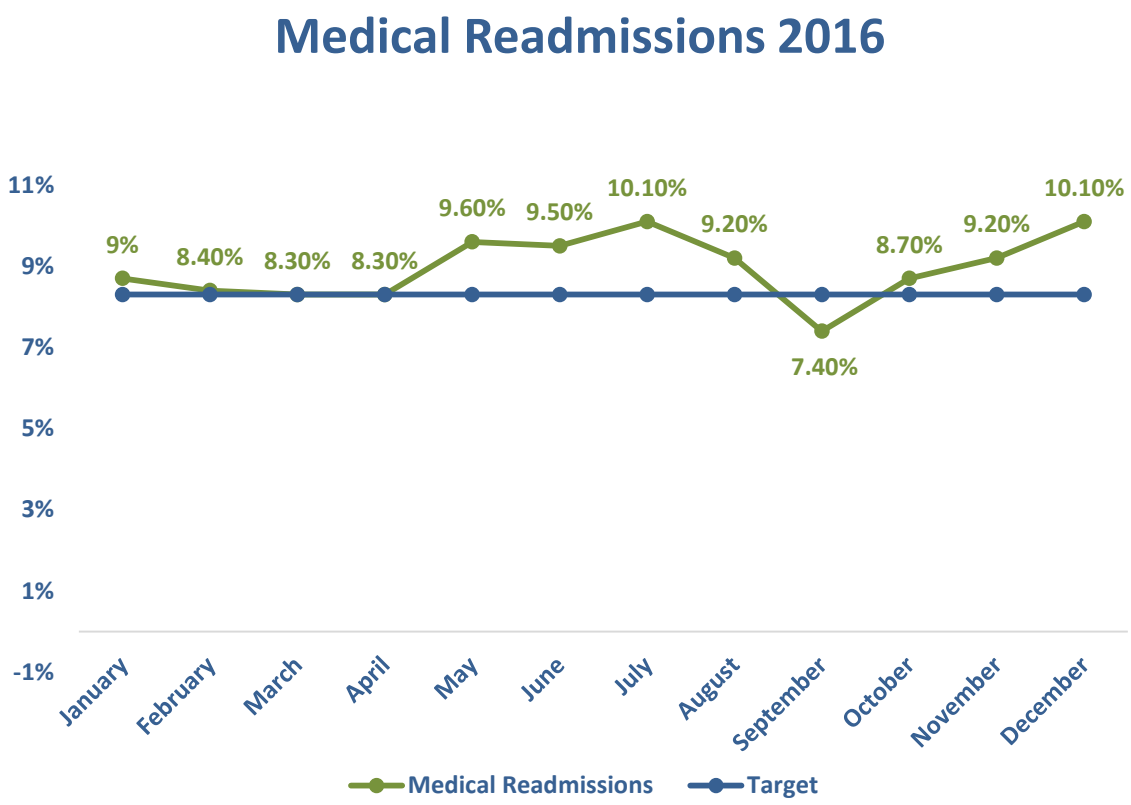
Hospital Acquired Infection Rate per 10,000 BDU	Bench mark / Target	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	Trend over 24 months
S. Aureus bacteremias		4	10	12	6	9	7	7	7	
Clinically significant S. Aureus		3	7	11	4	6	7	7	6	
S. Aureus Bacteremia Rate	1.0	0.79	1.89	2.26	1.16	1.67	1.33	1.33	1.33	
MRSA Bacteremia Cases		U/A	U/A	U/A	U/A	0	2	0	1	
MRSA Bacteremia Rate		U/A	U/A	U/A	U/A	0	0.38	0	0.19	
C Diff Cases		18	19	15	13	17	15	11	12	
C Diff rate	2.5	3.54	3.59	2.84	2.51	3.16	2.84	2.08	2.28	
C Diff Cross Infection		0	0	0	0	0	0	0	0	
VRE Cases		5	9	10	5	4	3	7	5	
VRE Rate		0.98	1.70	1.89	0.97	0.74	0.57	1.33	0.95	
Clinically significant VRE		U/A	U/A	U/A	U/A	2+	2	7	5	
C. Significant VRE Rate		U/A	U/A	U/A	U/A	U/A	0.38	1.33	0.95	
Norovirus cases		U/A	U/A	U/A	U/A	16	16	0	3	
Norovirus Rate		U/A	U/A	U/A	U/A	2.96	3.03	0	0.57	
Hand Hygiene Training	100%	55%	72%	80%	84%	86%	87%	85%	88%	

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





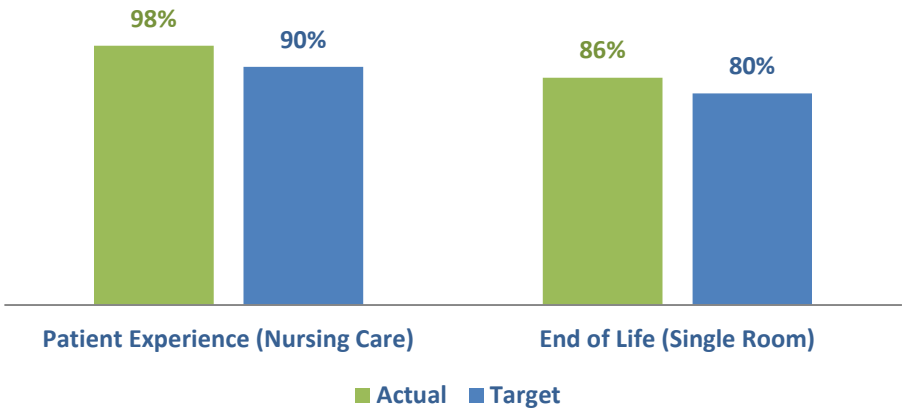
Reducing readmissions is a win-win for both cost and quality. The patient benefits from not requiring further hospital care, while the hospital benefits from not having to incur the cost of treating the patient again.

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

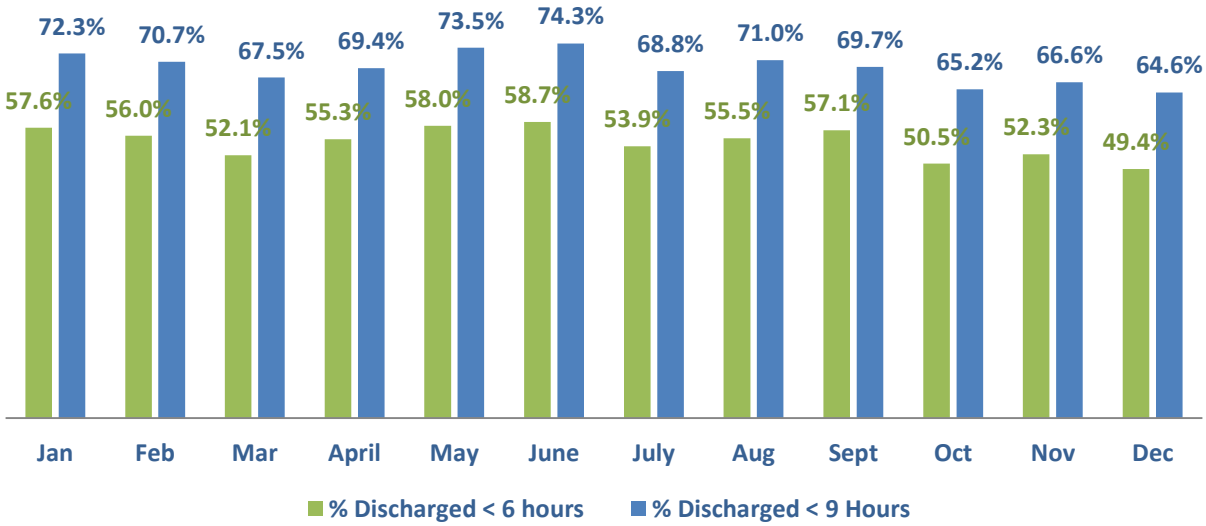
- Better adherence to medical advice and treatment plans
- Greater patient self-management skills and improved quality of life
- Patients who have better care experience are shown to have better outcomes

Patient Experience

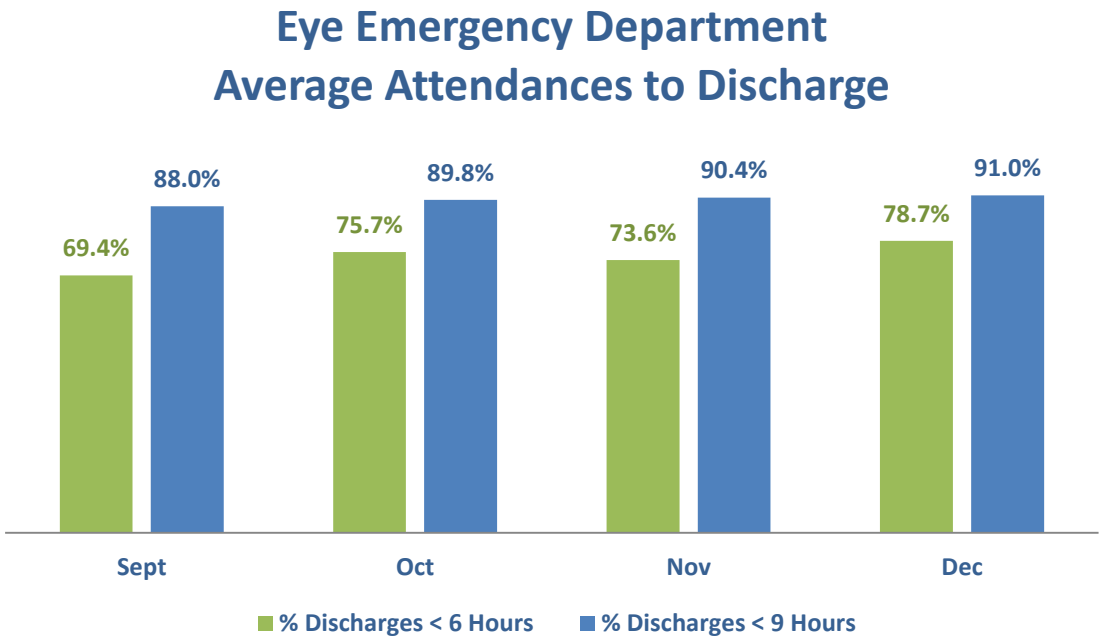


Patient experience is one of the three elements of high quality care, alongside clinical effectiveness and safety

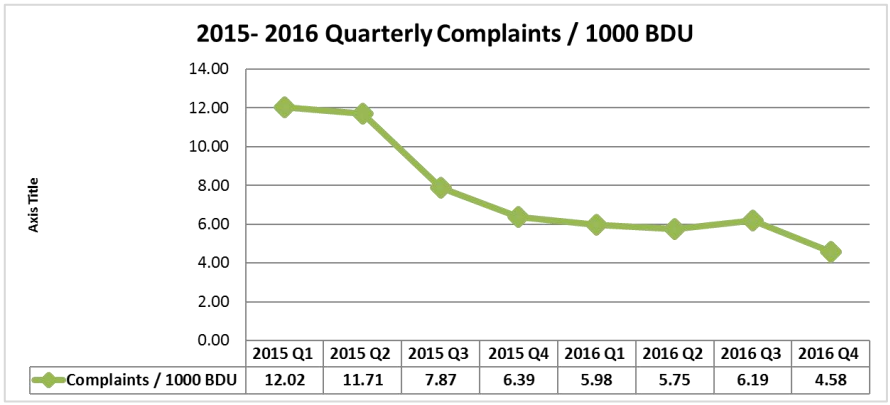
Emergency Department
Average Attendances to Discharge



The new Eye Emergency Department was opened on 6th September 2016. Previously data for eye emergencies was included in the overall emergency figures. Since September 2016 they have been separated out.



Number of Complaints



The most significant number of complaints 2014- Q1 2015 related to patients unable to get through to the eye clinic to make or check up on an appointment. The decrease in complaints related to changes in the eye clinic appointment management system in 2016.

Continuous Improvement Cycle

Clinical audit forms an integral part of the clinical governance framework through which the Mater Misericordiae University Hospital is accountable for continually improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence

in clinical care will flourish. Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic measurement against explicit criteria and the implementation of any necessary change.

The Mater Hospital has in place a programme of quality improvement activities that includes healthcare professionals participating in regular clinical audit. Clinical audit is the governance vehicle in relation to clinical practice, and is integral to the core business of the hospital. The Quality and Patient Safety Directorate is committed to raising the profile of clinical audit within the hospital and is dedicated in its aim that audit is a valuable resource in the Mater's aim to continually improve patient outcomes and experience and to provide assurance in areas in which this is already demonstrated.

The Mater Hospital participates in several national clinical audits including

- National Audit of Hospital Mortality.
- National Cancer Control Programme, Rapid Access Clinic Reviews
- Irish Hip Fracture Database
- National Stroke Register
- Major Trauma Audit
- National ICU Audit
- National Quality Improvement Programmes – Endoscopy, Histology and Radiology

In 2016 there were 334 audits carried out in the Mater Hospital

Research and Education

The Mater Misericordiae University Hospital prioritises research that translates rapidly into patient benefits. Through our partnerships with our academic partner UCD and other academic institutions, we have a strong track record of producing high quality research that delivers real and meaningful results to patients.

As part of this focus the hospital, in 2016, launched a series of workshops to support staff that are engaged in or interested in developing a research project. These informal sessions are open to all staff - from the complete novice to the post-doctorate researcher. Each workshop has a specific theme, aiming to address a particular area of need that has been identified by staff. The workshops also provide an opportunity for meeting others that are involved in research and developing peer support networks. The strong response from participants has encouraged the hospital to expand the initiative in 2017 and will include cross collaboration with St Vincent's University Hospital and others in the Ireland East Hospital Group.

Clinical Research Centre

The UCD Clinical Research Centre (CRC) at the Mater Hospital opened in 2006 and forms part of a research network across UCD, St Vincent's University Hospital and the Mater Misericordiae University Hospital. The CRC's aims are to discover ways to improve medical care and to establish new treatments for patients who are living daily with chronic illness.

The CRC contributes to ongoing research, creating a scientific and caring culture for the benefit of present and future patients. Our medical research contributes to the development of new cures and better treatments.

The donation of samples for molecular research by patients, makes a significant contribution to the efforts underway to understand the mechanism of disease and effect improved patient outcome. This clinical facility complements UCD's Conway Institute for Biomolecular and Biomedical Research, ensuring that our biomedical research focus is a continuum from bench to bedside.

The specific research arenas in which the CRC focuses include

- Collection of phenotypically well-defined repositories of biomaterials for molecular investigations
- Development of translational research programmes
- Clinical trials and investigations
- Population based studies
- Investigations into the impact of disease on the individual and society

In addition, the sequencing of the human genome has enabled researchers to pinpoint errors in genes that cause or contribute to disease. Researchers at the CRC use this information to develop new ways to treat, cure, or even prevent the thousands of diseases that afflict all of us.

Research Ethics Committee

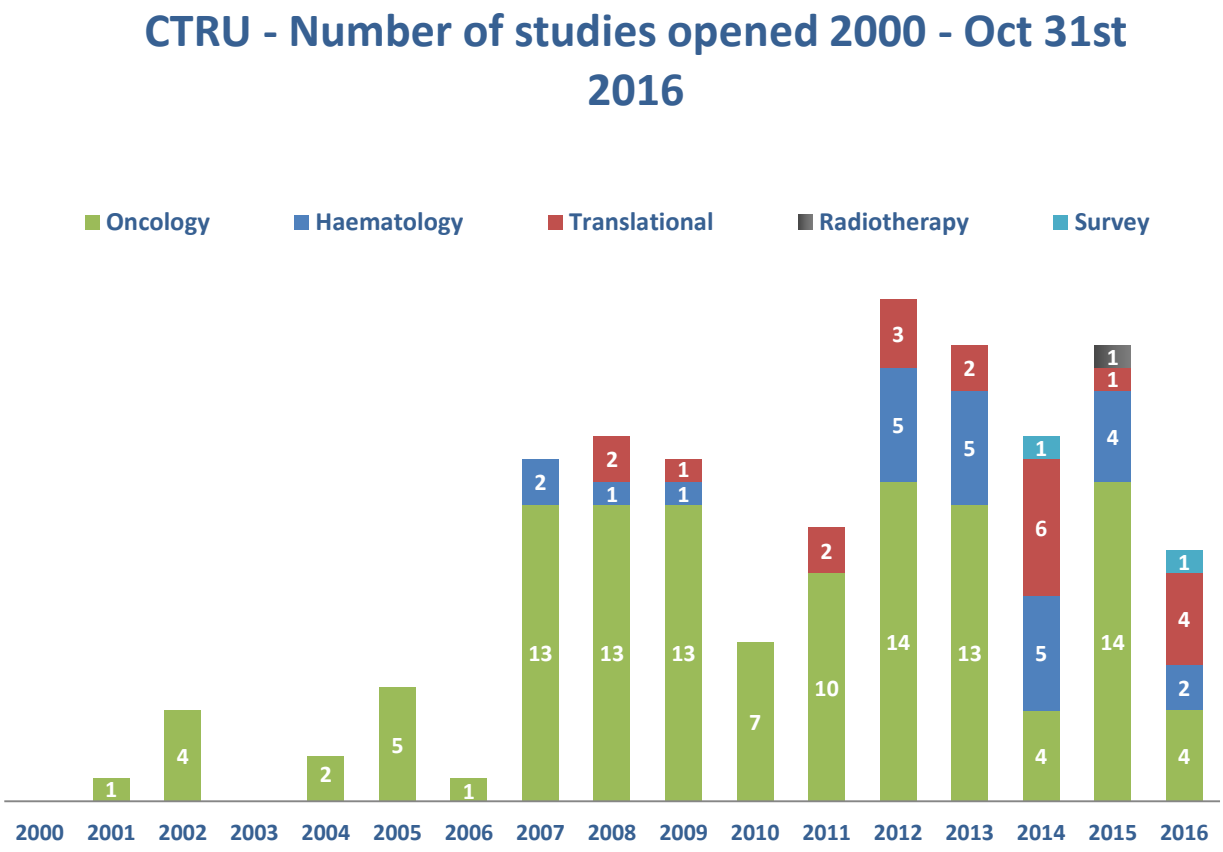
The Institutional Research Board (formerly the Research Ethics Committee) is designed to protect patients and staff involved in research studies and to ensure quality and value to the wider community of all research conducted at the hospital.

All clinical research conducted in the Mater Hospital needs to be submitted for review by the committee to ensure that it is in compliance with the Declaration of Helsinki, Irish law and European Union law.

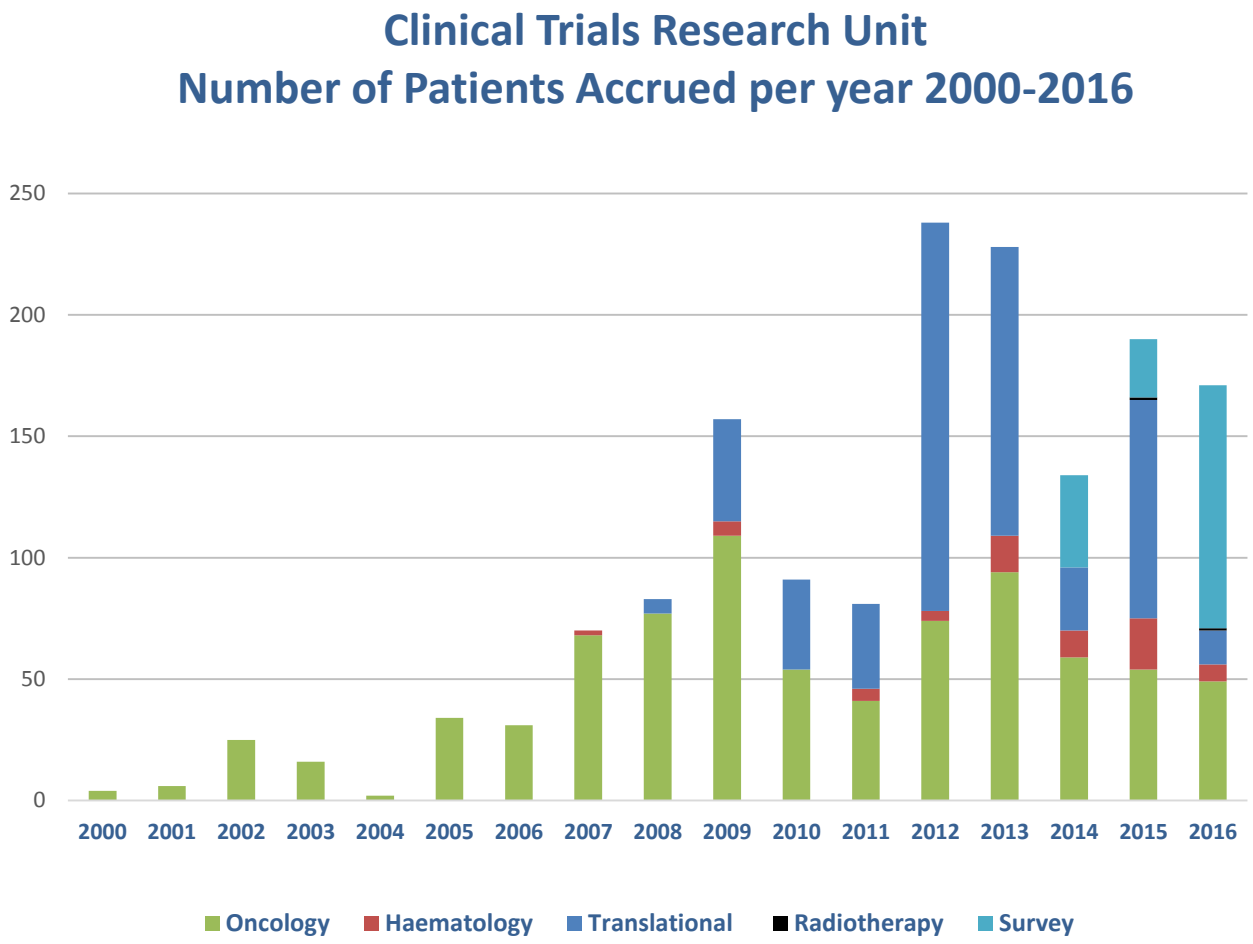
Clinical Trials Research Unit (CTRU)

The Clinical Trials Research Unit at the Mater campus was established in 2000 under the direction of Prof John McCaffrey. The Mater campus incorporates Mater Misericordiae University Hospital and Mater Private Hospital. Cavan General Hospital is a satellite oncology/haematology centre of the Mater Misericordiae service.

Clinical trials in oncology are an integral part of the care pathway and offer treatment options for patients. The CTRU is an integral part of the service and delivery of patient care across the Mater campus and became part of the Cancer and Surgery Directorate in 2014. The haematology clinical trials service was incorporated into the CTRU in 2012 to provide a coordinated clinical trials service across haematology and oncology.



Almost 1,500 patients have participated in cancer clinical trials since the CTRU was set up. Over 30 of these trial results have been presented at international conferences and published in high impact peer reviewed journals. Of the 24 new cancer drugs approved and reimbursed by the National Cancer Control Programme (NCCP) since March 2011, 13 have been studied in clinical trials at the Mater Hospital.



CA209-067

The exciting results of the BMS CA209-067 trial were presented during the plenary session at the American Society of Clinical Oncology (ACSO) in 2016. It involved 945 patients with metastatic malignant melanoma from 137 sites across the globe. In Ireland 4 sites were involved with the Mater leading the Irish recruitment. This trial studied an already approved immunotherapy drug (Ipilimumab) against a new immunotherapy drug (Nivolumab) or the combination of both. The clinical benefits were significant and showed a better and more durable response for the patients receiving Nivolumab alone or the combination versus the standard drug Ipilimumab.

Translating Benefits to Patients

Clinical trials extend knowledge and improve current treatment and care, now and for future patients. We utilise the results of earlier clinical trials when advising patients now. While current clinical trials provide patients with access to innovative drug treatments which may well result in improvements for them and future patients. The local knowledge, skills and expertise of the nursing, medical and pharmacy workforce is also enhanced by this work.

HIV Molecular Research Group

Established in 2008, the HIV Molecular Research Group (HMRG) is internationally recognised for its translational research into long-term co-morbidities associated with HIV infection and its

treatment with anti-retrovirals and research into models of testing to increase early diagnosis of HIV.

The HMRG, based on the Mater Misericordiae University Hospital campus, coordinates international, collaborative, translational research in HIV. The group comprises researchers with laboratory, statistical and clinical research expertise and is funded through a number of streams including Science Foundation Ireland, the Health Research Board and several industry supporters. The group's research focuses around four principal themes

1. Models of HIV detection.
2. Bone disease in HIV.
3. Cardiovascular disease (CVD) in HIV.
4. HIV Immunology.

Stroke Clinical Trials Network Ireland

March 2016 saw the launch of the HRB Stroke Clinical Trials Network Ireland. The network is led by Professor Peter Kelly and based at the Mater UCD campus and will initially involve eight Irish hospitals, six leading universities, and all seven hospital groups, including colleagues from UCD, RCSI, Trinity College, UCC, NUI Galway, and University of Limerick. The Network provides strong links with international researchers in the UK, Europe, and North America and will enable Irish researchers to

- Join several new international trials of new treatments for emergency care, prevention, and recovery after stroke.
- Lead a new clinical trial aiming to prevent second strokes and heart attack after first stroke.
- Train new doctors, nurses, and therapists in how to perform safe high-quality clinical trials, and will work with patient groups and the private sector to bring new treatments to patients with stroke.

Research (2016)

Breast Surgery Trial

The team at the hospital are currently involved in a prospective trial in partnership with Genomic Health. This is a decision impact study to evaluate the Oncotype DCIS assay in selecting patients with Ductal Carcinoma in Situ (DCIS) for adjuvant radiotherapy. The Oncotype DCIS breast cancer test 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). Ethics approval has been received and to date 28 patients have been recruited into the trial, with a target of 90 patients in total.

The aim of the trial is to

- Improving decision making based on individual diagnostics.
- Deliver a cost-benefit by addressing the overtreatment of some patients and providing optimal treatment for those who require additional treatment.
- Improved 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.

Breast Cancer

NeoTRIP
Dr Cathy Kelly is the principal Irish investigator in the NeoTRIP trial that began recruiting in October 2016. The Mater is one of 5 Irish sites currently evaluating the addition of MPDL3280A (atezolizumab) to carboplatin and nab-paclitaxel in patients with locally advanced triple negative breast cancer compared to the control arm of carboplatin and abraxane. Half of participants will receive MPDL3280A in combination with carboplatin and abraxane, while the other half will receive only carboplatin and abraxane.

Pallas Trial
The Pallas trial seeks to determine whether the addition of palbociclib to adjuvant endocrine therapy will improve outcomes over endocrine therapy alone for HR+/HER2- early breast cancer. The trial is a randomised phase III trial so half the participants on the trial will receive the current standard anti-hormone therapy plus palbociclib and the other half will receive the standard anti-hormone therapy alone. Recruitment started at the Mater in December 2016.

Flipper
In August 2016, the Mater Hospital commenced recruiting for the Flipper trial. This compares the efficacy and safety of fulvestrant in combination with palbociclib versus fulvestrant plus placebo in postmenopausal women with HR-positive/HER2-negative metastatic breast cancer who have received ≥5 years of endocrine therapy in the adjuvant setting as treatment for early disease and remained disease free for >12 months following its completion or have “de novo” metastatic disease.

NALA
The Mater is one of 6 Irish sites assessing the combination of neratinib plus capecitabine versus the combination of lapatinib plus capecitabine. This is a randomised, multi-centre, multinational, open-label, active-controlled, parallel design trial. Patients will receive either neratinib plus capecitabine combination or lapatinib plus capecitabine combination until the occurrence of death, disease progression, unacceptable toxicity, or other specified withdrawal criterion.

PENELOPE B
Dr Cathy Kelly is the principal Irish investigator in the PENELOPE B trial. A Phase III study evaluating palbociclib (PD-0332991), a cyclin-dependent kinase (CDK) 4/6 Inhibitor in patients with hormone-receptor-positive, HER2-normal primary breast cancer with high relapse risk after neoadjuvant chemotherapy. The purpose of this trial is to demonstrate that in the background of standard anti-hormonal therapy palbociclib provides superior invasive disease-free survival (iDFS) compared to placebo in pre-menopausal and post-menopausal women with HR-positive/HER2-normal early breast cancer at high risk of relapse after showing less than pathological complete response to neoadjuvant taxane- containing chemotherapy.

TAILORx Tissue Bank
The purpose of the project is the development of a biobank to identify potential biomarkers that are indicative of disease relapse. The study is an exploratory, translational, non-interventional and multicentre biobank. The clinical data and invasive breast cancer tissue from each patient enrolled onto the ICORG 06-31 TAILORx trial in Ireland will be collected to investigate candidate and novel predictive and prognostic biomarkers in this cohort. It is envisaged that these results will facilitate the development of clinical assays. This is an ongoing project with Dr Cathy Kelly and Dr Darren O'Connor (UCD) as the principal investigators.

CharactHER
The Mater is one of 6 sites in this study of the molecular and cytogenetic characteristics of HER2-positive breast cancers to predict durable complete response after chemotherapy and trastuzumab. The trial aims to identify biomarkers of response or resistance to trastuzumab treatment. It is hoped that the results from this study will provide new and reliable biomarkers that will enable us to better identify the different subtypes of HER2-positive breast cancer in response to trastuzumab-based therapy. Recruitment is ongoing.

Cardiology

Amplatzer™Amulet™ Post-Market Study
The cardiology team at the Mater are part of the prospective, multicentre, observational, non-randomised study to compile real world outcome data on the use of the Amulet™device in non-valvular atrial fibrillation subjects. The study is designed to follow the Instructions for Use (IFU) to gather data on the implant procedure through two years of follow up with the Amulet™ device in a commercial clinical setting.

Atrial Fibrillation
ENTRUST-AF-PCI: Edoxaban treatment versus vitamin K antagonist in patients with atrial fibrillation undergoing Percutaneous Coronary Intervention. This study looks at the safety and efficacy of edoxaban plus antiplatelet therapy in subjects with atrial fibrillation (AF) following percutaneous intervention PCI with stenting. This study is designed to evaluate the safety and to explore the efficacy of an edoxaban-based antithrombotic regimen versus a vitamin K antagonist VKA-based antithrombotic regimen in subjects with AF following PCI with stent placement. Bleeding is a central safety outcome in cardiovascular clinical trials, especially for antithrombotic strategies and invasive procedures.

Atrial Fibrillation
The team at the Mater are part of the GLORIA-AF Registry Programme, a phase II/III programme. In this Registry Programme patients with non-valvular atrial fibrillation (AF) at risk for stroke are enrolled to characterise the target population and to collect real world data on important outcome events. For administrative purposes the study is divided into two protocol numbers: 1160.129 for non-European Union (EU) and non-European Economic Area (EEA) countries, and 1160.136 for EU and EEA countries. The total number of patients enrolled in both protocols is estimated to be 48,000 patients, and all these patients will be included in the data analysis for study 1160.129.

IrisFIT Patent Foramen Ovale (PFO) Occluder
The Mater were part of the Post Market Clinical Follow-up Study for the IrisFIT PFO (Patent Foramen Ovale) Occluder. The occluder is designed for PFO patients associated with recurrent TIA (Transient Ischemic Attack) or cryptogenic stroke and successfully completed clinical trials in Germany and France, and obtained CE Mark approval in 2012.

The purpose of the study is to collect more data about performance and safety of the device which will be used to help patients who choose to use this treatment option in the future. The final collection date for primary outcome measures was December 2016.

Paravalvular Leaks: Circulation Paper
In 2016, as part of the combined experience from the UK and Ireland, the team at the Mater Hospital published in Circulation, on percutaneous device closure of paravalvular leak. The study demonstrated that percutaneous closure should be considered as an alternative to repeat surgery. Paravalvular leak occurs in 5% to 17% of patients following surgical valve replacement, with percutaneous closure of PVL improves PVL severity and symptoms.

Gastrointestinal

Colorectal Cancer
Strategic 1 is a multi-line therapy trial in unresectable wild-type RAS metastatic colorectal cancer. Recruitment for this GERCOR randomised open-label Phase III study commenced in November 2016. The purpose of this study is to compare two standard chemotherapy treatment strategies among the various treatment possibilities currently available for this type of cancer. The study aims to determine which of these two strategies is the best sequence of therapy by comparing measures such as duration of disease control, quality of life and overall survival.

Hepatocellular Carcinoma
Excelixis Celestial is a Phase III placebo controlled trial evaluating a tyrosine kinase inhibitor in Hepatocellular Carcinoma (HCC) patients previously treated with Sorafenib. The trial is to evaluate the effect of the drug Cabozantinib (XL184) compared with placebo on overall survival in patients with cancer of the liver (hepatocellular carcinoma) who have received prior sorafenib. The trial will also examine whether there is any effect on disease response rate (objective response rate; ORR) and time to disease progression (progression-free survival; PFS).

GOAL-ARC - Golimumab Dose Optimisation to Adequate Levels to Achieve Response in Colitis
The Mater Hospital is part of a nationwide multi-centred investigator initiated randomised control trial to evaluate the use of personalised Golimumab (GLM) dose adjustment in ulcerative colitis. The primary objective is to ascertain if dose adjustment of GLM, based on GLM drug levels and FCP levels, results in higher response and remission rates than standard SmPC dosing. Patients with moderate to severely active ulcerative colitis requiring treatment with anti-TNF therapy will be randomised in a 1:1 ratio to 1 of 2 treatment groups. Doses of concomitant medications will remain constant except for corticosteroids, which shall be tapered by 5 mg weekly after week 2 until discontinued.

Genitourinary

Renal Cell Carcinoma
Keynote 426 is a Phase III randomised, open-label, clinical trial to study the efficacy and safety of Pembrolizumab (MK-3475) in combination with Axitinib versus Sunitinib monotherapy as a first-line treatment for locally advanced or Metastatic Renal Cell Carcinoma (mRCC). Drs John McCaffrey and Ray McDermott (Tallaght Hospital) are the joint principal investigators. The purpose of this study is to evaluate the efficacy and safety of pembrolizumab (MK-3475) in combination with axitinib versus sunitinib monotherapy as a first-line treatment for participants with advanced/metastatic renal cell carcinoma (mRCC). Recruitment started in December 2016.

IPCOR

The Irish Prostate Cancer Outcomes Research (IPCOR) is establishing a nationwide prostate cancer registry which captures high-quality information from newly diagnosed prostate cancer patients in the Republic of Ireland. The registry collects clinical data about prostate cancer patients, such as the type of treatment they are receiving, and patient's self-reported experiences of care, their physical and mental well-being and health related quality of life. The registry generates robust data on a range of important clinical outcomes of men with prostate cancer and assesses processes, consistency and quality of prostate cancer care. By providing evidence-based data and recommendations to clinicians, hospitals, decision-makers and the National Cancer Control Programme, the registry will promote equal access to services and improvements in care nationally. By bringing together, for the first time, data on clinical and patient-reported outcomes that have been collected over time, the registry will ultimately lead to the improvement of patient experiences and maximise quality of life for men diagnosed with prostate cancer in Ireland. David Galvin is the principal investigator for the study that seeks to capture data on newly diagnosed prostate cancer patients in the Republic of Ireland.

Prostate Cancer

CARD is a randomised, open label, multicentre study of Cabazitaxel versus an Androgen Receptor (AR)-targeted agent (abiraterone or enzalutamide) in metastatic castration resistant prostate cancer (mCRPC) patients previously treated with Docetaxel and who rapidly failed a prior AR-targeted agent. The Mater is one of two Irish sites that will compare the effectiveness of two different treatments. The duration of the study per patient will be approximately 2 years. Each patient will be treated until radiographic disease progression, unacceptable toxicity, or patient's refusal of further study treatment, and each patient will be followed after completion of study treatment until death, study cut-off date, or withdrawal of patient consent.

Prostate Cancer

ENZARAD is a randomised Phase III trial of enzalutamide in androgen deprivation therapy with radiation therapy is for high risk, clinically localised, prostate cancer. The aim of this study is to see if enzalutamide, combined with the current best available treatments, can improve outcomes for men with localised prostate cancer that are going to be treated with radiotherapy.

iPROSPECT

This study is coordinated by Cancer Trials Ireland and a collaborative group of clinicians and scientists (the iPROSPECT team) based in the research institutions of Trinity College Dublin, National University of Ireland Galway, University College Dublin and their affiliated hospitals. The purpose of the trial is to investigate new clinical tests that could predict what treatments work best for certain patients with advanced prostate cancer by identifying markers and indicators present in blood and tissue which correlate with treatment response. The study is being funded by the Irish Cancer Society in partnership with the Movember Foundation.

Prostate Cancer

PEACE 1 is a prospective randomised Phase III study of androgen deprivation therapy with or without local radiotherapy with or without abiraterone acetate and prednisone. The purpose of this trial is to study the effect of the standard treatment by Androgen Deprivation Therapy (ADT) (+/- Docetaxel), with or without radiotherapy, with or without abiraterone acetate and prednisone in patients with metastatic hormone-naïve prostate cancer. Recruitment closes in May 2017.

Gynaecology

Ovarian Cancer
Javelin 100 is a randomised, open-label, multi-centre, phase III study to evaluate efficacy and safety of Avelumab (MSB0010718C) in combination with and/or following chemotherapy in patients with previously untreated epithelial ovarian cancer. The trial will to test the benefits and safety of the agent avelumab when taken in combination with and/or following platinum-based chemotherapy for treatment of patients with newly diagnosed ovarian cancer. This international trial has a 3-arm design and opened for recruitment in December 2016. Patients are randomised to one of the following treatment options

– Arm A: Chemotherapy followed by observation
– Arm B: Chemotherapy followed by avelumab in maintenance
– Arm C: Chemotherapy in combination with avelumab followed by avelumab in maintenance

Ovarian Cancer
PRIMA is a phase III, randomised, double-blind, placebo-controlled, multi-centre study of Niraparib maintenance treatment in patients with advanced ovarian cancer following response on front-line platinum-based chemotherapy. The primary objective of this study is to assess if maintenance treatment with niraparib will delay progression of disease in patients with stage III or IV ovarian cancer who responded to front-line platinum-based chemotherapy.

Ovarian Cancer
ICON8B is a phase III randomised trial investigating the combination of dose-fractionated chemotherapy and bevacizumab compared to either strategy alone for first-line treatment of women with newly diagnosed high-risk stage III-IV epithelial ovarian, fallopian tube or primary peritoneal cancer. The primary objective of the trial is to investigate whether weekly chemotherapy with bevacizumab extends the time until ovarian cancer relapses and whether women who receive this treatment combination live longer compared to standard chemotherapy or weekly chemotherapy alone.

Current research efforts are being conducted in collaboration with the National Maternity Hospital, Holles Street, the Rotunda Hospital, St Vincent's University Hospital and various industry sponsored protocols to offer patients the opportunity to participate in cutting-edge research. Our research protocols include first line treatment for those patients newly diagnosed with gynaecologic malignancies as well as trials for those diagnosed with recurrent or progressive disease. Currently, available clinical trials are geared towards ovarian, endometrial and cervical carcinomas. Each protocol offers the patient standard of care treatment along with investigational products that have shown promise in the treatment of cancer. PARP inhibitors, HER 2 pathway blockers, Anti-VEGF and investigational chemotherapies are being utilised. A Phase I vaccine trial in advanced epithelial and ovarian cancer is also being launched. Tissue acquisition at the time of a patient's initial surgery is another area of research that may offer benefit to the patient by offering specific treatment tailored to the genetic typing of the tumour. This tissue can be sent for chemo sensitivity and/or molecular profiling in an effort to help individualise therapy

Haematology

Leukaemia
P2001 is a phase II, randomised, controlled, open-label, clinical study of the efficacy and safety of Pevonedistat plus Azacitidine versus single-agent Azacitidine in patients with higher-risk Myelodysplastic Syndromes, Chronic Myelomonocytic Leukemia, and Low-Blast Acute Myelogenous Leukaemia. The purpose of this trial is to evaluate the effects of the drug pevonedistat plus azacitidine versus only azacitidine in patients with higher-risk myelodysplastic syndromes, chronic myelomonocytic leukaemia and low-blast acute myelogenous leukaemia. Recruitment started in September 2016.

Non-Hodgkin's Lymphoma
CHRONOS-3 is a phase III, randomised, double-blind, placebo-controlled study evaluating the efficacy and safety of copanlisib in combination with rituximab in patients with relapsed indolent B-cell non-Hodgkin's lymphoma (iNHL). The purpose of this study is to find out if the drug copanlisib in combination with rituximab is superior to placebo in combination with rituximab in patients with whose iNHL has returned and who have received one or more lines of treatment, including rituximab.

Non-Hodgkins Lymphoma
CHRONOC-2 is a randomised, double-blind phase III study of copanlisib versus placebo in patients with rituximab-refractory indolent B-cell non-Hodgkin lymphoma (iNHL). The purpose of this study is to find out what effects the use of the drug copanlisib has on indolent non Hodgkin lymphoma patients and to compare this with patients that receive placebo. Recruitment commenced in February 2016.

Multiple Myeloma
MMY3008 is a phase III Study Comparing Daratumumab, Lenalidomide, and Dexamethasone (DRd) vs Lenalidomide and Dexamethasone (Rd) in previously untreated Multiple Myeloma who are neligible for High Dose Therapy. This is a randomised, open-label, active controlled, parallel-group, multicentre trial that compares the effectiveness of two different combinations of drugs.

Multiple Myeloma
OPTIMISMM is a phase III, Multicentre, Randomised, Open-Label Study to compare the Efficacy and Safety of Pomalidomide, Bortezomib and Low-Dose Dexamethasone Versus Bortezomib and Low-Dose Dexamethasone in Subjects with Relapsed or Refractory Multiple Myeloma.

Multiple Myeloma
The Mater is one of two sites for the ECOG E3A06 trial. This is a randomised phase III trial of Lenalidomide Versus Observation Alone in Patients with Asymptomatic High-Risk Smoldering Multiple Myeloma.

Lymphoma
ARROVEN PASS is an Observational Cohort Study of the Safety of Brentuximab Vedotin in the Relapsed or Refractory CD30+ Hodgkin Lymphoma and Relapsed or Refractory Systemic Anaplastic Large Cell Lymphoma.

Lymphoma
Robust is a Phase 3 Randomized, Double-blind, Placebo Controlled, Multicentre Study to Compare the Efficacy and Safety of Lenalidomide (CC-5013) Plus R-CHOP Chemotherapy (R2-CHOP) Versus Placebo Plus R-CHOP Chemotherapy in subjects with previously untreated activated B-Cell Type Diffuse Large B-Cell Lymphoma

HepCare Europe

HepCare Europe, is a European Union-funded initiative which aims to improve the efficacy of Hepatitis C treatment by bringing point of care testing to 'at risk' groups and supporting them through their treatment. The innovative multi-country collaboration aims to demonstrate that a targeted community-based intervention can improve the health outcomes of, and reduce the considerable socio-economic burden on a vulnerable group of individuals living with Hepatitis C. The project seeks to improve access to, and effectiveness of, Hepatitis C treatment in Ireland and across the European Union though the use of novel point of care testing and supporting patients through treatment. The initiative seeks to mobilise primary, secondary and outreach care within the community to reach 'at risk' patients including intravenous drug users and the homeless. These citizens are typically poorly supported in traditional acute hospital settings and do not have the continuity of care necessary to ensure effective clinical intervention. Funding for HepCare Europe is being provided by the Third EU Public Health Programme (€1.8 million) and Ireland's Health Service Executive. The work will be conducted by a consortium involving five institutions across four European countries, and will develop a series of coordinated activities to improve the efficacy of public health policy and intervention in the treatment of Hepatitis C. The consortium seeks to investigate if focused intervention of 'at risk' groups can reduce the socioeconomic burden of Hepatitis C across European member states. Led by Professor Jack Lambert, Consultant in Infectious Diseases at University College Dublin and the Mater Misericordiae University Hospital and Professor Walter Cullen, General Practitioner in Dublin's North Inner City and UCD Professor of Urban General Practice, the consortium includes clinician scientists from Servicio Andaluz Dde Salud (SAS) in Spain, Spitalul Clinic Dr Victor Babes Bucuresti (SVB) in Romania and both University of Bristol (UoB) and University College London (UCL) in the United Kingdom. The consortium believes substantial socioeconomic benefit will accrue to the State through this focused intervention. The HepCare Europe pilot project is designed to evaluate the efficacy of this approach and help build the necessary knowledge base and evidence to support a role out of this strategy across the European Union. HepCare Europe comprises six strategic initiatives designed to demonstrate the effectiveness of a community-based intervention

- HepCheck seeks to identify patients not accessing care by using point of care HPC oral rapid test in hard to reach settings (homeless, in shelters, prisons, etc.) and identify the factors associated with treatment discontinuity.
- HepLink seeks to develop an integrated model of HCV care involving 24 GP practices to reach approximately 240 'at risk' patients.
- HepEd will develop and implement a multidisciplinary inter-professional education resource for healthcare professionals on Hepatitis C care.
- cHepFriend recognises the importance of peer support to ensure treatment adherence and will recruit, train and support credible advocates to support the clinical care team.
- HepCost will assess the cost-effectiveness of the specific case-finding interventions across different EU countries to inform the development public health policy in member states.

The above are all coordinated by HepCoord under the direction of Principal Investigator, Prof Jack Lambert and the team at the Mater Misericordiae University Hospital.
In addition to the principal investigators, Irish collaborators in this project include Dr Austin O'Carroll of the Merchant's Quay and Safety Net Primary Care Services in the Dublin, Dr Stephen

Stewart, the Mater Misericordiae University Hospital, Dr Eoin Feeney and Dr Diarmaid Houlihan at St Vincent's University Hospital and Dr Des Crowley of HSE Addiction Services. Other agencies involved in the project include Community Response, HIV Ireland and the Ireland East Hospital Group.

Hepatology

Chronic Hepatitis C Trial
The Mater is currently running a trial that seeks to determine the effectiveness of the interferon-free regimen ± RBV in chronic hepatitis C virus infected patients. The study aim is to provide real world evidence of the effectiveness of the treatment in both treatment naïve and treatment experienced patients. Developing a pragmatic community-based algorithm for prioritisation of HCV treatment, this project looked at pragmatic ways to expand access to treatment by assessing more accessible modalities for staging, namely APRI and FIB-4, both of which can be calculated using readily available blood tests. 223 patients were included in the study which concluded that the FIB-4 score is superior to the APRI when used to detect HCV patients with a Fibroscan score of >12 kPa. A cut-off of 3.25 performs best overall, but a cut-off of 1.45 would be the most practical for use in the community. This could be used to reduce those requiring referral for Fibroscan by 46% while detecting 91% of those that will be approved for treatment.

HCV
The Irish Hepatitis C Outcomes Registry Network (ICORN) is funding a PhD student studying factors that predict outcome after HCV treatment. Patients are recruited from the Liver and Infectious Diseases clinics. Phenotyping is carried out before treatment with direct acting antivirals. Detailed imaging studies, QOL of questionnaires and drug and alcohol behaviour assessments are also completed. The purpose of the project is to identify factors that are predictors of good outcomes and help us to recognise patients that may need more intensive monitoring post-treatment to improve their individual outcomes.

HIV

Discover
The Mater is part of an international phase III, Randomized, Double-blind Study to Evaluate the Safety and Efficacy of Emtricitabine and Tenofovir Alafenamide (F/TAF) Fixed-Dose Combination Once Daily for Pre-Exposure Prophylaxis in Men and Transgender Women Who Have Sex With Men and Are At Risk of HIV-1 Infection. The primary objective of this study is to assess the rates of HIV-1 seroconversion in Men (MSM) and transgender women (TGW) who have sex with men and who are administered daily emtricitabine/tenofovir alafenamide (F/TAF) or emtricitabine/tenofovir DF (F/TDF) with a minimum follow-up of 48 weeks and at least 50% of participants have 96 weeks of follow-up.

Apart
The APART (Alendronate for Prevention of AntiRetroviral Therapy-associated Bone Loss) study is a UCD sponsored trial. Antiretroviral therapy (ART) initiation is associated with a significant loss of bone mineral density (BMD), characterised by increases in bone turnover, which is largely limited to the first 48 weeks of therapy. Bisphosphonates, such as alendronate, decrease bone turnover and can limit loss of bone mineral density. This study aims to determine if a short course of treatment with the oral bisphosphonate alendronate can limit loss of bone mineral density associated with initiation of ART in HIV-1 infected, antiretroviral naive, adult subjects.

UPBEAT

The HIV UPBEAT study (Understanding the Pathology of Bone Disease in HIV-infected Patients) is a UCD/ HRB sponsored study. The rationale for this study is that despite the prevalence of osteopenia and osteoporosis in the HIV positive population, relatively little is known about the underlying pathology. This prospective cohort study aims to gain further understanding about a number of issues relating to low bone mineral density in HIV-infected subjects. Recruitment is ongoing.

Mater-Bronx Rapid HIV Testing Project. (M-BRiHT)

The M-BRiHT study was an opportunistic HIV screening programme in the Emergency Department of the Mater Hospital. The study was completed in 2016 and the data collected is being reviewed. The programme studied the factors that influence test completion or acceptance of opportunistic HIV screening. The project utilised informative interactive video media via a touch-screen tablet device to provide pre-test counselling and then offered rapid minimally invasive testing with a cotton-bud type swab of the buccal mucosa. In doing so this determined the absolute numbers of those attending the ED who consent to watching the interactive information video about rapid HIV test screening. The study will describe the absolute number and proportion of those who watch the interactive video who subsequently proceed to have the rapid HIV test. The primary aim is to determine the cultural, gender and ethnic factors which influence the completion of such rapid HIV testing with the future objective of maximising test completion in this crucial public health area.

Global Adolescent HIV Research Project: The Passages Project

Consultants from the Mater Hospital are the primary investigators in a multinational HIV research project on 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.

Qualitative interview data from the five lower-income countries was analysed. Findings showed similar themes across sites including: the mediating role of caregivers in relation to disclosure and an adolescent's perception of their HIV status; the negative impact of stigma on treatment adherence; the importance of positive relationships with healthcare professionals in specialised services and the importance of peer support.

Lung Cancer

MK3475-091 PEARLS
Recruitment started in January 2016 for trial MK3475-091 PEARLS in assessing whether pembrolizumab after completion of radical surgery followed by standard treatment will improve disease free survival. The trial is designed for patients with early stage non-small cell lung cancer (NSCLC) with no residual disease after surgery. The benefit of adjuvant chemotherapy in NSCLC is limited and the regimens frequently used induce toxicities that have a major impact on the treatment tolerability. Pembrolizumab is a checkmate inhibitor blocking the PD-1 pathway. Checkpoint inhibitors have shown promising results in advanced NSCLC where they are currently being developed in phase I, II and phase III trials in first, second and subsequent line with or versus palliative chemotherapy. Checkpoint inhibitors have demonstrated benefits with a reasonable safety profile/tolerability in the advanced setting.

ETOP SPLENDOUR
The Mater is a site for the randomised phase III trial evaluating the addition of denosumab to standard first-line anticancer treatment in advanced non-small cell lung cancer (NSCLC). The trial is designed for untreated advanced lung cancer patients and will investigate how well the standard treatment (platinum-based doublet chemotherapy) in combination with denosumab works compared with the standard treatment alone in patients with a type of lung cancer called "non-small cell lung cancer" (NSCLC) that has spread to other parts of the body.

Melanoma: Checkmate 401
The Mater is one of 5 Irish sites for this Phase III clinical study for patients with melanoma is currently running at the hospital. The study is a clinical trial of Nivolumab (BMS-936558) combined with Ipilimumab followed by Nivolumab monotherapy as first-line therapy of subjects with histologically confirmed stage III (Unresectable) or Stage IV Melanoma. The purpose of this study is to determine the effects of combination treatment of Nivolumab with Ipilimumab followed by Nivolumab monotherapy in patients with previously untreated advanced Melanoma. Recruitment for the trial commenced in August 2016.

Metabolics

Research Projects
At present, there are several research projects and international collaborations ongoing at the National Centre for Inherited Metabolic Disorders (NCIMD). Including research in the following areas

- Maple Syrup Urine Disease
- Galactosemia
- Homocystinuria
- Mitochondrial Disorders

Neurology

The Dublin Neurological Institute (DNI) is a unique, innovative facility with academic links to the Neurological Institute in Montreal and New York. The clinical care offered is closely connected to our education and research programme. Monthly educational talks for patients with different neurological problems are given by a clinical nurse specialist and/or the relevant consultant.

There are a number of ongoing research projects, studying

- Different aspects of gait, such as the freezing of gait in Parkinson's disease
- Patient reaction times
- Skin sebum (oil) production in Parkinson's disease
- Familial Parkinson's disease
- Early diagnosis of frontotemperal dementia and drug discovery in neurodegenerative disease

Pain

ExACT in Chronic Pain

Effectiveness of Exercise Combined with Acceptance and Commitment Therapy for Chronic Pain (ExACT) is a UCD sponsored trial. The aim of this study is to evaluate the effectiveness of a combined Exercise and Acceptance and Commitment Therapy (ACT) programme, compared to a standalone supervised exercise intervention for patients with chronic pain. Chronic pain is a common problem, which can have a significant impact on quality of life. While there are many treatments available for chronic pain, research has shown that improvements are often modest and short-term. Patients will be randomly allocated to a combined exercise and ACT treatment group or a standalone exercise group. Both groups will have weekly treatment for eight weeks and will be assessed before and after treatment, and again twelve weeks later. Questionnaires will be used to measure the effects of the treatment on the degree to which pain interferes with various aspects of daily life. Activity trackers will be worn to measure daily physical activity levels. A purposeful sample of participants from both groups will also be invited to participate in a qualitative study following treatment.

Pharmacy

Clinical Pharmacy Service Research

The Clinical Pharmacy Service undertook research in 2016 in a number of areas including;

- On site therapeutic drug monitoring of voriconazole
- Review of the cancellation role of clinical pharmacists
- Drug storage in individual medication cabinets in the Post-Acute Care Service
- Review of Pharmacy Department continuing professional development
- Introduction of a long-stay drug chart in the Post-Acute Care Service
- An audit of the management of hypoglycaemia in the MMUH.

Aseptic Compounding Services Research
Dearbhla Murphy, Aseptic Compounding Pharmacist, was awarded a bursary at the Irish Society of Medical Oncology (ISMO) Fellowship and Bursary Awards 2016 for her presentation on 'The Impact of Electronic Prescribing on the Quality and Safety of Chemotherapy Prescribing in Oncology and Haematology'. Dearbhla's work was also selected for short presentation at the annual Hospital Pharmacist Association of Ireland (HPAI) conference, and additionally was selected for presentation at the British Oncology Pharmacy Association (BOPA) Annual Symposium held in Manchester in October 2016. This representation was a first for the MMUH Pharmacy Department.

Plastic Surgery

An analysis of surgical outcomes and respiratory morbidity following phrenic nerve transfers in traumatic brachial plexus injuries. Roisin Dolan, Stefanie Croghan, Kevin Cronin

An analysis of intern consenting practices in a Dublin tertiary referral centre: are we adhering to the medical council guidelines? Kevin Keane, Robert Caulfield

Functional and Patient-Reported Outcomes following Excision of Primary Tumours of the Brachial Plexus. Roisin Dolan, Anne-Marie Kennedy, Matthew Murphy, Kevin Cronin

Functional and Patient-Reported Outcomes following Complete Traumatic Brachial Plexus Avulsion injuries. Roisin Dolan, Anne-Marie Kennedy, Matthew Murphy, Kevin Cronin

The ideal placement of the inframammary fold in breast augmentation: Do frozen acronyms work? Roisin Dolan, Richard Hanson

Pulmonary Hypertension

GRIPHON
GRIPHON was a multicentre, double-blind, placebo-controlled Phase III study assessing the safety and efficacy of selexipag on morbidity and mortality in patients with pulmonary arterial hypertension. The Mater Misericordiae University Hospital was the only Irish centre in this trial that looked at the following outcome measures

- Time from Randomisation to the First Morbidity Event or Death (All Causes) up to 7 Days after the Last Study Drug Intake.
- Change from Baseline to Week 26 in 6-minute Walk Distance (6MWD) at Trough Results of centres internationally were first received in February 2016.

EXPERT
EXPosurE Registry RiociguaT in Patients With Pulmonary Hypertension (EXPERT)
In accordance with the regulatory guidance this registry has been designed to collect information about the long-term safety of Adempas in real clinical practice outside the regulated environment of a controlled clinical study. The study is expected to complete in August 2018, with the outcome measures outlined below.
Primary Outcome Measures

- Number of adverse events/ serious adverse events
- All-cause mortality

Secondary Outcome Measures

- Number of adverse event (AE) and serious adverse event (SAE) in the different pulmonary hypertension (PH) indications (pulmonary arterial hypertension (PAH) chronic thromboembolic pulmonary hypertension (CTEPH)
- 6 minute walking test
- Number of hospitalisation/outpatient visits

Rheumatology

UCD Centre for Arthritis Research

The centre is based at UCD Conway Institute and consists of researchers in University College Dublin, St Vincent's University Hospital and the Mater Misericordiae University Hospital. The Centres interdisciplinary research covers proteomics, computational biology, genetics, stratified medicines, sports and exercise, immunology/mechanisms of disease and animal models of rheumatoid arthritis (RA). The centre has proven highly successful in developing translational experimental approaches including training and performance of mini-arthroscopy and tissue biopsy. The programme based across the UCD Clinical Research Centre, provides whole tissue biopsy explant cultures for research that is a unique resource. The teams' ability to perform this research has led to both academic and industry collaborations attracting significant non-exchequer funding from both the EU and the US. The expertise for this highly developed research programme has led to novel translational research outputs including presentations at the highest quality international research meetings and publication in high impact factor peer-review journals.

Collaborations

The Rheumatology Department has an active collaboration with the Rheumatology Unit in St Vincent's University Hospital and share a research registrar for a study of giant cell arteritis. There are also two collaborations with Trinity College, Dublin and the Royal College of Surgeons on molecular studies of crystal-induced cell activation and the study of platelet activation in inflammatory arthritis respectively. The department is participating in Eurogout – a multinational study studying the genetic basis of gout internationally and employs two research nurses, to support our research initiatives.

Stroke

CONVINCE Trial

Over the next five years Professor Peter Kelly will lead a team of five specialist Stroke Research nurses, working hospitals in Cork, Dublin and Galway in a new research trial trial. COlchicine for preventioN of Vascular Inflammation in Non-CardioEmbolic stroke (CONVINCE) – a randomised clinical trial of low-dose colchicine for secondary prevention after stroke is a new way of thinking about stroke.

The first patient was recruited to the trial in the Mater in December 2016

The initial phase in 2017 will recruit patients at 12 Irish hospitals, with sites in the UK, Belgium, Spain and Greece. Expansion to over 100 hospital sites in Europe will follow in 2018. Central to the study is the belief that inflammation of the arteries – commonly found in stroke patients – substantially increases the risks of further strokes. If the arteries' internal diameter is smaller, they are more likely to be blocked. By reducing inflammation, they hope to see less blockages, less secondary strokes. The new study will select over 2,500 stoke patients over the next three years who will be given a low, daily dose of a medicine called Colchicine, which is a safe, commonly prescribed drug, well known and understood. The study will give patients a very low dose – just 0.5 milligrams per day. The patient's progress will be tracked and their ongoing health compared with those who don't take the drug. The results will then be checked and published in 2021.

Lancet Neurology
Prof Peter Kelly was the principal investigator in a key publication in Lancet Neurology November 2016 entitled "Validation and comparison of imaging-based scores for prediction of early stroke risk after transient ischaemic attack: a pooled analysis of individual-patient data from cohort studies" was an International TIA. This collaboration comprising 3,600 patients from 16 global centres, led from the Mater UCD campus, showing superiority of ABCD3-I score to predict early stroke after TIA.

Screening Tool
In 2016 the Occupational Therapy Stroke Service published in Neuropsychological Rehabilitation the Dublin Extrapersonal Neglect Assessment (DENA). This is the first ever psychometrically sound screening tool for extrapersonal neglect.

Vascular

Vascular Research
The vascular surgery department is actively involved in the research and teaching activities at the UCD Medical School. Two consultants (Professor O'Donohoe and Prof McDonnell) hold academic posts within the university.

Grants (2016)

Ophthalmology

2016 "Inherited Retinal Degenerations: All Ireland Retinal Degenerations Partnership (AIRDP)". MRCG/HRB Principal Investigator (Prof Giuliana Silvestri) €300,000. Co-applicant

2016 Target 5000. Fighting Blindness Ireland grant Clinical Research Fellow (€55,000) and Genetic Counsellor (€60,000) secured for 2 years.

2016 Target 5000. Ireland East Hospital Group. Funding for accredited genetic testing of patients with inherited retinal degeneration (€35,000).

2017 Target 5000. Medical Research Charities Group/Health Research Board (MRCG/HRB) Principal Investigator (Jane Farrar). €330,000 Collaborator

Rheumatology

HRB/Arthritis Ireland project grant: Investigation of the mechanisms linking C5orf30 with tissue damage in RA, €256,540, 36 months.

Education and Training

The Mater Hospital plays a key role in the delivery of a number of undergraduate and postgraduate academic programmes. University College Dublin (UCD) has been our academic partner since the hospital's foundation in 1861. Together the two institutions have demonstrated a commitment to stimulating a culture of learning and enquiry which has led to the establishment of one of the foremost centres for clinical training in Ireland. Today, the Mater Hospital continues to work closely with UCD in providing world class undergraduate and postgraduate and specialist training programmes in surgery and medicine, nursing, physiotherapy and radiography.

The hospital also works closely with other academic institutions including Royal College of Surgeons in Ireland, Trinity College and Dublin City University, amongst others. Through these collaborations, we provide clinical placements and internships to hundreds of students every year, including pharmacists, nurses, doctors, clinical therapists, radiographers, psychologists, medical social workers, podiatrists, audiologists, laboratory technicians and many more. Our staff also contribute to the development and delivery of academic teaching modules across a number of universities. Our strong academic partnerships help to ensure that academic programmes are grounded in clinical reality and that our clinical practitioners remain submerged in and up to speed with developments in academia and research.

Undergraduate Education

The Mater Hospital is a primary location for clinical education for the final two years of the UCD undergraduate medicine programme and welcomes approximately 250 undergraduate students each year for training in medical and surgical specialties. The undergraduate curriculum in medicine and surgery modules is coordinated by the UCD Eccles team at the Catherine McAuley Centre and includes rotations at the Mater Hospital, Cappagh National Orthopaedic Hospital, the Beacon Hospital, the Midlands Regional Hospital in Mullingar, Wexford General Hospital, St Michael’s Hospital and St Columcille’s Hospital.

Student facilities at the Mater Hospital were further expanded in 2014 with the opening of the UCD Mater Hospital Education and Training Centre on the 3rd floor of the historic original Mater building. This represented a significant investment by UCD in sustaining the mission of education and scholarship intrinsic to the ethos of the Mater, UCD and the Sisters of Mercy. The restoration of an in-hospital "residence" area for doctors in training has further integrated our students into the hospitals campus, culture and heritage.

Postgraduate Education

The Postgraduate Medical Centre, located within the Catherine McAuley Centre, provides high quality, dynamic and innovative education programmes for consultants, NCHDs and the North Dublin Faculty of the Irish College of General Practitioners (ICGP). The centre strives to exemplify the Mater Hospital's commitment to outstanding training for medical professionals.

The centre plays a key role in providing for the training needs of Non-Consultant Hospital Doctors (NCHDs) and facilitates the professional development of consultants within the hospital and beyond by developing a programme of continuing medical education relevant to medical staff in the Mater Hospital. This includes in-house multidisciplinary meetings and regular teaching sessions designed for interns and senior house officers (SHOs) as well as providing education sessions to members of the North Dublin ICGP.

All meetings overseen by the Centre of Postgraduate Medical Education are recognised and accredited by governing bodies such as the Royal College of Physicians in Ireland (RCPI), the Royal College of Surgeons in Ireland (RCSI) and the ICGP.

The Postgraduate Medical Centre is responsible for overseeing the running of the Fintan Gunne lecture theatre which accommodates a capacity of 70 for videoconferencing/ presentation purposes. The theatre supports the hosting of major conferences such as Contemporary Issues in Hospital Practice and invited guest speakers which can also be streamed to various locations outside the hospital campus.

Journal Clubs and Conferences

Each week, throughout the hospital, our staff engage in journal clubs and other educational sessions where they learn about the latest research and developments in clinical practice. Many of these sessions are interdisciplinary - encouraging nurses, doctors, clinical therapists and other healthcare professionals to discuss the literature together and how they can use it to inform changes in clinical practice.

Our staff are also encouraged to attend and present at national and international conferences to ensure the services we deliver are in keeping with international best practice. Several conferences are hosted by the Mater Hospital each year, attracting healthcare professionals from around the country and internationally.

Nursing Education

The Mater Hospital has provided the highest levels of education and training to nursing staff for 125 years, since the first class of 16 student nurses arrived for training in 1891. Today nurses are offered a wide range of courses and subjects with the Centre for Nurse Education providing for both undergraduate and postgraduate education with specialist postgraduate programmes and professional development.

Centre for Nurse Education (CNE)

Through the Centre for Nurse Education (CNE) and clinical placements on the Mater Hospital campus, we provide a wealth of clinical expertise and rich clinical learning opportunities for nurses. Our close partnership with University College Dublin (UCD) and Dublin City University (DCU) provides a variety of postgraduate and undergraduate nursing programmes. The central location on the hospital campus helps to ensure that our courses reflect and respond to current patient and service needs.

The CNE is a purpose-built building with a central focus on the provision of continuous professional nursing education, specialist nurse education, in-service days and professional education courses for registered general nurses and other health care professionals

Undergraduate Nursing Education

Each year, the Mater Hospital provides clinical learning placements to BSc undergraduate nursing students from University College Dublin (UCD) and Dublin City University (DCU). Students from the BSc General and BSc Children's and General Nursing courses complete the majority of their clinical learning placement placements here at the hospital. We also facilitate international nursing students as part of an exchange programme (Erasmus programme).

Postgraduate Nursing Education

In partnership with UCD the Mater Hospital offers many specialist postgraduate programmes to nursing staff. The one year specialist postgraduate programmes facilitated by our specialist experts include

- Graduate Diploma Critical Care Nursing: Cardiovascular Nursing
- Graduate Diploma in Cancer Nursing
- Graduate Diploma in Critical Care Nursing: Intensive Care
- Graduate Diploma Peri-operative Nursing
- Graduate Diploma Emergency Nursing (Adult)
- Graduate Diploma Diabetes Care
- Graduate Diploma Pain Management

The hospital also provides a suite of specialist continuing professional development modules, usually of six months.

- Introduction to Cardiovascular Nursing
- Intensive Care Course
- Diabetes Nursing
- Gastrointestinal (GI) Endoscopy Nursing
- Cardiothoracic and Transplantation Nursing
- Oncology & Haematology Nursing
- Peri-operative Nursing Programme
- Nursing the Acute Medical Patient
- Care of the Older Person
- Spinal/Spinal Cord Injury Nursing
- Developing Acute Pain Champions
- Evidence Based Practice and Research Champions
- Introduction to Emergency Nursing
- Haemotology Nursing
- Interventional Radiology

Clinical Professional Development Programme in Cancer

The Mater Hospital has been running a clinical professional development course in cancer nursing since 2009. It initially received category 1 approval from An Bord Altranais and subsequently received University College Dublin accreditation. The course aims to help develop the knowledge and skills required for safe, competent practice in oncology/haematology nursing. It is available to staff working in the oncology/haematology unit in the Mater Hospital and to date, 30 staff nurses have successfully completed the course.

Occupational Therapy

- Elaine Scally, Senior Occupational Therapist gained her Masters from RCSI in June 2016. She was one of the first occupational therapists to engage with the physiotherapists in a Masters in Neurology and Gerontology from the RCSI. **Research Title** 'The relationship between performance on cognitive screening tests and everyday functioning in older adults with mild cognitive impairment'
- Cliodhna O'Mahony, Senior Occupational Therapist, successfully gained one of the first HSCP bursaries from the Mater and has commenced her Masters in Healthcare Management, RCSI.

Pharmacy Education

- Aoife Corrigan, Dispensary Pharmacist, received her Clinical Pharmacy MSc from University College Cork. Aoife's thesis examined the extemporaneous compounding of antibiotic eye drops.
- Maria Creed, Dispensary Services Manager, was successful in completion of the Graduate Diploma in Lean Six Sigma for Healthcare (Black Belt).
- Rebekah Corrigan, Dispensary Workflow Manager, successfully completed a Diploma in Clinical Pharmacy through Carlow Institute of Technology.

- Dispensary staff submitted 4 pharmacy technician posters to the annual Hospital Pharmacist Association of Ireland (HPAI) conference. Topics covered included a Lean 5S review of Dispensary Storage, the Clinical Use of Leeches & Larvae, a review of the Automated Dispensing Process (selected for short presentation) and reallocation of the time saved from the Haddington Road Agreement (Highly-commended; Pharmacy Technician Poster category).
- At the National Association of Hospital Pharmacy Technicians (NAHPT) conference, Ciara Rowan won the Student Technician Poster competition for a review of Concentrated Electrolytes

Lecturing/Assessment commitment

Mater pharmacy staff continue to provide a variety of invited lectures, workshops and patient-facing experience to RCSI undergraduate pharmacy degree and integrated MPharm programmes, UCD Risk Management Diploma and Professional Completion Module (undergraduate medicine) and TCD MSc in Hospital Pharmacy. This is in addition to providing in-house teaching for pharmacy medical and nursing staff. Pharmacy department staff also continued their on-going commitment to assessment on these courses and through committee involvement to the development and improvement of these courses.

Research Poster Presentations

At the annual Hospital Pharmacists Association of Ireland (HPAI) Meeting the MMUH Pharmacy Department had an exceptionally successful outcome in the national poster competitions. From a total of 13 posters entered by the MMUH, the Pharmacy Department won two of the three categories pharmacist categories.

- Audit Category: An Observational Review and Audit of the Treatment of Hypoglycaemic Events in the MMUH
  Primary Author; Sarah Molony, Deputy Clinical Pharmacy Services Manager, MMUH
  Co-authors; Laura McCabe, Dr Siobhan McQuaid, Mariosa Kieran, Ciaran Meegan, MMUH
- Research Category: Does on-site Analysis of Serum Levels Optimise Management of Patients Taking Voriconazole? A Retrospective Cohort Study
  Primary Author; Patricia Ging, Transplant/Pulmonary Hypertension Pharmacist, MMUH
  Co-authors; Sean Fitzgerald*, Dr Marguerite MacMahon∞, Avril Burgess∞, Prof Jim Egan∞, Ciaran Meegan∞, *RCSI, ∞MMUH
- Additionally, Laura Lyons was highly commended for her work in the Pharmacy Technician category.
- Pharmacy Technician Category: Increasing Output using HRA Time
  Primary Author; Laura Lyons, Senior Pharmacy Technician, MMUH
  Co-authors; Maria Creed, Jennifer Brown, Ciaran Meegan, MM

Visit of University of Soochow Delegation

The Pharmacy Department, in conjunction with the School of Pharmacy, RCSI, hosted a visit of University of Soochow delegates on 15th June 2016. Professor Li Yan Miao, Vice President of the First Affiliated Hospital of Soochow University/Chief Pharmacist and Chair of Pharmacology, Dr Weipeng Wang, Vice Dean for Undergraduate Education, College of Pharmaceutical Sciences, Soochow University and Professor Xiaohu Zhang, Professor of Medicine Chemistry-College of

(L-R) Ms Jennifer Brown (MMUH), Prof. Xiaohu Zhang (Soochow University), Prof. Ciaran Meegan (MMUH), Dr Helena Kelly (RCSI), Prof. Li Yan Miao (Soochow University), Ms Patricia Ging (MMUH), Dr Weipeng Wang (Soochow University), Ms Shijun Zheng (Translator)

Pharmaceutical Sciences, Soochow University attended the MMUH with RCSI staff. The delegation was interested in clinical pharmacy services, the Aseptic Compounding Unit, the provision of work based and experiential learning and the practical experience of pharmacist interns and their assessment, structured student placements.

Rheumatology

Academic Appointments
Dr Conor McCarthy was elected to the Council of the Royal College of Physicians of Ireland.
Drs Suzanne Donnelly and Conor McCarthy were promoted to UCD Associate Clinical Professors at UCD School of Medicine.

Publications

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Pharmacy

Ms Patricia Ging, Heart Lung Transplant /Pulmonary Hypertension Pharmacist, in conjunction with Dr Olga Milkulich, Department of Respiratory Medicine, and Dr Kate O'Reilly, Consultant Respiratory Physician, published two case reports on hepatoxicity with paracetamol; see Ging, P., Milkulich, O., O'Reilly, K. (2016) Unexpected paracetamol (acetaminophen) hepatotoxicity at standard dosage in two older patients: time to rethink 1 g four times daily?; Age and Ageing 2016: 0:1-2 doi: 10.1093/ageing/afw067.

Patricia Ging, Pulmonary Hypertension/ Heart Lung Transplantation Pharmacist, has had a chapter published on Pulmonary Hypertension and Pulmonary Arterial Hypertension In Clinical Pharmacy Pocket Companion (2nd edition) published by the Pharmaceutical Press.

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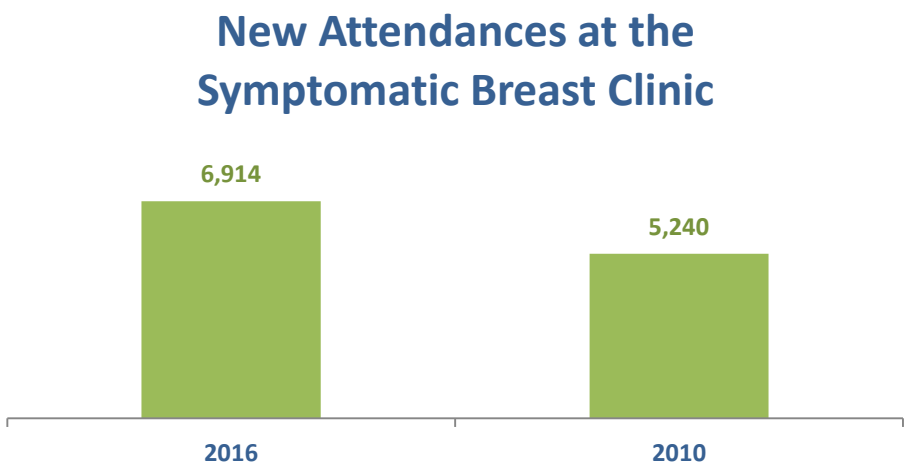
Cancer and Surgery

Breast Surgery

The National Cancer Control Programme (NCCP) established symptomatic breast disease (SBD) clinics to ensure that patients with breast symptoms have prompt access to diagnostic and treatment services. The Mater Misericordiae University Hospital is a designated specialist centre for symptomatic breast disease, one of two within the Ireland East Hospital Group, with eight designated centres nationally.

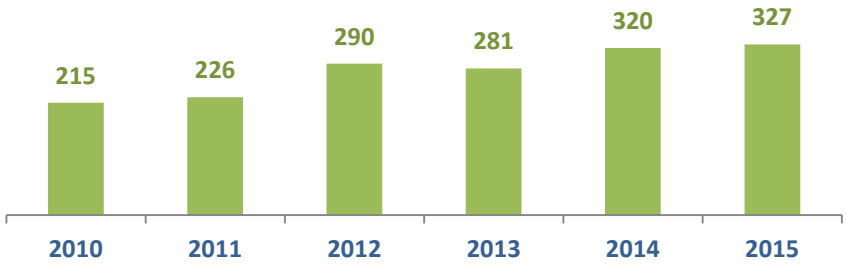
The majority of patients diagnosed with cancer present with worrying symptoms and are triaged as urgent, in accordance with NCCP guidelines and are seen within two weeks. The number of new attendances at the symptomatic breast clinic has increased by just under 32% in the last 5 years.



The breast service manages a large volume of urgent and non-urgent referrals, reviewing 12,696 patients last year in breast health (not including BreastCheck referrals from the screening service). The service includes

- Comprehensive multidisciplinary breast cancer service including prevention, high-risk, strong family history, and all aspects of diagnosis and multi-disciplinary treatment
- Immediate and delayed breast reconstruction or tertiary plastic surgery referrals, including skin-sparing operations, nipple areola tattooing and reconstructive surgery following wide resections.
- Sentinel node services
- Neoadjuvant/pre-operative endocrine therapy and chemotherapy to avoid mastectomy for larger cancers
- Access through clinical trials to new drugs

Diagnosed Breast Cancers 2010-2015



Source Cancer and Surgery Directorate Clinical Audit Report 2015

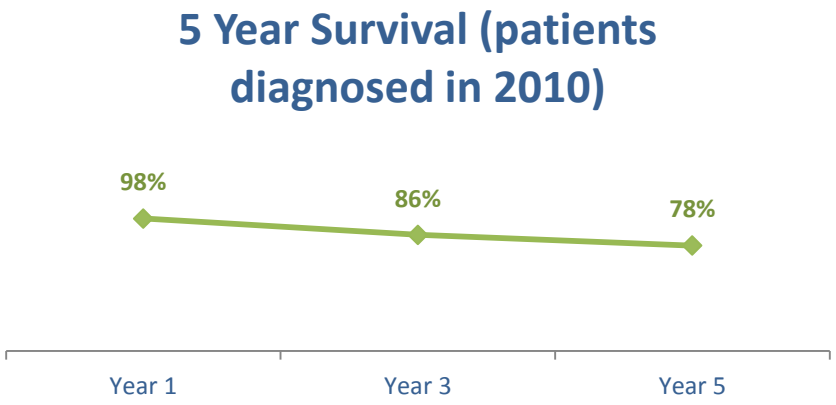
BreastCheck

The presence of the National Breast Cancer Screening Service (BreastCheck) on the Mater campus is a key factor in the large numbers treated at the hospital. The National Breast Screening Programme provides free mammograms to women aged 50 to 64. The programme screens on an area-by-area basis, with the screening programme in the north east, east, midlands and parts of the south-east, located on the campus of the Mater Misericordiae University Hospital. BreastCheck provides a high quality effective screening service with the purpose of detecting the maximum number of breast cancers at the earliest possible stage.

Improving Patient Outcomes

The Breast Service at the Mater Hospital is focused on improving patient outcomes and we track a number of key indicators to benchmark our performance including

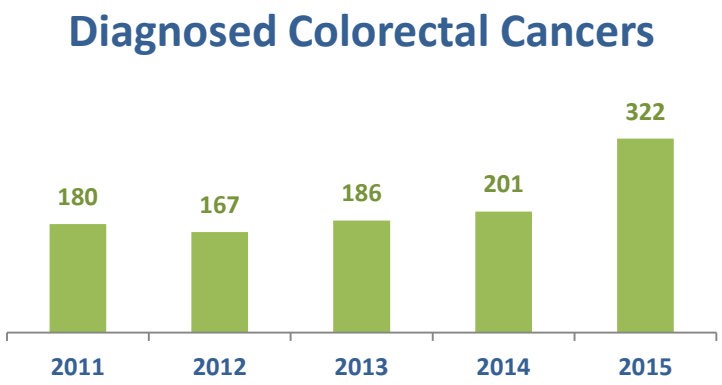
- Urgent referrals offered an appointment within 10 working days
- % of symptomatic patients discussed at a multidisciplinary team meeting
- % of patients with a primary operable breast cancer had a pre-operative mammogram and ultrasound within 12 weeks of assessment
- % of patients that have surgical intervention within 20 days of definitive diagnosis
- % of histopathology reports were available within 10 working days



Source Cancer and Surgery Directorate Clinical Audit Report 2015

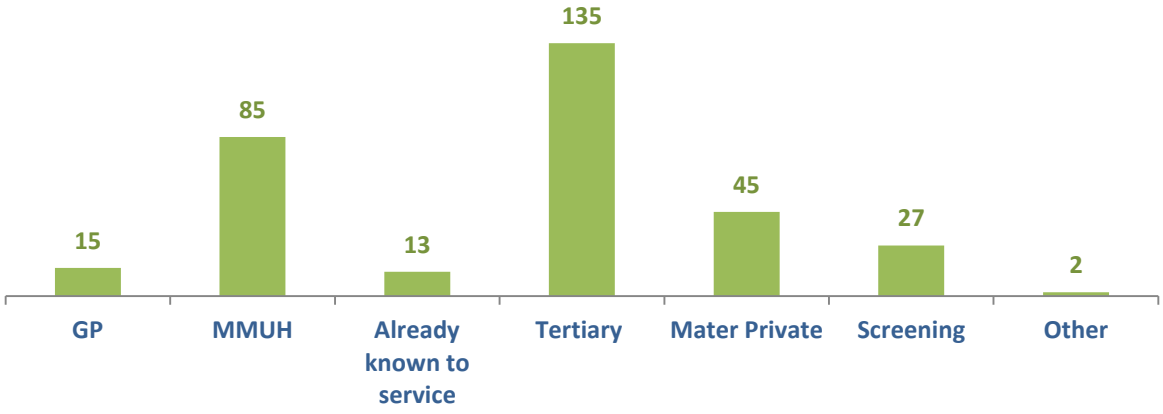
Colorectal Surgery

The Mater Misericordiae University Hospital is a major centre for colorectal surgery, the National Centre for Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) and a centre for BowelScreen (the National Bowel Screening Programme). The hospital is one of the National Rectal Cancer Centres and accepts patients referred on from BowelScreen centres for further treatment.



Source Cancer and Surgery Directorate Clinical Audit Report 2015

Colorectal Cancer Referral Source 2015



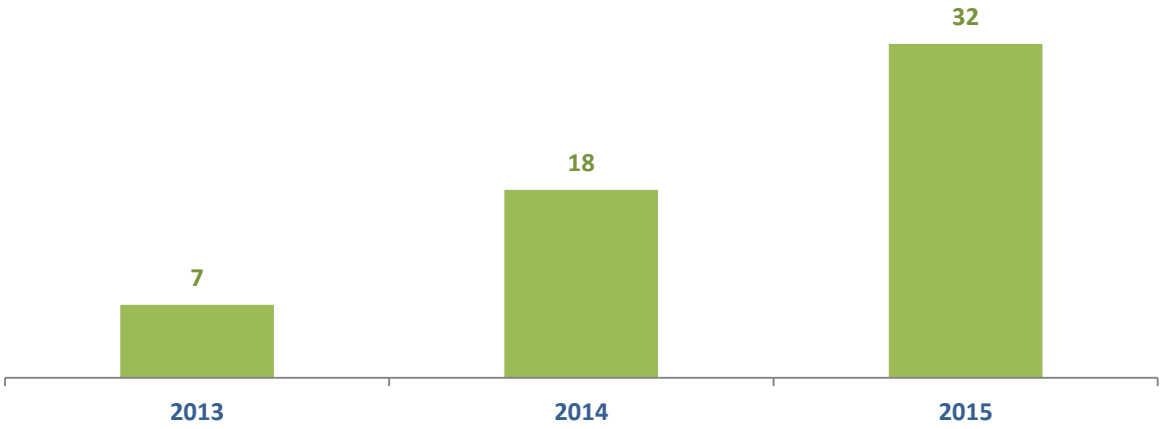
Source Cancer and Surgery Directorate Clinical Audit Report 2015

Cytoreductive Surgery and HIPEC

Cytoreductive Surgery (CRS) and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) are considered standard of care for patients with certain peritoneal malignancies.

The service, which was established in 2013, has been recognised by the National Cancer Control Programme (NCCP) and the Irish Association of Coloproctology (IACP), an all-Ireland body representing colorectal surgeons.

HIPEC / Cytoreductive Surgery



Source Cancer and Surgery Directorate Clinical Audit Report 2015

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
- Peritoneal mesothelioma

In 2016 the team at the Mater performed the 100th HIPEC and published the outcomes of the development of a national programme in the European Journal of Surgical Oncology

In Ireland, it is estimated that approximately 100 patients annually may benefit from assessment, while up to 40 patients per year may be candidates for cytoreductive surgery and HIPEC.

BowelScreen

The BowelScreen screening programme began in October 2012 with the aim of offering free screening to men and women aged 55 to 74, on a two-yearly cycle. The purpose of BowelScreen is to identify the population most at risk of colorectal cancer and to target those most likely to benefit from early detection and treatment. Between 2012-2015 BowelScreen was offered to people in the 60-69 age bracket and diagnosed 521 cancers in that period. Over 71 % of all cancers detected were stage I or II, meaning that they were detected at an early stage, when they could be more easily treated.

For the team in the Mater Hospital, the National Colorectal Screening Programme accounts for about 20 surgeries annually

Innovation

In 2016, the colorectal team began a collaboration with MEDEX in Dublin City University. The innovative programme, called Move On, is a medically designed and supervised 3-month exercise programme developed for people recovering from colorectal cancer.

Participants are encouraged to become fit in a friendly and safe environment. Classes take place twice weekly in DCU Sports Complex and a home exercise programme is also provided and monitored.

Participants will attend for

- baseline (and repeat) assessments of fitness / wellness
- enjoyable exercise classes (2 per week for 3 months) with medical supervision / monitoring
- educational seminars on topics such as
  - healthy eating
  - goal setting and behaviour change
  - exercise after cancer

Exercise during the early recovery phase can play a major role in restoring confidence.

Planning for the Future

Robotic Surgery

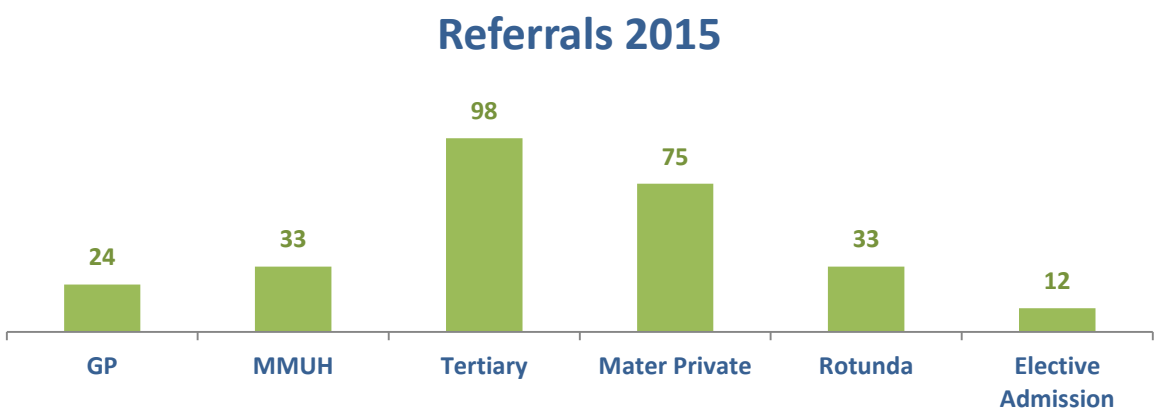
The Mater Hospital has the largest number of robotically trained surgeons in the country, with the largest body of experience in treating patients across a range of specialities – urology, gynaecology, colorectal and thoracic. Minimally invasive surgery has long been a cornerstone of treatment at the hospital with robotic surgery being an extension of that principle. For certain patients, a minimally invasive approach decreases recovery time, and allows the patient to progress to the next phase of their care as quickly as possible. In 2016, our colorectal surgeons commenced a colorectal robotic surgery programme.

International Event

The UK and Ireland Annual Peritoneal Malignancy Meeting will be held in the Mater Hospital in October 2017. This is the first occasion that the meeting has been hosted in Ireland and speakers from Europe, the UK and Ireland will present on the latest developments in the area.

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.



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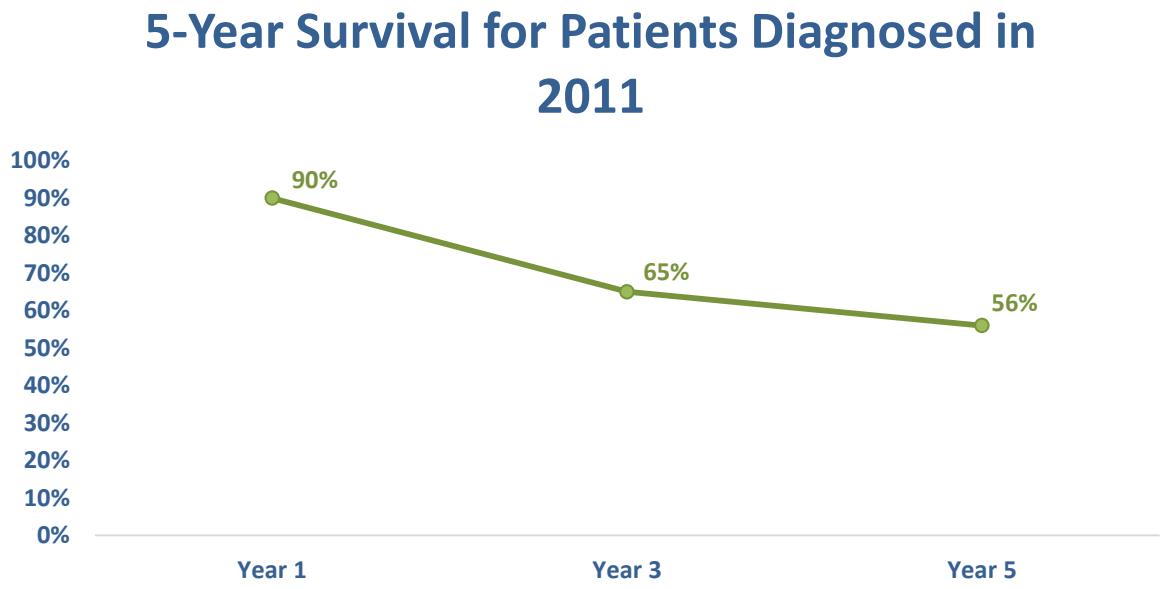
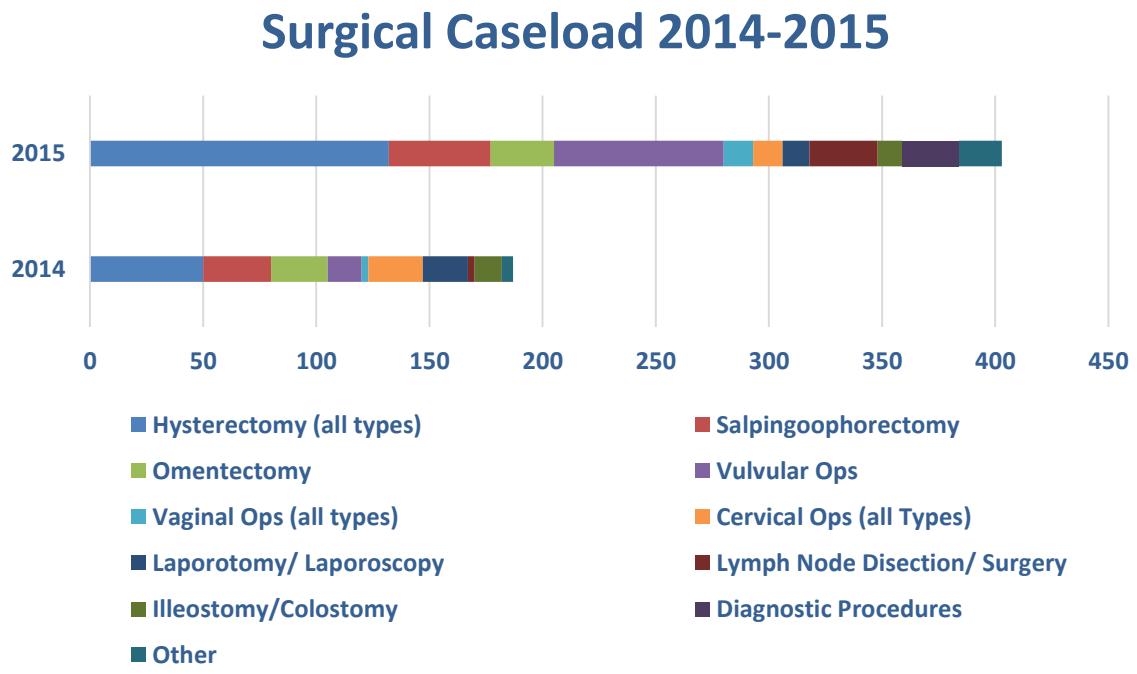


Source Cancer and Surgery Directorate Clinical Audit Report 2015

The Mater Hospital provides a regionalised service for gynaecological oncology with over 35% of referrals from tertiary sources. The team provides individualised, compassionate care and the most advanced treatments for women with all gynaecologic cancers, including

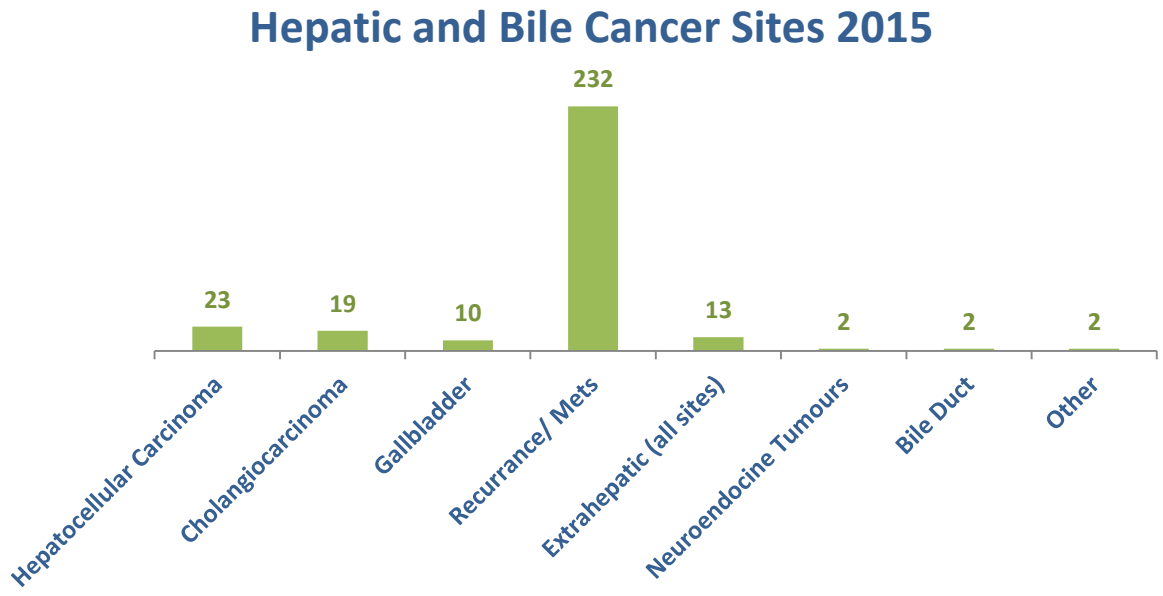
- Cervical cancer
- Endometrial cancer
- Ovarian cancer
- Uterine cancer
- Vaginal cancer
- Vulvar cancer

275 patients were diagnosed with a gynaecological cancer in the Mater Hospital in 2015



General Surgery / Hepatobiliary

The Mater Misericordiae University Hospital delivers both a comprehensive general hepato-pancreato-biliary (HPB) services in conjunction with a HPB tertiary surgery service for cancer. This is an expanding specialty, particularly in light of the increasing number of patients who are undergoing liver resection for colorectal liver metastases and pancreatic resections for neoplastic disease. The hospital provides a national referral service for patients and is one of the four national referral centres for HPB diseases. We work closely with our colleagues in St Vincent's University Hospital who provide the National Surgical Centre for Pancreatic Cancer (NSCPC) and the National Liver Transplant Programme.

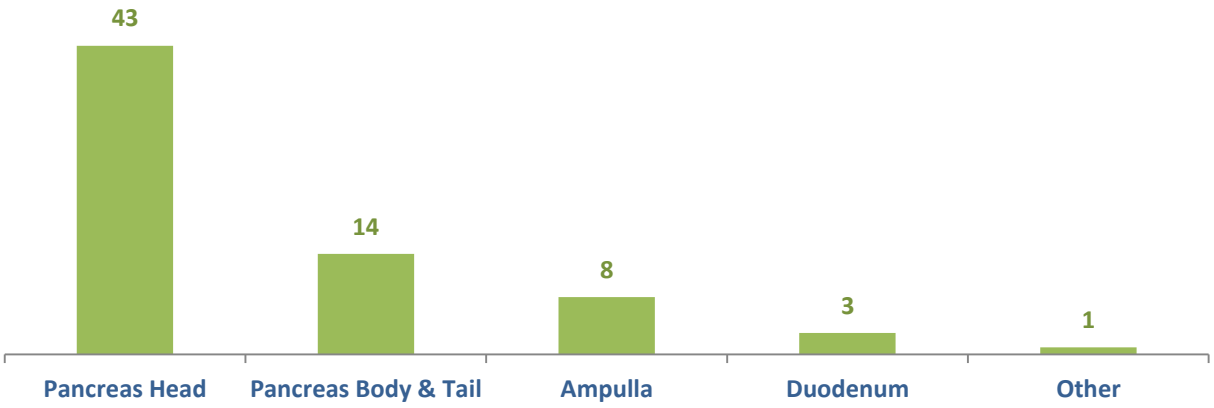


Source Cancer and Surgery Directorate Clinical Audit Report 2015

303 patients were diagnosed with Hepatic and Bile Cancer in 2015

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

Pancreatic Cancer Sites 2015



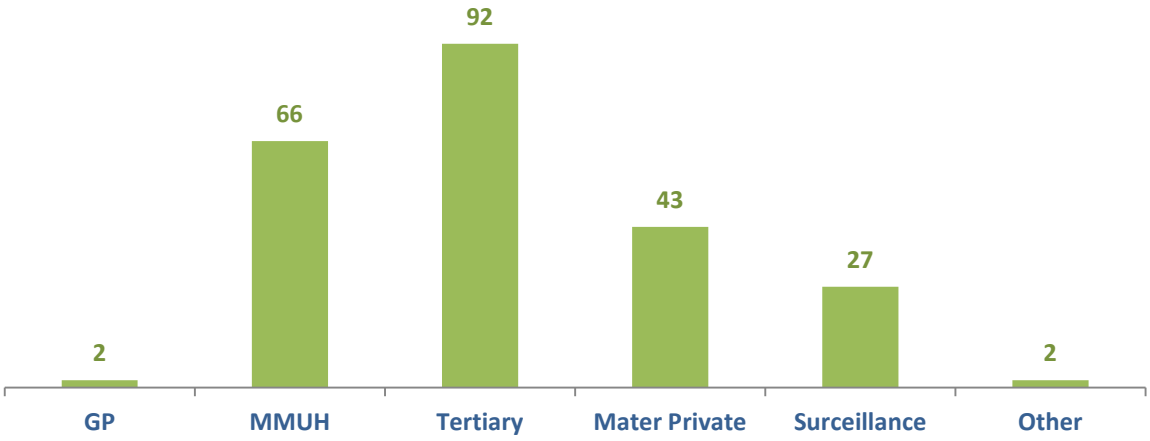
Source Cancer and Surgery Directorate Clinical Audit Report 2015

Surgical Service

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 service provides

- Patient centred care delivery by a multi-disciplinary team of experts.
- Combined medical expertise with an innovative approach to new technologies.
- Proven track record in clinical delivery.

Hepatic and Bile Referrals 2015



Source Cancer and Surgery Directorate Clinical Audit Report 2015

Haematology

The haematology service in the Mater Hospital offers innovative treatment for a broad spectrum of blood disorders, both non-cancerous and cancerous, including

- Anaemias
- Bleeding disorders
- Clotting disorders
- Anticoagulation problems
- Myeloproliferative disorders (essential thrombocythaemia, myelofibrosis, chronic myeloid leukaemia)
- Plasma cell disorders
- Platelet disorders

The team have extensive experience treating patients with all degrees of blood conditions, from those that do not require treatment to those that require long-term and complex treatment. Multidisciplinary working is integral to haematology and at the Mater this involves weekly multidisciplinary team meetings (MDTs) and work closely to utilise a variety of treatment strategies that will best meet the patient's individual needs, 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
- Bone marrow/stem cell transplantation, including traditional and reduced-intensity transplant, using related, unrelated or umbilical cord blood cells for transplant

Lung Cancer

The Mater Hospital is one of the eight national rapid access clinics for patients with suspected lung cancer. Rapid access lung clinics were established by the National Cancer Control Programme (NCCP) in 2011. Their aim is to provide direct access to respiratory consultants for patients with suspected lung cancer for prompt diagnosis. The KPI set by the NCCP is that "Patients with suspected lung cancer referred to a Rapid Access Clinic shall be offered an appointment to attend within 10 working days of receipt of referral". (Target 95%)

Rapid Access Lung Clinic	2015	2016	% Change
Attendances	326	362	+11%
% offered an appointment within 10 working days	97.9%	98.3%	

Source NCCP

The service was audited by the NCCP in 2016, who reported that the Rapid Access Lung Clinic meets the national KPI (achieving 98%) and is one of the better performing clinics nationally

The thoracic surgery programme is one of four NCCP designated centres for lung cancer surgery. The department has three thoracic surgeons and surgery is performed for diagnosis, staging, cure and palliation.

Medical Oncology

Medical oncology provides a comprehensive medical (non-surgical) service for patients with cancer. Each patient with a suspected or confirmed diagnosis of cancer has their case discussed at a multidisciplinary team meeting, where an individual treatment plan is agreed. The service provides inpatient and outpatient chemotherapy, non-surgical treatment of cancer and supportive and palliative care.

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

A patient may also be eligible to take part in a clinical trial of a new cancer treatment.

Cancer Genetics

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.

The cancer genetics service offers services to patients of Mater Hospital and their families who are concerned about a risk of inherited cancer and includes, where appropriate

- Familial cancer risk assessment
- Diagnostic genetic testing
- Predictive genetic testing
- Advice for cancer screening
- Discussion of cancer risk-reducing management options
- Assistance with decisions on cancer treatment options

Our aim is to promote cancer prevention, early detection and to help in some cases with management decisions. The service assesses personal and family history of cancer to decide whether it is likely that there is a hereditary cause and use this assessment to decide whether a genetic test might help an individual to clarify their own risk.

National Spinal Injuries Unit

The National Spinal Injuries Unit is responsible for the management of all patients in Ireland who have a traumatic injury to the spinal cord. The service has been located at the Mater Hospital since 1991 and accepts all patients, from all over the country, who are injured or are referred with a spinal cord injury.

Traumatic spinal cord injury is relatively uncommon but can result in a devastating disability. It requires highly specialised multidisciplinary care to maximise the chances of recovery and reduce complications. The specialist team, at the Mater, includes surgeons, nursing staff, physiotherapists, occupational therapists, speech and language therapists, dietitians and pharmacists.

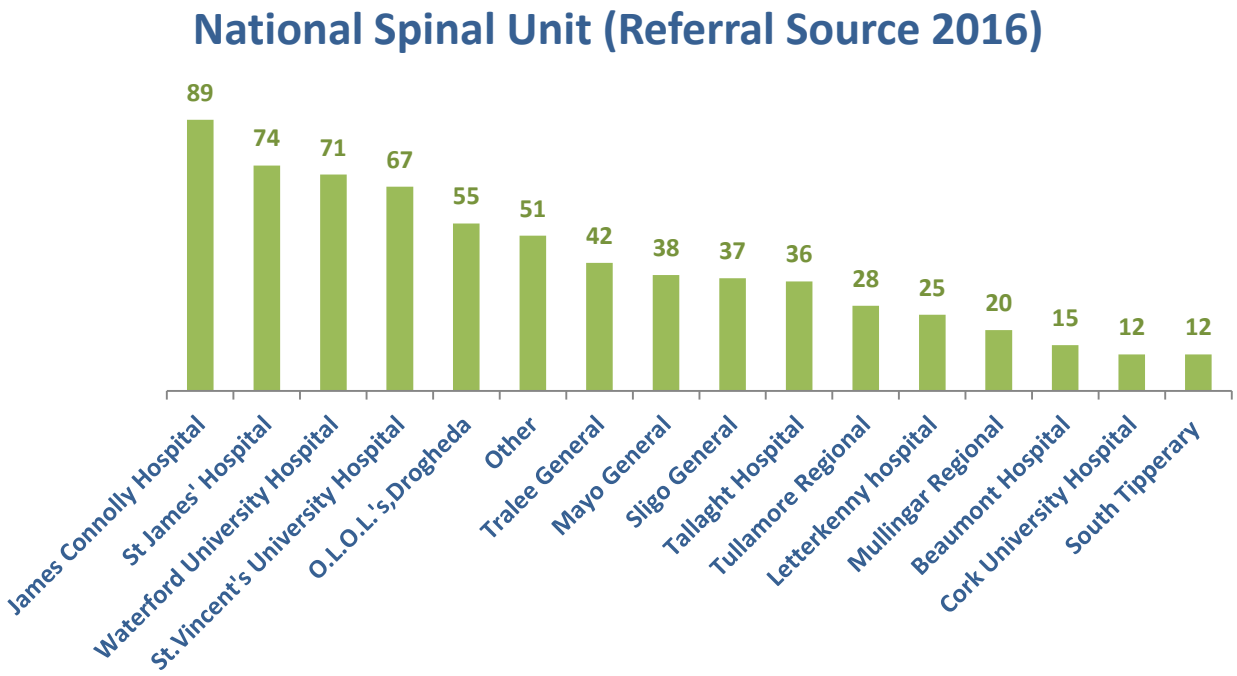
Mater surgeons make use of advanced technology and clinical expertise to treat a variety of conditions of the spine including

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

There are weekly multidisciplinary meetings to discuss and plan care for all patients on the unit

Centre of Excellence

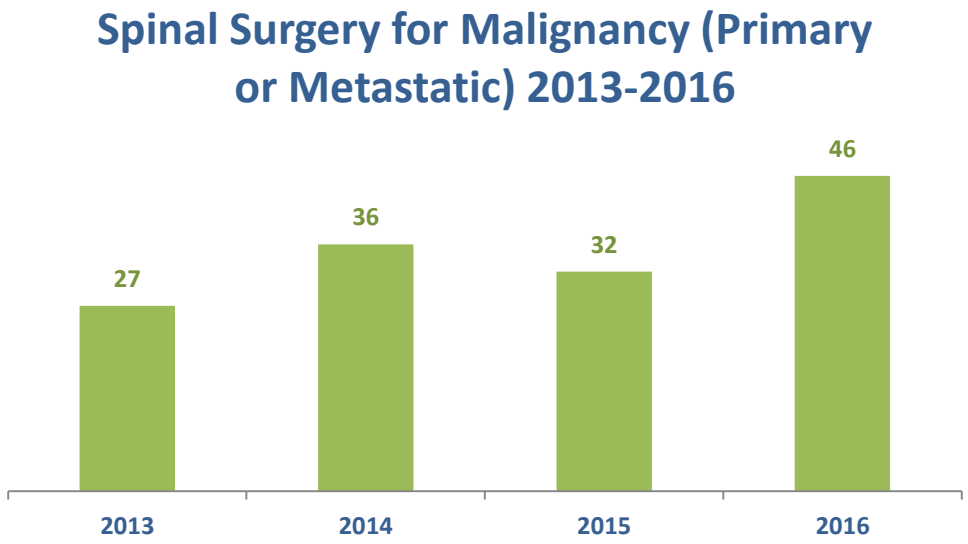
The team at the hospital uses the latest techniques in complex spinal surgery including minimally invasive procedures. Minimally invasive surgery is available for a number of spinal disorders, ranging from degenerative diseases to spinal tumours. These procedures have potential to greatly benefit patients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



Spinal Tumours

The team provides a specialist service for patients who suffer with metastatic spinal cord compression (MSCC). The service has grown significantly over the last few years providing urgent surgical assessment and often intervention for patients with cancer that has spread to the spine.

Most Metastatic Spinal Cord Compression cases occur in patients with a pre-existing cancer diagnosis, however for some patients it is their first cancer presentation.



The average length of stay for malignancy patients in the National Spinal Injuries Unit was 13.91 days in 2016

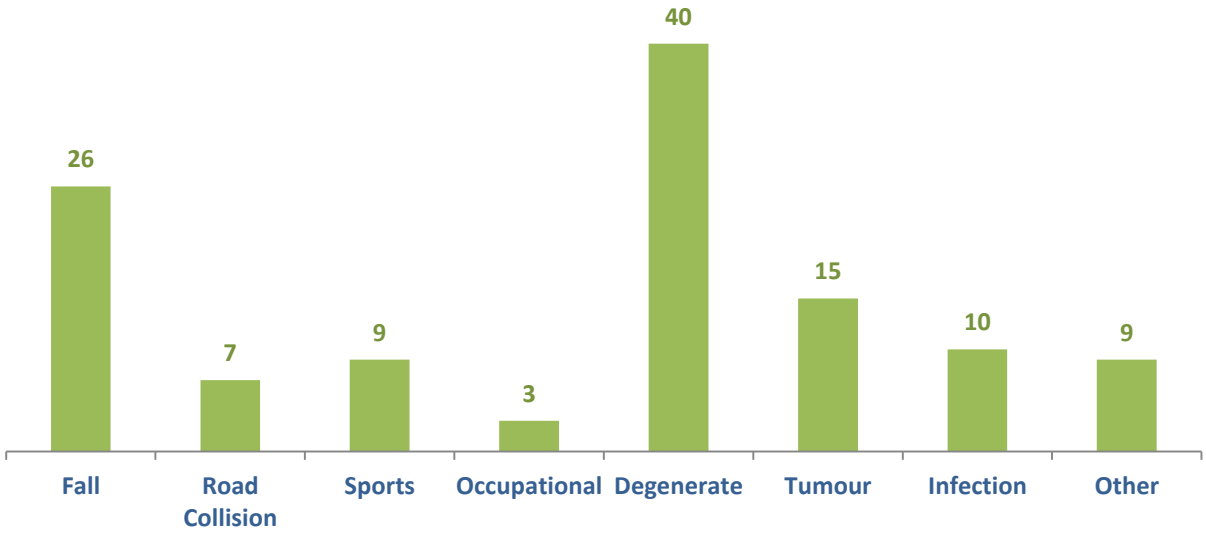
Surgical intervention, for these patients, can help stabilise the spine, reduce pain, prevent paralysis, and increase mobility. These procedures are not curative, but can provide local control of the cancer while allowing the patient to return to other treatments such as chemotherapy or radiation therapy. The types of cancer that most frequently lead to a spinal tumour include

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

Rehabilitation

The rehabilitation service works closely with the national spinal injuries unit where almost all cases of spinal cord injury are treated acutely. This accounts for a significant proportion of the work of the rehabilitation medicine service in the hospital.

Rehabilitation Referrals from National Spinal Injuries Unit 2016



Ophthalmology

Eye Emergency Department (EED)

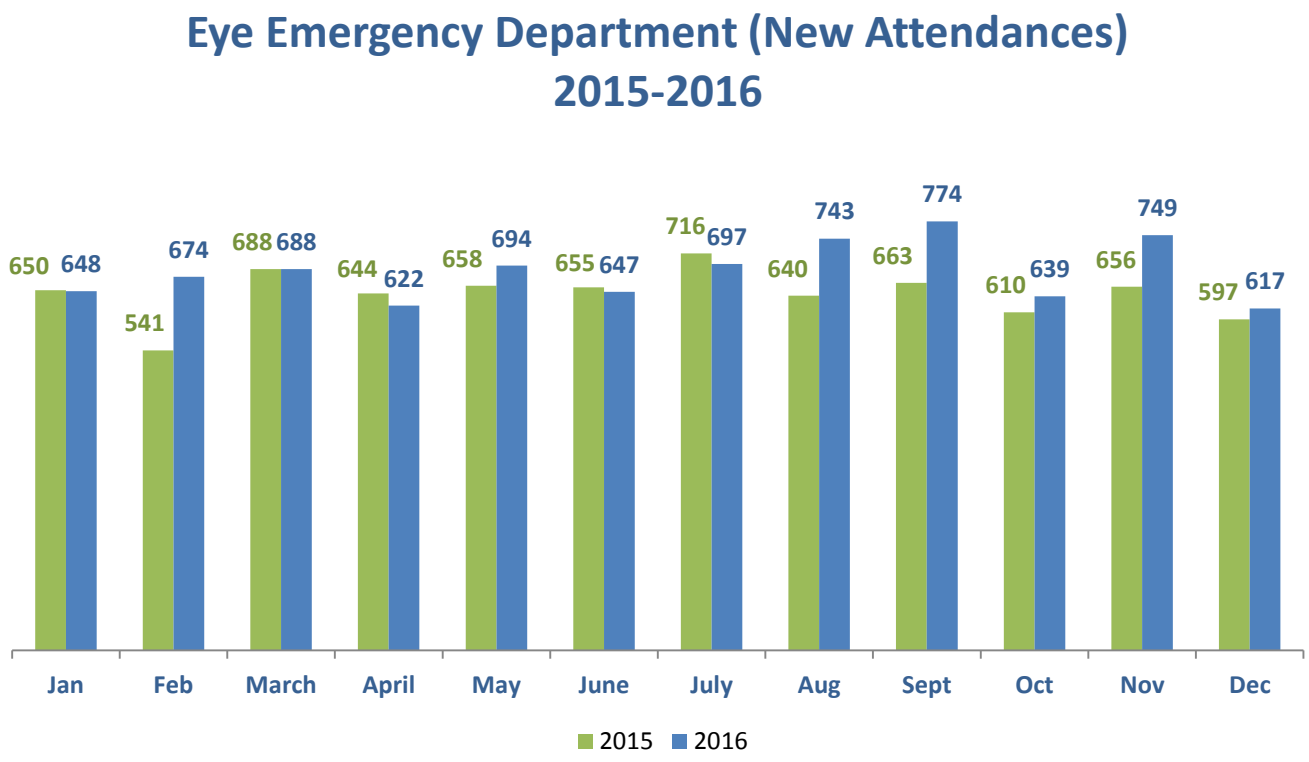
A new Eye Emergency Department (EED) was formally opened by the Minister for Health, Mr Simon Harris, at the Mater Misericordiae University Hospital on Tuesday 6th September. The EED sees over 12,000 patients per year, a figure which is increasing annually. Up until now these patients have been seen in the setting of the ophthalmology outpatient department which has resulted in serious overcrowding issues. The opening of this new facility enables the ophthalmology service to continue to provide a responsive service as the volume of patients grows.

Providing treatment for all emergency eye injuries

The new standalone department provides increased capacity for patients and

- Improves patient flow through the service
- Improves patient experience and quality of care
- Significantly reduces the overcrowding in the Out-Patient Department

Among the improvements to services at the new facility is the development of an electronic patient record (EPR) for the EED visit, resulting in reduced administrative burden and facilitating audit. The electronic patient record also automatically generates a discharge letter which is sent to the referring GP.



Opening of the Eye Emergency Department by Minister for Health, Mr Simon Harris, on Tuesday 6th September 2016

Cataract Services

International evidence indicates that the demand for cataract surgery is directly linked to an ageing population, with demand for procedures at 3,200 per 100,000 people over 65. Demand for cataract procedures has increased substantially over the last 5 years and is expected to continue to increase as the over 65 segment of the population is forecast to grow by 17% between 2017 and 2021.

Due to increasing demand, a waiting list has built up for the service in Ireland. In 2016, the team at the Mater undertook an initiative to alleviate pressure on the waiting list and to treat patients who had been waiting longest. Additional resources were identified that allowed additional theatre time to perform an extra 20 cataract procedures per week. The initiative cleared the 300 longest waiting patients from the list.

Glaucoma

Glaucoma is a family of more than 30 diseases that affects pressure within the eye (intraocular pressure), and damages the optic nerve. When pressure inside the eye increases; blind spots in peripheral areas of vision may occur. Glaucoma is one of the leading causes of blindness in the Ireland.

If diagnosed early, the disease can be controlled and permanent vision loss can usually be prevented. Our team specialises in the diagnosis and the medical and surgical management of primary, secondary and complicated glaucoma in patients of all ages. Patients benefit from our state-of-the-art facilities, high tech monitoring and advanced surgical techniques which combine to preserve the highest level of vision.

Age-Related Macular Degeneration

Age-related macular degeneration (AMD) involves damage to the macula and affects central vision. The macula is a small, but extremely important area located at the centre of the retina, the light-sensing tissue that lines the back of the eye. It is responsible for seeing fine details clearly.

We provide intravitreal injections for wet AMD at the Mater using anti-VEGF medicines which, when injected into the eye on a regular basis, can stop the abnormal blood vessels growing, leaking and bleeding under the retina.

Diabetic Retinopathy

Diabetic RetinaScreen, the National Diabetic Retinal Screening Programme, offers free, regular diabetic retinopathy screening to people with diabetes aged 12 years and older and was introduced in February 2013. Diabetic retinopathy is a common complication of diabetes, it may not have any symptoms or may not affect sight in the early stages but, as the condition progresses, eventually the sight will be affected. When the condition is caught early, treatment is effective at reducing or preventing damage to sight.

The Mater Misericordiae University Hospital is a fast track treatment centre for the programme.

- 1,360 patients attended the DRT out patients in 2015
- 3,600 patients attended in 2016
- All patients awaiting treatment have been clinically prioritised.
- Live OptoMize (diabetic retinopathy screening software)
- Reporting on patients continues and virtual reporting is increasing

Inherited Retinal Degeneration Service

The team at the Mater established a dedicated inherited retinal degeneration (IRD) service in 2016. These patients have very specific clinical, rehabilitative and psychological needs. Patients are seen and assessed with the newest technology. They all then have blood samples taken for genetic testing to determine the cause of their condition (over 240 different genes are implicated in IRD) as part of target 5000 research project providing genetic testing for genetic retinal conditions. Support is provided by an Eye Clinic Liaison Officer (ECLO) from the National Council for the Blind. Appropriate support and low vision assistance is then provided. A genetic counselling service is due to commence in 2017.

Planning for the Future

The opening of the Eye Emergency Department (EED) represents phase 1 of the planned development of the ophthalmology department at the hospital. This phase completes the development of the clinical spaces for the EED and the National Diabetic Retinopathy Treatment Service. Phase 2 of the development, which has been approved by Ireland East Hospital Group (IEHG), is to build an expanded outpatient department, a diagnostics department, a new ophthalmology ward (to include inpatient beds, a day ward, an injection suite and laser rooms) and a new operating suite.

The proposed facility is split over 3 levels and would have

- Level 1: New Eye Emergency Department and Diabetic Retinopathy treatment centre (now open). New ophthalmology outpatient department and diagnostic unit.
- Level 2: Day case ophthalmology ward, inpatient ophthalmology ward and specialist treatment areas for intravitreal injections and laser procedures.
- Level 3: Dedicated twin specialist ophthalmology theatre suite.

Phase 2 is awaiting funding approval and will decant activity from the main theatre block in the hospital when completed.

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

Otolaryngology

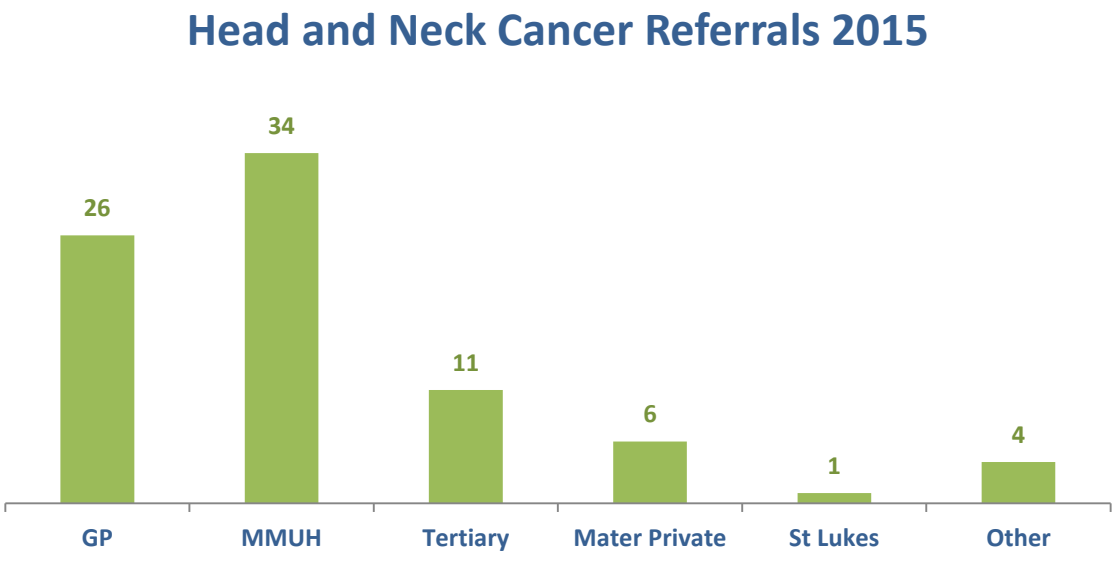
The ENT service at the Mater Misericordiae University Hospital deals with a wide range of ENT conditions from minor procedures to major complex head and neck surgery. Our Otolaryngologists provide comprehensive evaluation and medical/surgical treatment of patients with all Ear Nose and Throat conditions. Subspecialty interests include head and neck masses, rhinology, endoscopic sinus surgery and congenital hearing loss.

Head and Neck Cancer

Patients with head and neck vancers or with suspected cancers are cared for within a multidisciplinary team structure that excels in providing personalised clinical care. Treatment of head and neck cancer often impacts speech, swallowing, and appearance. And it is a priority of our care teams to maximise 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.

After diagnosis, an individualised treatment plan is developed for each patient with a focus on preserving each patient's quality of life and includes

- 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 minimise the morbidity of treatment

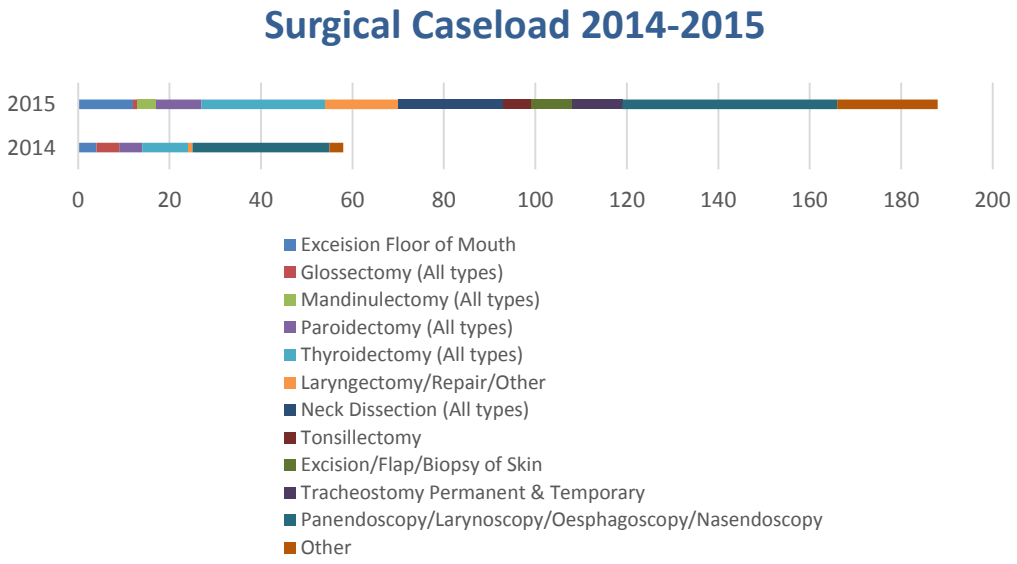


Source Cancer and Surgery Directorate Clinical Audit Report 2015

82 patients were diagnosed with a Head and Neck cancer in the Mater Hospital in 2015

Source Clinical Audit Report 2015, Cancer and Surgery Directorate

Surgical Caseload



Source Cancer and Surgery Audit Reports 2014 and 2015

Vocal Cord Paralysis Service

Management of patients with vocal cord palsy continues to change with evolving approaches to treatment. The Speech and Language Therapy (SLT) department receives increasing numbers of referrals for people with vocal cord palsy. Vocal cord palsy affects both communication, swallowing and may affect cough. As such this is a high priority cohort of patients. These patients require formal assessment, and decision making regarding management. In 2016, a care pathway for these patients has been developed in conjunction with the ENT service.

Patients referred with vocal cord paralysis receive a full voice assessment from a speech and language therapist. The therapist and ENT consultant make a joint decision about whether therapy or surgery would be the most beneficial care pathway.

Vocal cord augmentation procedures are now completed by the ENT consultant in conjunction with the clinical specialist SLT in voice, in an outpatient clinic. This is an effective and efficient way of managing patients, avoiding unnecessary admissions.

Plastic and Reconstructive Surgery

Plastic surgeons reconstruct and restore tissue in all parts of the body. The team at the Mater Hospital specialises in cancer, trauma, breast and craniofacial patients and collaborates 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.

Plastic surgeons at the Mater Hospital provide treatment for patients who have had

- Skin cancer
- Burns
- Hand injuries
- Nerve problems
- Brachial plexus problems
- Facial fractures
- Breast problems
- Craniofacial problems
- Breast reconstruction
- Perineal reconstruction

The service provides a national specialist service in craniofacial and brachial plexus surgery, as well as running a large and busy breast reconstruction service.

Cancer

Plastic surgery represents an important component of the comprehensive care of cancer patients with breast, gynaecological, head and neck, lung, 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.

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.

Lower Limb Trauma

The Mater Misericordiae University Hospital receives patients with major trauma, including multiple serious injuries that could lead to death or serious disabilities. The 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.

Reconstructive Surgery

Plastic surgeons in the Mater Hospital provide reconstructive surgery services that restore the patient's appearance, functionality and mobility. The team uses 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.

Urology

The Mater Hospital's Urology Department is the national centre for urethral surgery, a national centre for prostate cancer surgery, a national centre for kidney cancers involving the inferior vena cava (IVC), and is a tertiary referral centre for minimally invasive renal surgery and pelvic oncology.

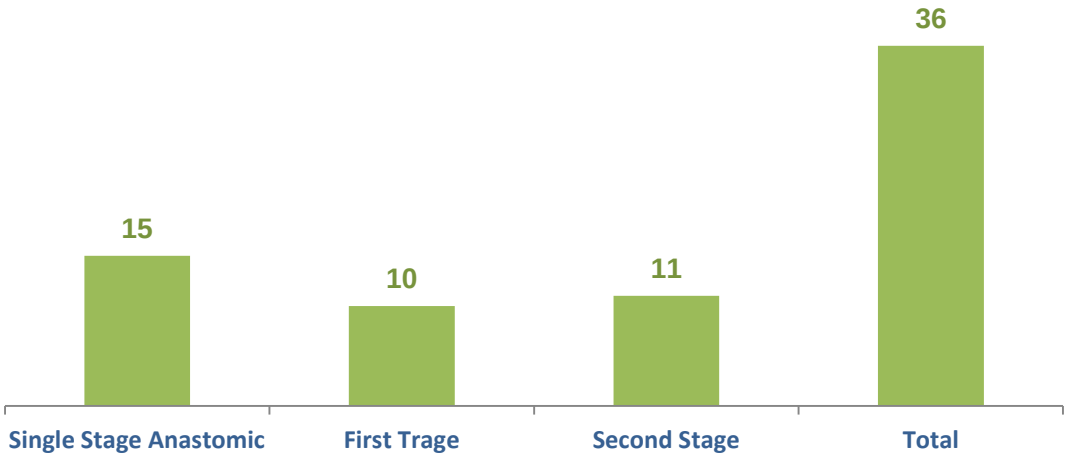
National Centre for Urethral Surgery

The Mater Hospital is the national referral centre for urethral reconstruction surgery (urethroplasty). The service is a consultant to consultant referral service with the clear majority of patients referred to the hospital by urologists from around the country.

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

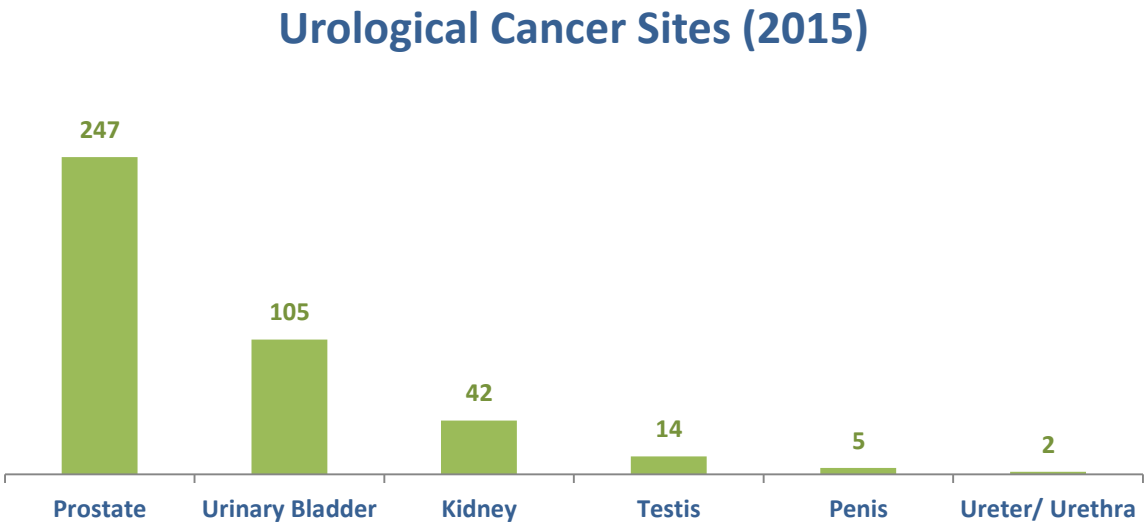
- Urethral stricture: A narrowing of the urethra most commonly from injury, previous surgery, infection and some non-infectious inflammatory conditions of the urethra. Patients can suffer with a range of complications with some patients suffering acute urinary retention
- Pelvic bone fractures from motor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

Urethroplasty



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

Urological Cancers



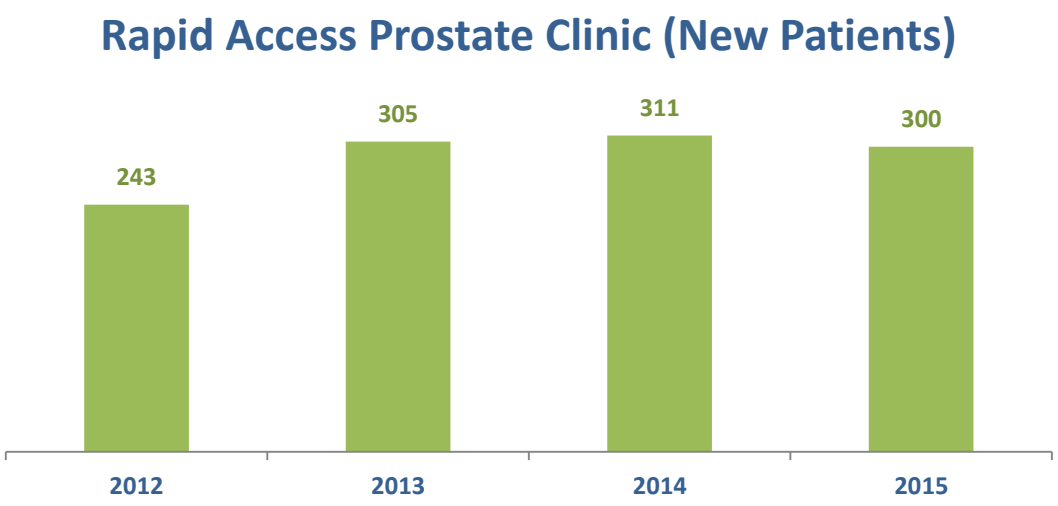
Source Clinical Audit Report 2015, Cancer and Surgery Directorate

413 patients were diagnosed with a urological cancer in the Mater in 2015

Rapid Access Prostate Clinics

The Mater Hospital is one of the eight national rapid access clinics for patients with suspected prostate cancer. Rapid access prostate clinics were established by the National Cancer Control Programme (NCCP) in 2012. Their aim is to provide faster access to diagnosis and treatment for patients with suspected prostate cancer. The key performance indicator set by the NCCP is that "Men with suspected prostate cancer referred to a Rapid Access Clinic shall be offered an appointment to attend within 20 working days of receipt of referral". (Target 90%)

The service is one of the better performing Rapid Access Clinics and sees the third largest number of new patients on a monthly basis



In conjunction with the Mater Private Hospital, our surgeons have carried out over 1,000 robotically assisted prostate cancer surgeries in the last 5years.

Bladder Cancer

Ranking among the top ten cancers in Ireland, bladder cancer has approximately 650 new cases per year in Ireland and most frequently presents due to visible blood in the urine. Although radical surgery and chemotherapy can be required for aggressive varieties of the disease, many patients with bladder cancer simply require endoscopic control (surgery from inside the bladder) and may require intravesical therapy.

Renal Cancer

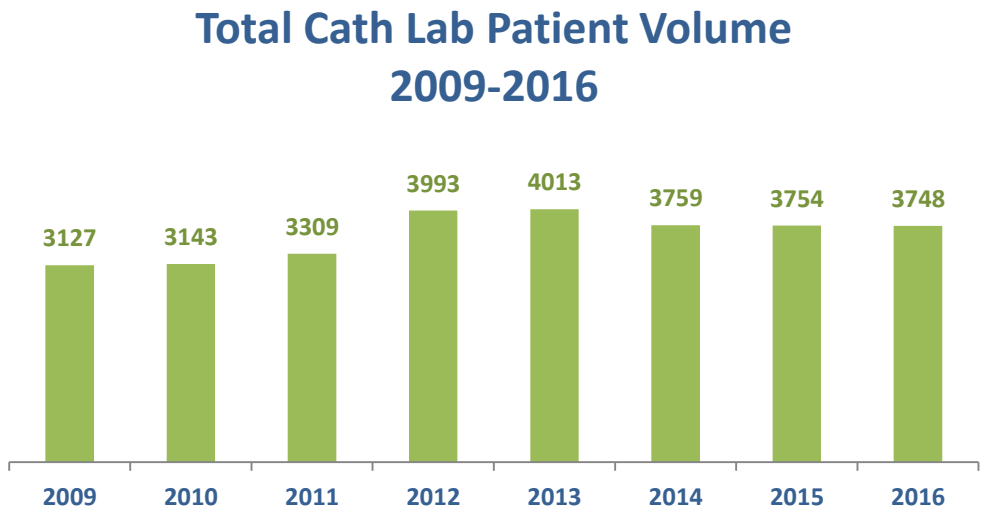
In addition, the team at the hospital treat large complex renal tumours that have spread to the inferior vena cava. These tumours are usually associated with significant mortality and morbidity. Urologists at the Mater Hospital work in collaboration with their colleagues in cardiac surgery, general surgery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

Cardiovascular, Respiratory, Renal, Diabetes and Endocrine

Centre of Excellence

The Mater Misericordiae University Hospital is synonymous with cardiovascular care. The hospital is the national referral centre for adult congenital heart disease, sudden adult death syndrome and is the national transplant centre for heart and lung. In addition, the hospital is a tertiary referral centre for interventional cardiology, electrophysiology and heart failure.

The hospital is one of the 5 designated primary percutaneous coronary intervention (PPCI) centres in the country and collaborates closely with cardiologists in Beaumont Hospital, James Connolly Memorial Hospital and Our Lady of Lourdes Hospital, Drogheda to deliver that service to the patients of north Dublin and the north-east of Ireland.



Cardiac Surgery

The Mater Misericordiae University Hospital is the national centre for cardiothoracic surgery and heart and lung transplantation. The department provides highly specialised treatment for patients with diseases of the heart, lungs and chest including cardiac surgery, thoracic surgery, heart and lung transplantation, adult congenital heart disease and the Irish heart valve bank.

The department of cardiac surgery provides expert care for major aortic surgery, coronary bypass, beating heart cardiac operations, arrhythmia surgery and heart transplantation.

The hospital provides specialised care for Adult Congenital Heart Disease patients and heart failure patients including cardiac-assist devices, ventricular restorative procedures and heart transplantation.

Our patient-centred approach includes a multidisciplinary team of experienced surgeons capable of managing highly complex cases.

The Mater team are dedicated to providing the safest, state-of-the-art, highest-quality, and 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.

Valve Surgery

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 folllowing discharge. Due inadequate or no family support being available these patients require convalesence or transfer back to their referring hospital. The higher the age of the patient the more likely they are to require ongoing care and are more likely to require ongoing hospitalisation.

The Mater provides an outpatient cardiac rehabilitation service for people who have had a cardiac illness or treatment. The rehabilitation team works with individual patients to help them improve and regain their physical fitness and strength along with helping patients understand their condition and manage it in the future.

People attend cardiac rehabilitation some weeks after their cardiac illness or treatment, which may include having a heart attack, stents, coronary artery bypass surgery, heart valve surgery, heart transplant, implantable cardioverter-defibrillator (ICD) surgery or a mild/moderate stroke.
The multidisciplinary team provides a programme of exercise, information and support and includes nurses, a cardiac physiologist, a psychologist, a physiotherapist, a pharmacist, a dietitian and administration staff.

National Adult Centre for Congenital Heart Disease

The setting up of the National Adult Centre for Congenital Heart Disease at the Mater Hospital enables the more appropriate management of these patients, specifically in managing adult related problems like coronary artery disease, hypertension, arrhythmias and pregnancy. The team at the hospital 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.

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.

Adult Congenital Heart Disease

An increasing number of children with congenital heart disease are surviving into adulthood due to greatly improved surgical, medical, anaesthetic and intensive care over the last few decades. The survival of congenital patients into adulthood is now close to 85%.

This group of patients are often left with significant residual problems that require ongoing medical supervision and repeat surgical interventions. In Ireland, almost 16,000 adults have congenital heart disease with almost 2,000 of them having complex congenital heart disease.

Irish Heart Valve Bank

The Irish Heart Valve Bank (IHVB) collects, processes and stores human heart valves. The valves are donated by patients who have received heart transplants, multi-organ donors or neonatal donors. The tissue can then be used to repair congenital heart defects in other patients.

Some examples of the types of surgeries that can be done using the donated tissue include

- Norwood operation - the initial surgery of palliation of hypoplastic left heart syndrome
- Ross Procedure – the surgery to replace a diseased aortic valve with living tissue
- Pulmonary valve replacement
- Aortic root replacement – endocarditis patients

The IHVB is the body licenced under Irish and European law to collect, process and release human vascular tissue in Ireland.

Cardiac Rhythm Disorders

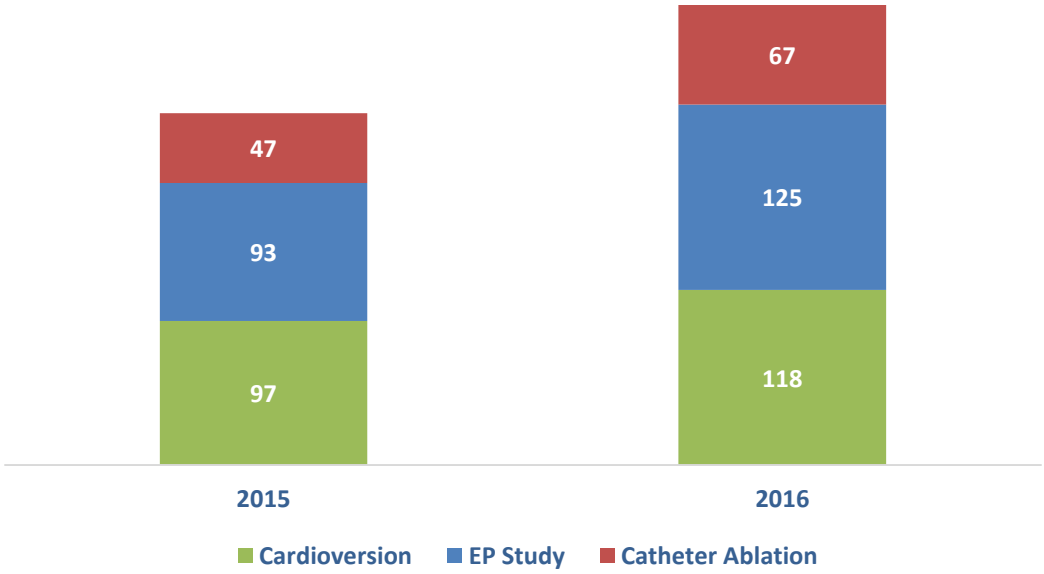
Patients with cardiac rhythm disorders require individualised care and the team at the Mater Hospital offers the very latest diagnostic and treatment options to manage heart rhythm conditions. We care for patients with a range of disorders including

- Arrhythmias (abnormal heart beat)
- Atrial fibrillation
- Atrial flutter
- Supraventricular tachycardia
- Ventricular fibrillation
- Ventricular tachycardia
- Brugada Syndrome (genetic condition)
- Long QT Syndrome (genetic condition)
- Bradycardia (slow heart rate)
- Sick sinus syndrome (heart rate too fast and too slow)

Our specialists treat a variety of patients, including younger and older patients, pregnant women with arrhythmias, patients with atypical symptoms or unique conditions, patients with familial conditions, and patients who require pacemakers, ICDs or biventricular devices.

The recruitment of an additional cardiac electrophysiologist along with the restructuring of the existing electrophysiologists has significantly increased the hospitals capacity for complex EP/arrhythmia

Cardiac Procedure Volumes 2015-2016



Family Heart Screening Clinic

The Mater Misericordiae University Hospital provides a national service for known or suspected inherited cardiovascular disease. The team specialises in evaluating and treating patients and family members with known or suspected inherited cardiovascular disease. Our goal is to provide a comprehensive evaluation for patients to understand their diagnosis and the potential genetic findings associated with the condition. We work with individual patients and their family to provide a comprehensive education and a treatment plan based on their clinical diagnosis and specific needs. Experts in multiple disciplines including electrophysiology, cardiomyopathy, congenital heart disease, medical imaging, psychiatry and genetic counselling are brought together to provide the full spectrum of evaluation, clinical and genetic diagnostics and treatment modalities for adults and children

The Clinic's heavy reliance on genetic testing led to the request for funding of a new next generation sequencing facility at the Mater. The SHABRA charity has generously funded an Illumina Sequencer and we expect to begin our first clinical gene sequencing in September 2017

There are three consultant-provided and one senior registrar clinic sessions every week. 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.

Diabetes and Endocrinology

The diabetes and endocrinology service at the Mater Misericordiae University Hospital provides an individualised, patient-centred approach to their management. In diabetes, the goal is to help our patients achieve their diabetes goals and to empower patients and their families to become knowledgeable, active participants in their health care. The team provide a full range of diabetes services including inpatient consultative care, outpatient medical management and comprehensive diabetes self-management education. Our clinical staff maintain close communication with our patients' primary care doctors to make sure that care is well coordinated.

Integrated Care

In addition to treating the metabolic abnormalities of patients with Type 1 and Type 2 diabetes, the staff focuses on prevention of complications and rapid, effective treatment of those complications should they occur. The associated medical problems of obesity, pre-diabetes and metabolic syndrome, dyslipidaemia, hypertension, eye, kidney, nerve, and cardiovascular disease are all addressed by the integrated care provided at the hospital.

In collaboration with other Mater consultants in renal disease, cardiology, podiatry and orthopaedics, neurology, and vascular surgery, and retinal specialists and other specialty ophthalmology groups, comprehensive medical care is provided to all of our patients.

Endocrinology Service

The endocrinology service cares for patients with general and specific endocrine disorders, including patients with thyroid and adrenal disease, calcium disorders, polycystic ovary syndrome (PCOS), Turner syndrome, hypogonadism and metabolic bone disease. The monthly multidisciplinary meeting run in conjunction with the departments of surgery, radiotherapy, pathology and radiology for the management of patients with thyroid nodules, cancer and parathyroid disorders. Endocrine dynamic functioning tests are carried out to help us to diagnose and manage endocrine disorders and are performed in the endocrine day ward at the diabetes day centre.

Sub-Specialty Clinics

The team at the hospital provides a wide range of sub-specialty clinics, including

- Pre-pregnancy clinic
- Adolescent clinic, run in conjunction with Dr Nuala Murphy, consultant paediatric endocrinologist
- Endocrine and diabetes transition clinic for adolescents
- Clinic for patients with monogenic diabetes
- Clinic for patients on insulin pump therapy
- Clinic for patients with Turner syndrome

Heart Failure

Overview

Heart failure is a chronic condition that affects 90,000 people in Ireland with a further 10,000 people being diagnosed annually. The current prognosis is poor, with 30-40% of patients dying within one year of diagnosis. This debilitating illness is characterised by exacerbations and remissions, multiple hospital admissions, the inability to work and depression. As a result, it is one of the most costly chronic diseases in the developed world.

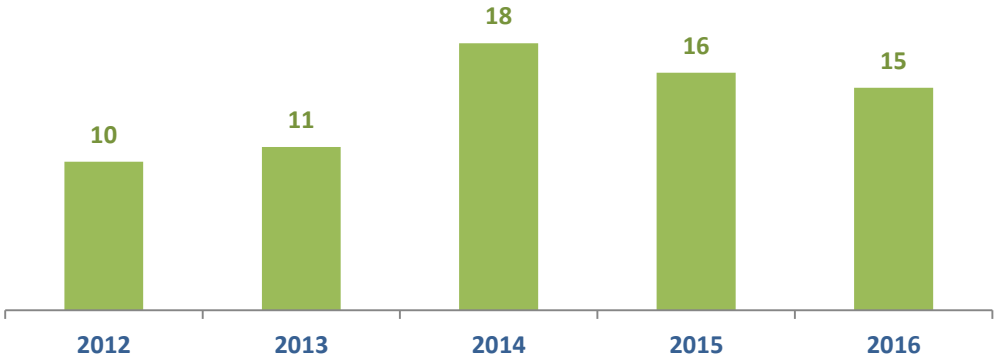
Heart failure has high admission and re-admission rates, accounting for approximately 4% of all inpatient admissions, about 7% of all inpatient bed days and approximately 5% of all emergency and acute admissions

Clinical Services

The heart failure service at the Mater Hospital evaluates and manages a range of heart disease conditions that result in heart failure. Our heart failure programme aims to provide the best care for patients, decrease emergency hospital admissions and achieve better health outcomes for people with heart failure. The team at the Mater treat patients with congestive heart failure and other 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

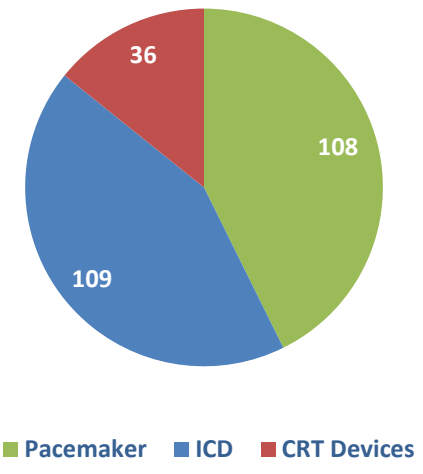
Heart Transplants 2012-2016



There are currently 19 people on the heart transplantation waiting list

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.

Cath Lab Activity 2016



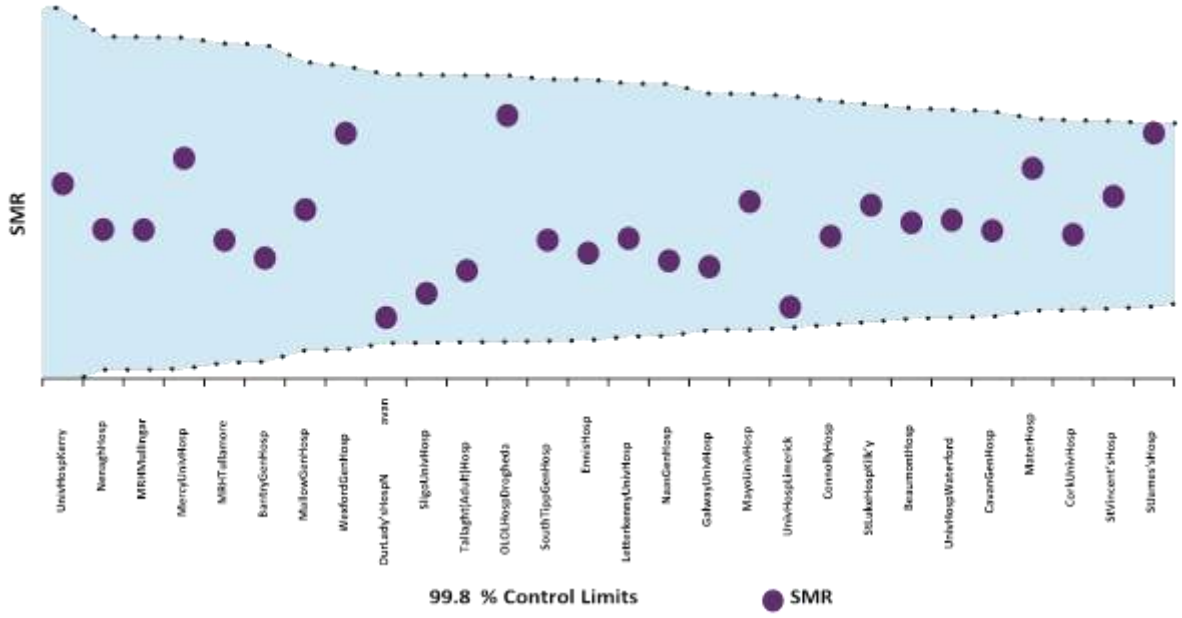
National Audit

The Mater Hospital participates in the National Audit of Hospital Mortality (NAHM) Report (December 2016): National Office of Clinical Audit (NOCA) The report presents hospital mortality from 44 publicly funded acute hospitals and is a significant step to further understanding and, most importantly, promoting the continuous improvement of the quality and safety of care provided in our acute hospitals.

Individual hospitals receive quarterly NAHM updates that they use on an ongoing basis to monitor their expected mortality ranges and to trigger prompt investigation regarding areas of concern. Twenty-eight hospitals had over 100 patients with a principal diagnosis of heart failure on admission to hospital in 2015. The number of admissions in these hospitals ranged from 105 to 382. The figure below presents the standardised mortality rates (SMR) for hospitals in a funnel plot, with 99.8% control limits.

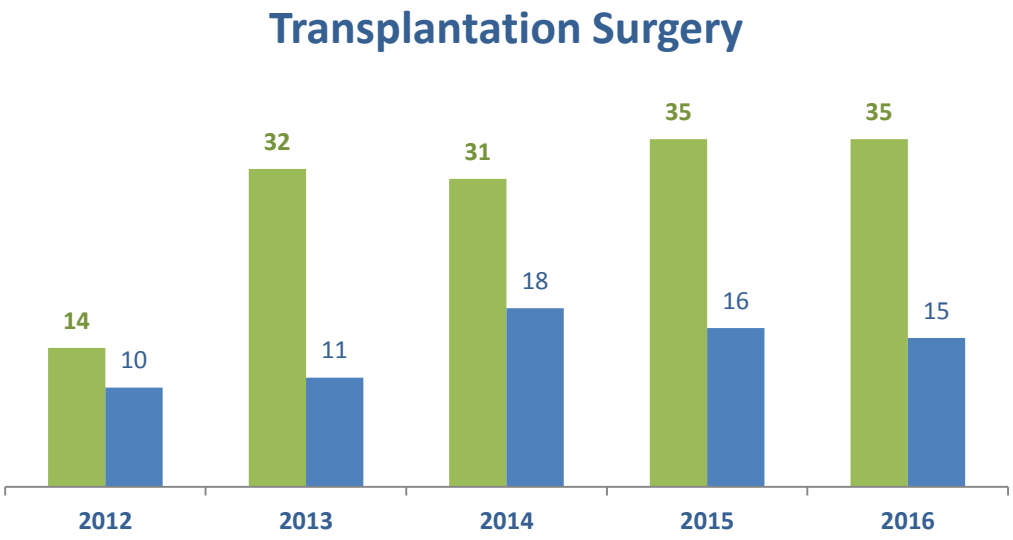
All hospitals had an SMR within the control limits, indicating that all hospitals SMRs were within the expected range

National In-Hospital SMR Following Admission with Principal Diagnosis of Heart Failure 2015

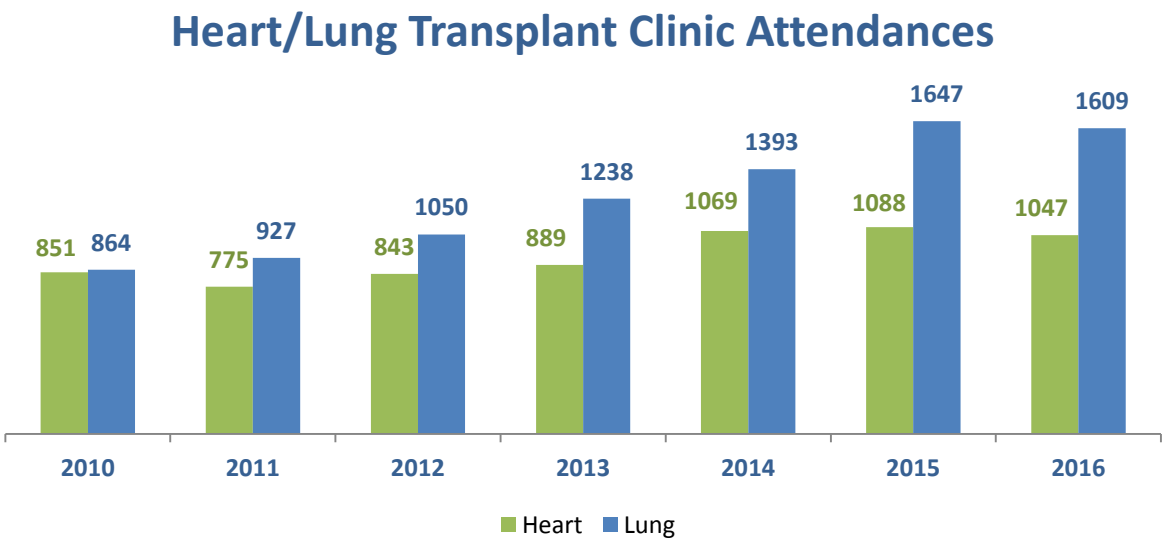


Heart and Lung Transplantation

The Mater Misericordiae University Hospital is the national transplant centre for heart and lung. The hospital offers comprehensive treatment, transplantation and care management for patients requiring all forms of specialised heart and lung surgery including transplantation.

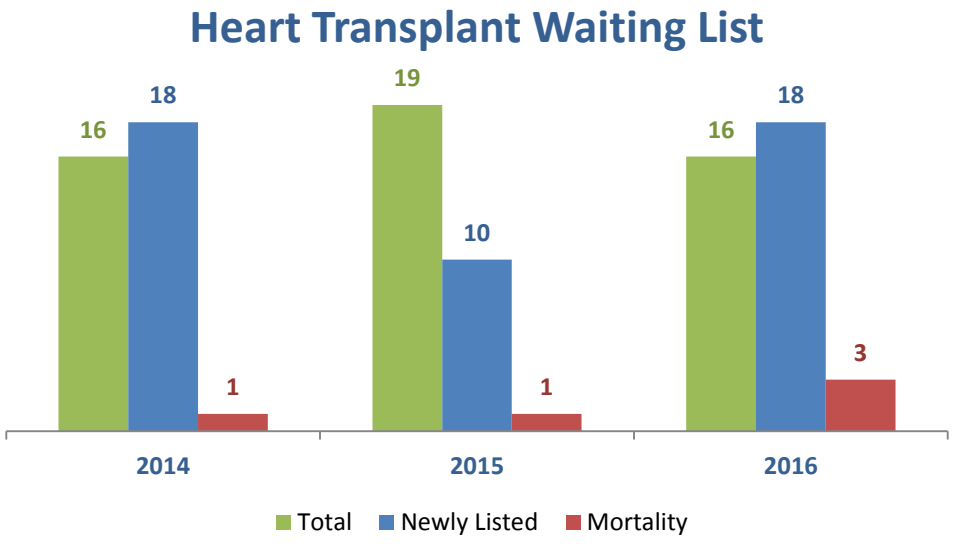


Total attendances at the heart/ lung transplantation clinic have increased by 55% since 2010



National Heart Transplantation Service

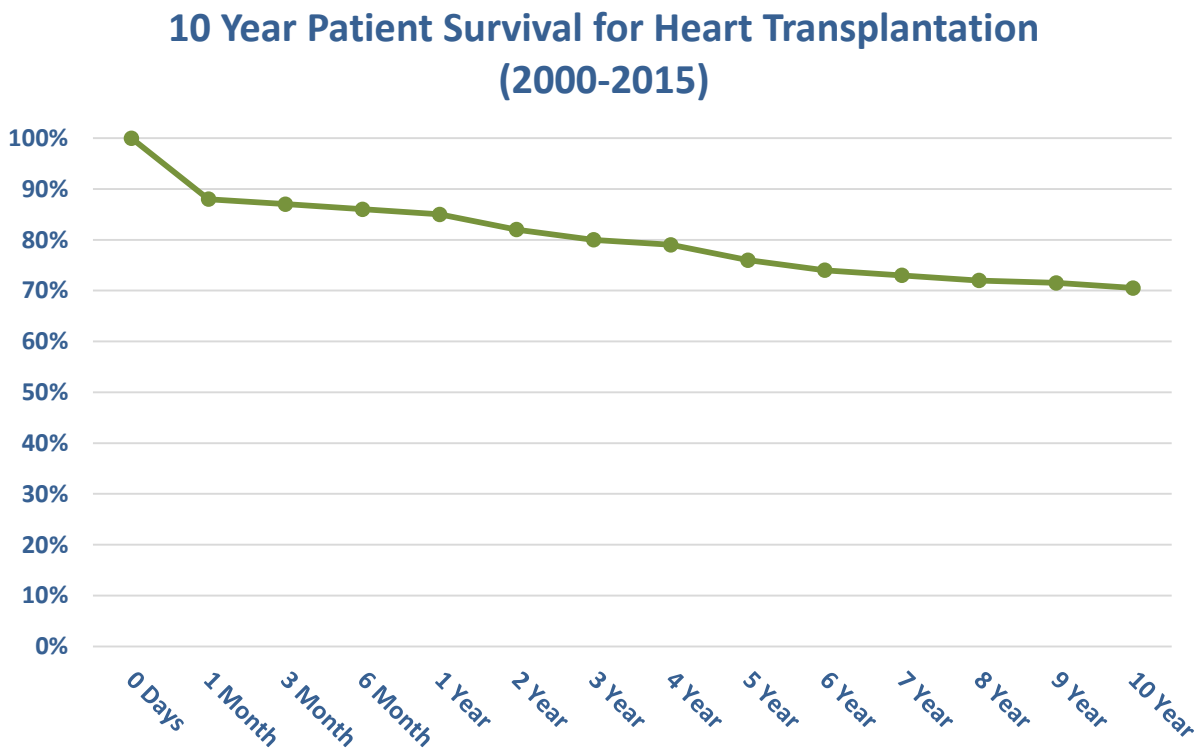
The national heart transplantation service is based at the Mater Hospital and has performed 70 heart transplants since 2012. The Mater hospital staff are pioneers in the treatment of cardiovascular disease and carried out Ireland's first heart transplant in 1985. The transplantation service works closely with the national adult centre for congenital heart disease programme (which is also based at the Mater) to provide cardiothoracic and transplantation options for patients with complex cardiac conditions.



The multidisciplinary team provides comprehensive treatment to patients who require transplantation due to a variety of complex conditions, including

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

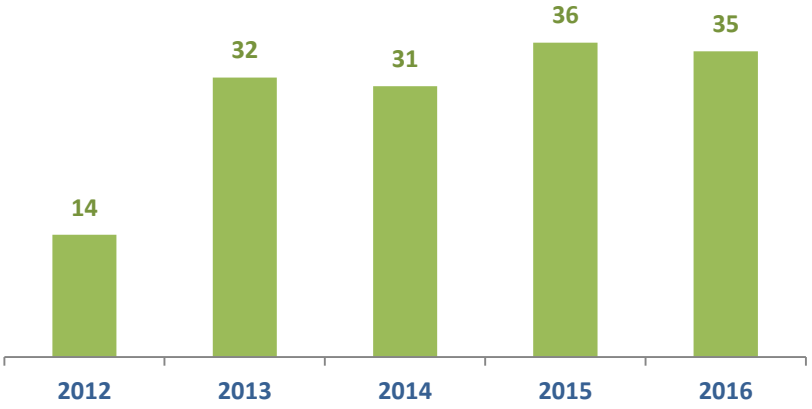
The transplant team performed 16 heart transplants in 2016, with 18 people being newly listed for transplant during the course of the year.



National Lung Transplantation Service

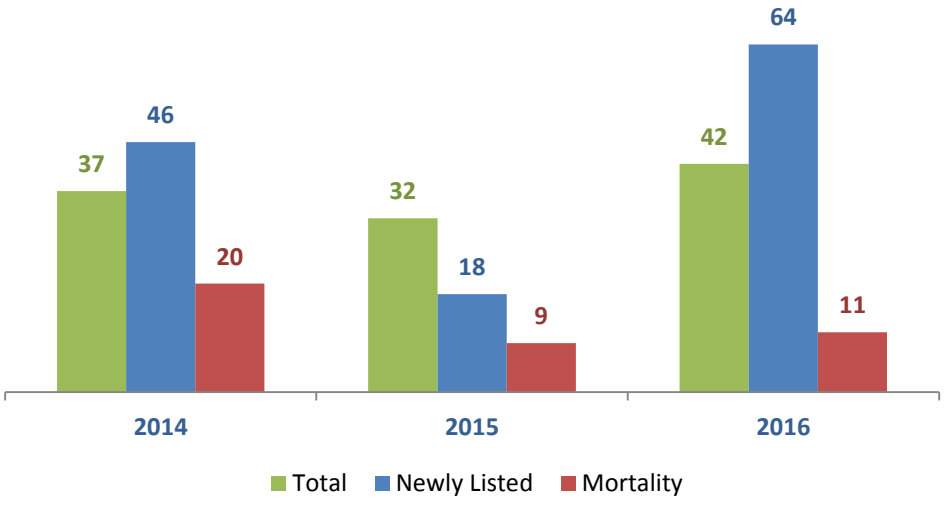
The national transplant centre for heart and lung has been based at the Mater Hospital since 2005. Previously all Irish patients attended the Freeman Hospital in Newcastle for their lung transplantation services. Almost half of all patients receiving transplants in the Mater Hospital have cystic fibrosis, due to Ireland having the highest incidence of cystic fibrosis in the world. The team at the Mater works closely with our Ireland East Hospital Group colleagues at St Vincent's University Hospital, the National Centre for Cystic Fibrosis, to care for these patients.

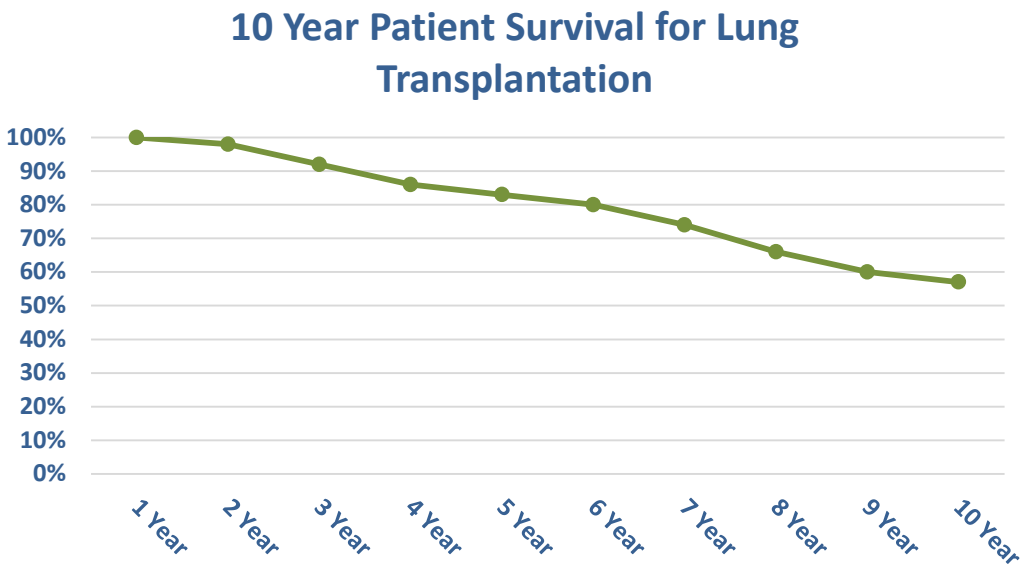
Lung Transplants



There are currently 42 patients on the transplantation waiting list

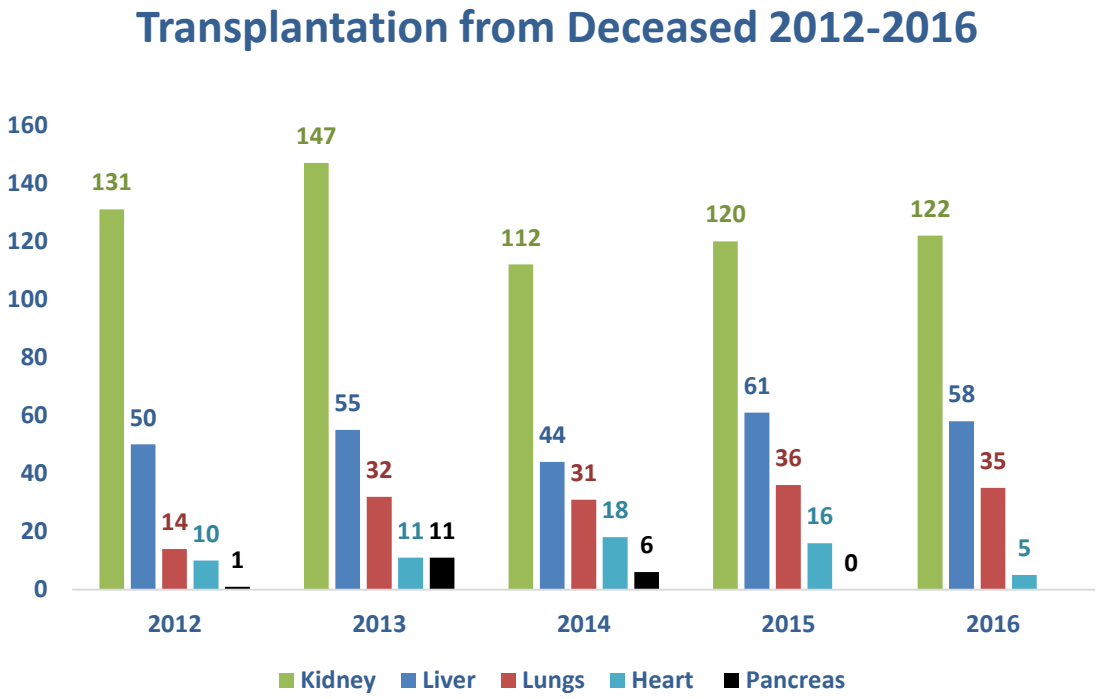
Lung Transplant Waiting List





Organ Donation Ireland

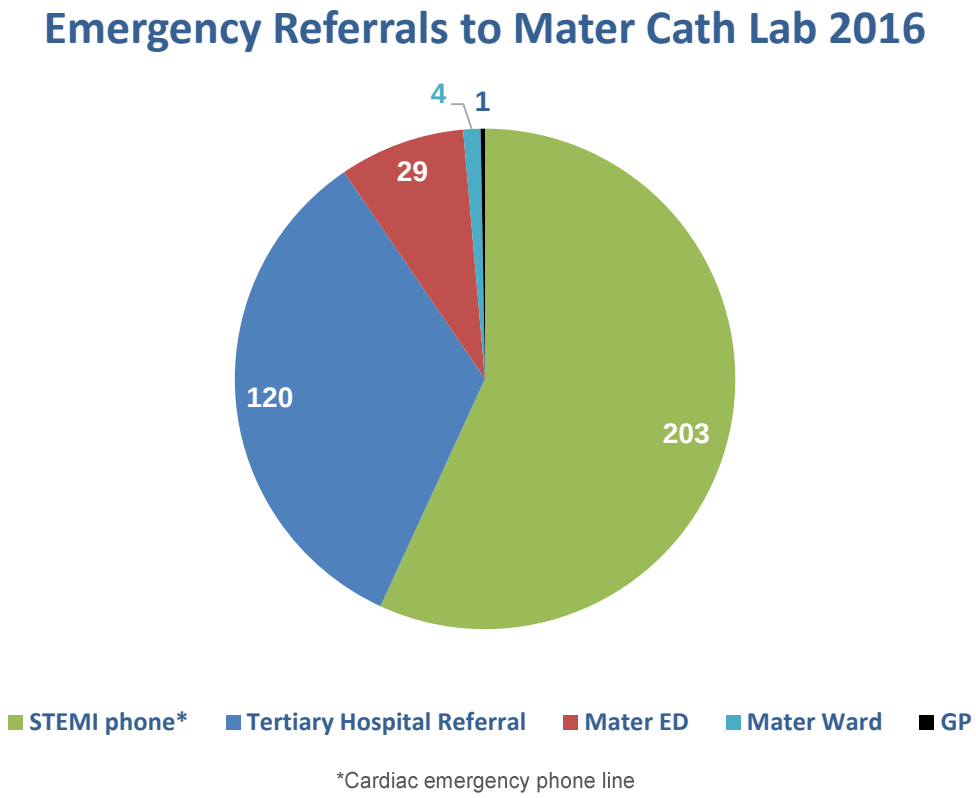
The Mater Hospital works closely with the National Organ Donation and Transplantation Office to ensure maximum utilisation of organs donated.



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.

357 emergency coronary angiogram/ PPCIs were performed in the Mater in 2016



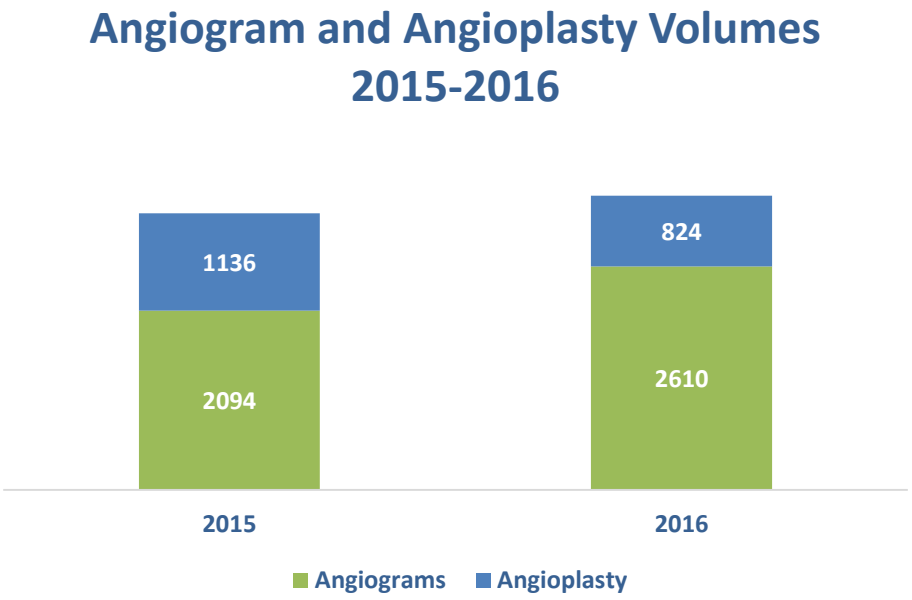
Each year, the hospital sees thousands of patients with almost every kind of heart disease. Our interventional cardiologists treat people of all ages who have serious, sometimes life-threatening, cardiac conditions and perform the entire range of advanced procedures, from coronary angioplasty to complex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

Chronic Total Occlusion (CTO)

The Mater Hospital offers a highly advanced 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.



Nephrology

The nephrology department at the Mater Hospital is run by a dedicated team of health care professionals who provide the highest standard of care and support to all their patients. The unit cares for people with chronic kidney disease as inpatients and outpatients.

Dialysis

The Haemodialysis Department is a 15-station unit which performs on average 13,000 treatments a year, mostly in the chronic dialysis setting but also providing dialysis in the high therapy areas such as ITU, HDU, CTHDU.

The team treats patients with end stage renal disease who have chosen haemodialysis as their means of renal replacement therapy. In addition, the service also treats those who have acute kidney failure due to accident or illness. The unit provides treatment to 85 outpatients as well as handling an inpatient caseload.

Services Provided

- Haemodialysis
- Home Therapies (Peritoneal Dialysis)
- Management of acute and chronic renal failure

Diabetic Nephropathy

Diabetic nephropathy is a serious kidney-related complication of type 1 and type 2 diabetes. Up to 40 % of people with diabetes eventually develop kidney disease. Diabetic nephropathy affects the ability of the kidneys to remove waste products and extra fluid from the body. Over many years, the condition slowly damages the kidneys' delicate filtering system. Early treatment may prevent or slow disease progression and reduce the chance of complications.

The goals of treatment are

- to delay the progression of diabetic kidney
- to reduce the morbidity and mortality of the diabetic kidney patient with an intensive cardiovascular risk management
- to optimise the transition to renal replacement therapy (RRT), such as dialysis, and kidney transplantation

Pulmonary Hypertension

The Mater Misericordiae University Hospital is the National Centre for Pulmonary Hypertension (PH). This unit was established in 2003 and is the only centre in Ireland specialising in the evaluation and treatment of pulmonary hypertension. Clinics are held on a weekly basis and are followed by a multidisciplinary team meeting to decide on the most appropriate investigations and treatments. The unit works in close collaboration with the adult congenital heart disease group and the lung transplant team at the Mater Hospital and is very active in participating in clinical trials and seeks to have the most up-to-date treatment options available.

International guidelines recommend that the management of pulmonary hypertension (PH) should take place in designated specialist centres, where expert care can be provided at the correct stage of the disease process. There are seven specialist centres in Great Britain, one in Scotland and one in the Republic of Ireland, all of which are designated to treat pulmonary hypertension. These form the National Pulmonary Hypertension Centres of United Kingdom and Ireland.

Integrated Care

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.

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 specialties. The specialties 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)

Research

The pulmonary hypertension programme at the Mater Hospital participates in numerous international multi-centre clinical trials for the treatment of PAH thus providing treatment opportunities for patients to avail of innovative investigational drug therapy not yet available on prescription. The unit has also developed partnerships with Professor Paul McLoughlin and colleagues at the Conway Institute for Biomolecular and Biomedical Science at University College Dublin. Advance in basic science is paramount in further understanding the pathology of pulmonary vascular disease, and our colleagues in the Conway Institute are working on identifying novel therapeutic targets in human diseases through research on the disease in animal models.

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

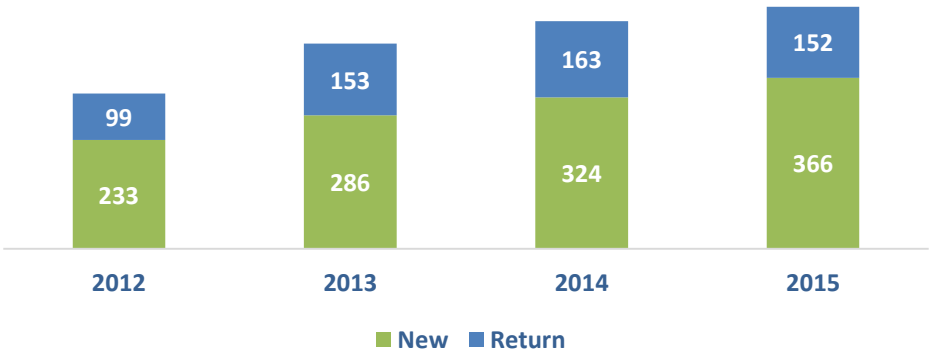
The hospital is also a regional referral centre for many other respiratory services including

- Asthma
- Chronic obstructive pulmonary disease (COPD)
- Lung cancer
- Pulmonary hypertension
- Pulmonary embolism
- Lung fibrosis
- Lung infections such as pneumonia and tuberculosis (TB)

Rapid Access Lung Clinic (RALC)

Rapid access clinics (RACs) for patients with suspected breast disease (symptomatic breast disease clinics), prostate or lung cancer symptoms (RACs) were established by the National Cancer Control Programme (NCCP) in the eight-designated cancer centres. The rapid access lung clinic was established in the Mater Hospital in 2011, with the volume of patients attending increasing by over 50% since 2012.

RALC New and Return Patients 2012-2015



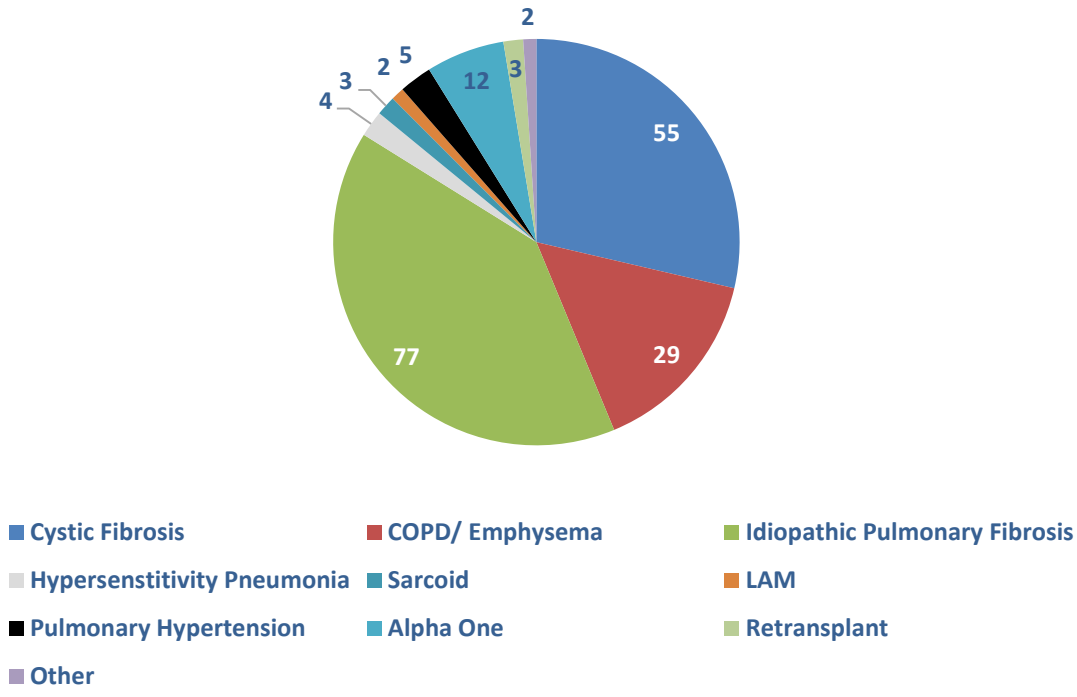
Source NCCP

The Key Performance Indicator (KPI), set by the NCCP, for access to Rapid Access Lung Clinics is ***"Patients with suspected lung cancer referred to a RAC shall be offered an appointment to attend within 10 working days of receipt of referral. (Target 95%)"***

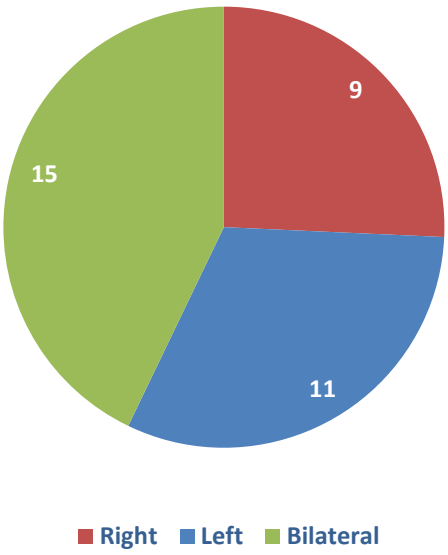
The service was audited by the NCCP in 2016, who reported that the Rapid Access Lung Clinic meets the national KPI (achieving 98%) and is one of the better performing clinics nationally

At the clinic, patients are seen by a lung specialist and nurse coordinator who assess symptoms, perform a clinical examination and decide what diagnostic tests may be required. The lung nurse helps organise and coordinate these tests and is available at the clinic or by phone to discuss what's involved. Patients most often are evaluated by lung scans, bronchoscopy (internal examination of the lungs using a camera) and breathing tests.

Lung Transplant: Diagnosis 2005-2016



Lung Transplant Type 2016



Pulmonary Laboratory

The pulmonary laboratory performs diagnostic examinations for the detection of pulmonary abnormalities and lung function including

- Spirometry
- Reversibility
- Gas transfer
- Lung volumes e-dilution
- Lung volumes plethysmography
- Respiratory muscle strength
- Methacholine challenge
- Mannitol challenge
- Cardiopulmonary exercise tests
- Exercise challenge
- Skin-prick allergy tests
- Impulse oscillometry
- FeNO

Pulmonary Rehabilitation Programme

Pulmonary rehabilitation is an exercise and wellness programme for patients with COPD. It runs for eight weeks, with participants attending for one hour twice a week. The programme involves individualised exercise programmes and education sessions and is run in line with evidence-based practice.

The classes are coordinated and monitored by the physiotherapy department and patients can be referred by respiratory consultants and respiratory clinical nurse specialists. We also work in collaboration with the MedEx programme in DCU and refer suitable patients for their twice-weekly programme.

Structural Heart Programme

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 of 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 elctrophysiology as well as a dedicated team of nurses and skilled technicians.

Integrated Service

The location of the adult congenital heart service, cardiothoracic surgery, interventional cardiology and the structural heart service on the Mater campus provides patients with a specialist team providing a range of advanced procedures for patients, including

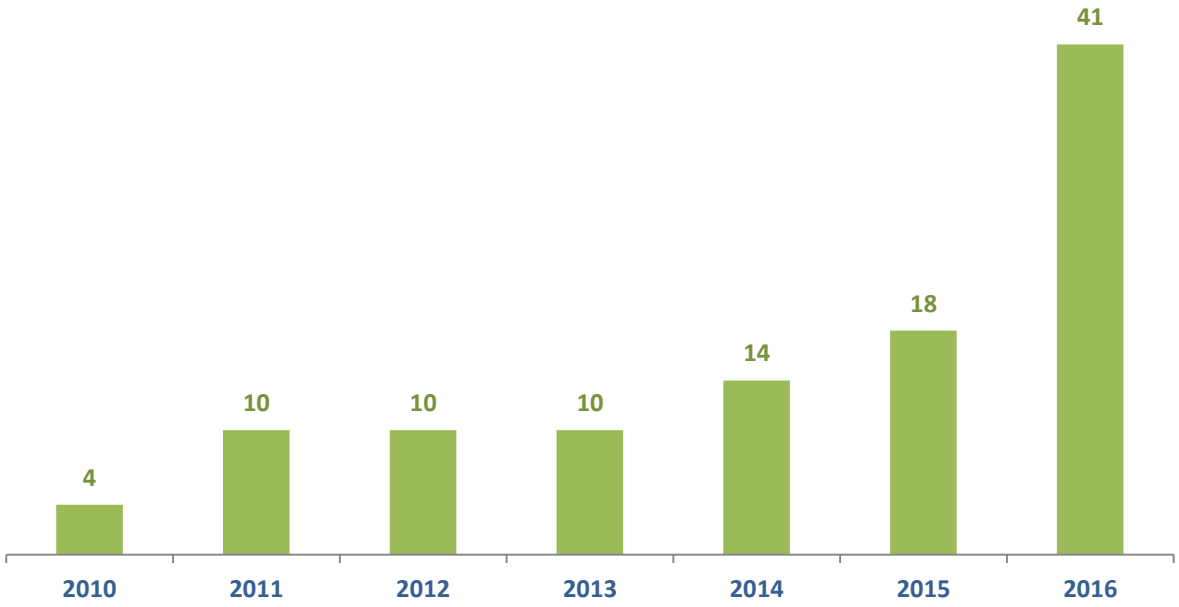
- Percutaneous valve replacement
- Percutaneous aortic and mitral valvuloplasty

- 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

Hybrid Theatre for TAVI Patients

Interventional techniques for aortic valve implantation offer important advantages over open heart surgery, particularly in older and critically ill patients who are unsuitable candidates for open surgery. Transcatheter aortic valve implantation (TAVI) has the advantage of being minimally invasive, but demands the highest possible image quality and accurate navigation.

TAVI Procedures 2010-16



A hybrid operating theatre is considered ideal for TAVI because cardiologists and cardiac surgeons can work hand in hand

The Guidelines on Management of Valvular Heart Disease published by the European Society of Cardiology and the European Association for Cardio-thoracic Surgery, explicitly require transcatheter aortic valve implantations (TAVI) to be performed solely at heart centres with cardiac surgery on-site.

Innovation

Mitral regurgitation is a common cause of heart failure. International data has shown that patients who are treated medically have higher rates of hospitalisations and mortality compared with patients treated surgically. Patients who are considered high-risk for surgery are generally treated medically. Minimally invasive options, like the transcatheter mitral valve repair using the MitraClip are of significant benefit to these patients. In 2016, the team at the Mater treated the first public patient with significant degenerative mitral regurgitation with the MitraClip.

Thoracic Surgery

The thoracic surgery service at the Mater Misericordiae University Hospital provides comprehensive diagnostic and surgical treatments for a variety of thoracic conditions. 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 Mater Hospital is the National Lung Transplantation Centre and performs state of the art minimally invasive surgery to treat patients with even the most complex disease.

Video Assisted Thoracic Surgery (VATS) vs Thoracotomy

The majority of pulmonary resections performed at the Mater in 2016 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.

ung Volume Reduction (LVR) Multi-Disciplinary Team (MDT)

A LVR MDT was established in January 2016 for end stage emphysema patients. The team included an endobronchial specialist transplant physician, a thoracic lung transplant surgeon, a thoracic radiologist, an anaesthetist, a nurse specialist and a physiotherapist. Twenty-six patients were included in the MDT between January 2016 - October 2016 and a review was carried out to assess the impact. The conclusion was that patients with end-stage emphysema are better served by referral to a specialist LVR Lung Transplant MDT within tertiary units.

First Thoracic Enhance Recovery Programme

The thoracic service has increased in scale and complexity in the last 5 years. Case numbers have increased from 114 annually to 529. In response to this continued growth the thoracic service, supported by the Mater Lean Academy, designed and implemented an Enhanced Recovery Programme aimed at reducing morbidity and hospital length of stay. The programme has resulted in a significant reduction in duplicate tests run pre-operatively and a 50% reduction in length of stay.

Planning for the Future

Navigational Bronchoscope

The Mater is planning to acquire a navigational bronchoscope to facilitate inaccessible or high risk biopsies of pulmonary nodules as well as directing targeted surgery or Stereotactic Body Radiation Therapy (SBRT). The equipment is scheduled to arrive over the summer, when a team will go to St. Bart's in London to train. This new technology enables clinicians to access the most distant regions of the lungs to detect and biopsy even the smallest legions.

Vascular

The Mater Misericordiae University Hospital provides a comprehensive service for patients with arterial and venous circulation diseases. The vascular surgery service deals with all aspects of diseases that affect circulation, including aortic aneurysms, carotid artery disease, peripheral arterial disease and venous disease.

The three consultant vascular surgeons provide diagnostic and therapeutic interventions for circulatory disorders, from medical management to minimally invasive endovascular therapy to conventional open surgery. Non-invasive vascular testing is provided through the vascular laboratory.

Vascular Laboratory

The vascular laboratory performs non-invasive studies, such as diagnostic ultrasound and segmental pressures/pulse volume recordings, to detect and quantify the presence of vascular disease in arteries throughout the body.

Non-invasive vascular evaluations offer several advantages, including that they are painless and can document the presence, location and severity of arterial and venous vascular disease. The vascular laboratory has a team of five vascular physiologists, who provide a full range of non-invasive examinations. Each patient is individually evaluated with the specific type of exam that best answers the doctor's questions.

The vascular laboratory test for and monitor conditions such as

- Aneurysmal disease (abdominal aorta and peripheral vessels)
- Peripheral arterial occlusive disease (ankle/brachial indices and treadmill testing for claudication, rest pain, ulcers, gangrene)
- Peripheral arterial duplex
- Cerebrovascular disease, carotid and vertebral artery imaging, transcranial imaging
- Acute deep vein thrombosis (DVT assessment upper and lower limb)
- Aortic aneurysms screening and surveillance
- Abdominal aortic aneurysm surveillance following endograft
- Chronic venous disease
- Varicose veins and venous insufficiency
- Vein mapping (pre-bypass or dialysis access)
- Bypass graft and surveillance

Critical Care, Anaesthesia, Elective Surgery & Theatres

The Critical Care, Anaesthesia, Elective Surgery & Theatres (CCAEST) directorate encompasses anaesthesia, critical care and pain medicine, the operating theatres and the central sterile services department. The directorate provides high quality, personalised patient care. The directorate team 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, national and regional ICM and ECLS transfers.
- Acute and chronic pain OPD, interventional, and in-patient acute pain rounds.
- Interventional cardiology with particular anaesthesia requirement for electrophysiology and percutaneous valve procedures.
- Interventional radiology and MRI
- Gastroenterology

Electronic Patient Record (EPR) Strategy

Emphasis has been placed on further development of our electronic patient pathways and documentation throughout the year. Developments occurred in three main areas

- Anaesthesia Information Management System (AIMS)
- Theatre Management System (TMS)
- Critical Care (ICIP)

The theatre management system referenced in last year's report has supported the data and metrics supplied in this report for theatre. The National Office of Clinical Audit (NOCA) ICU benchmarked data-set supports the critical care data. We have introduced a new anaesthesia information management system during 2016 allowing a greater in-depth analysis of anaesthesia services and quality initiatives which we hope to report on in the 2017 report. All systems are interfaced with the main hospital information management system (PatientCentre).

Strategic direction 2016 / 2017

The opening of a second orthopaedic theatre was delivered in 2016 with a fixed 3 day per week resource and enhanced scoliosis surgery activity across the other 2 days. Opening of unresourced theatre sessions remains both a financial and staffing challenge, but an important strategic goal for 2017.

Consultant staffing for the Pre-Operative Assessment Clinic has new dedicated consultant sessions, with 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.

Critical Care Strategic direction 2016 / 2017

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.

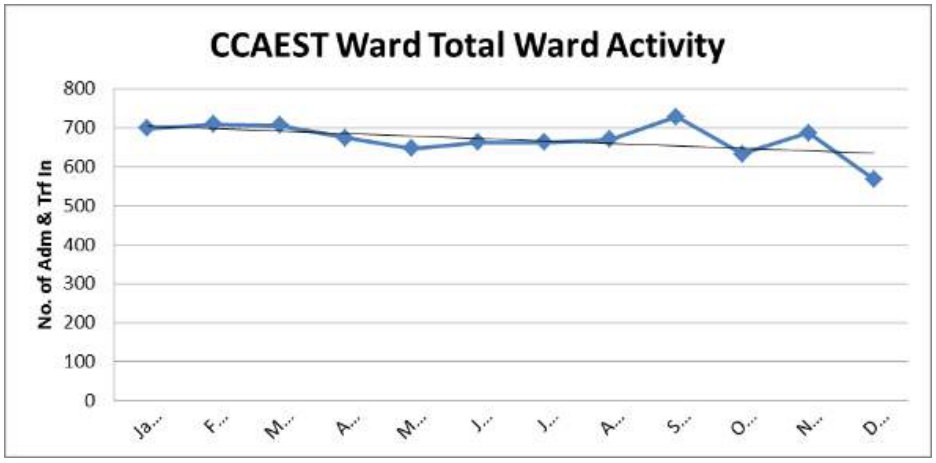
This situation remains unchanged and submissions been made to both the hospital group and HSE, as well as the Clinical Programme for Critical Care, highlighting again these concerns and risks.

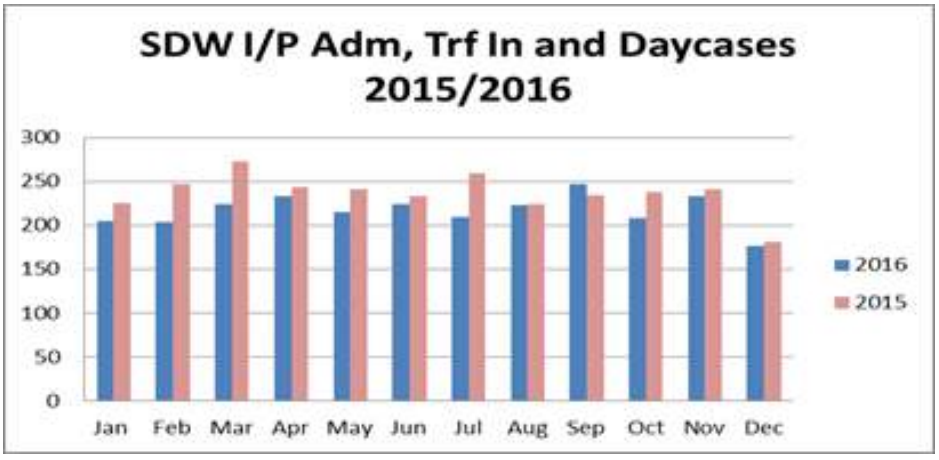
Pain Medicine Strategic Direction 2016/2017

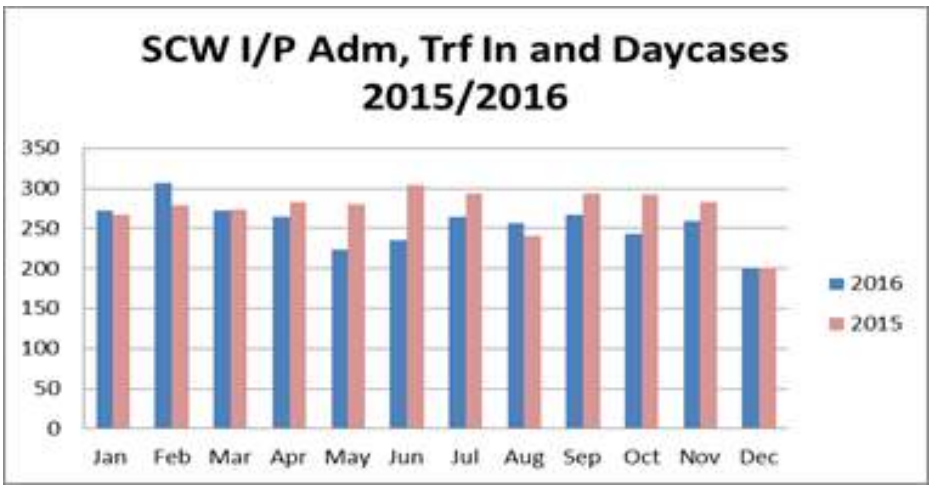
The Department of Pain Medicine was approved for fellowship training with the Faculty of Pain Medicine; this is now well established as a training programme. Referrals continue to expand and new consultant appointments will be required in the near future to meet this demand.

General Metrics

Occupancy for SCW/SDW / ICU / HDU

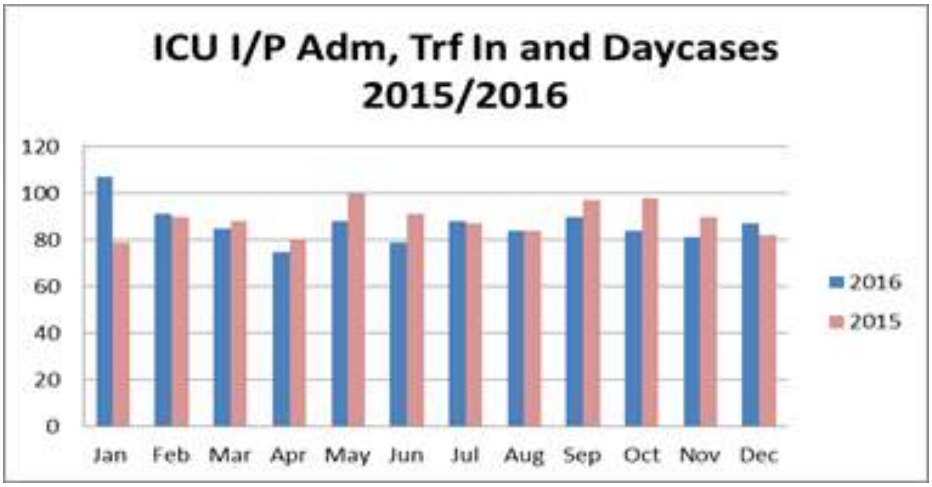


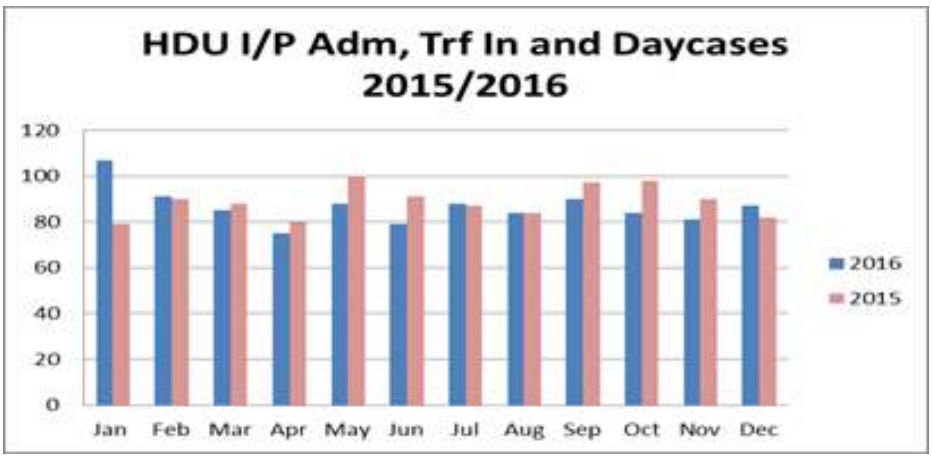




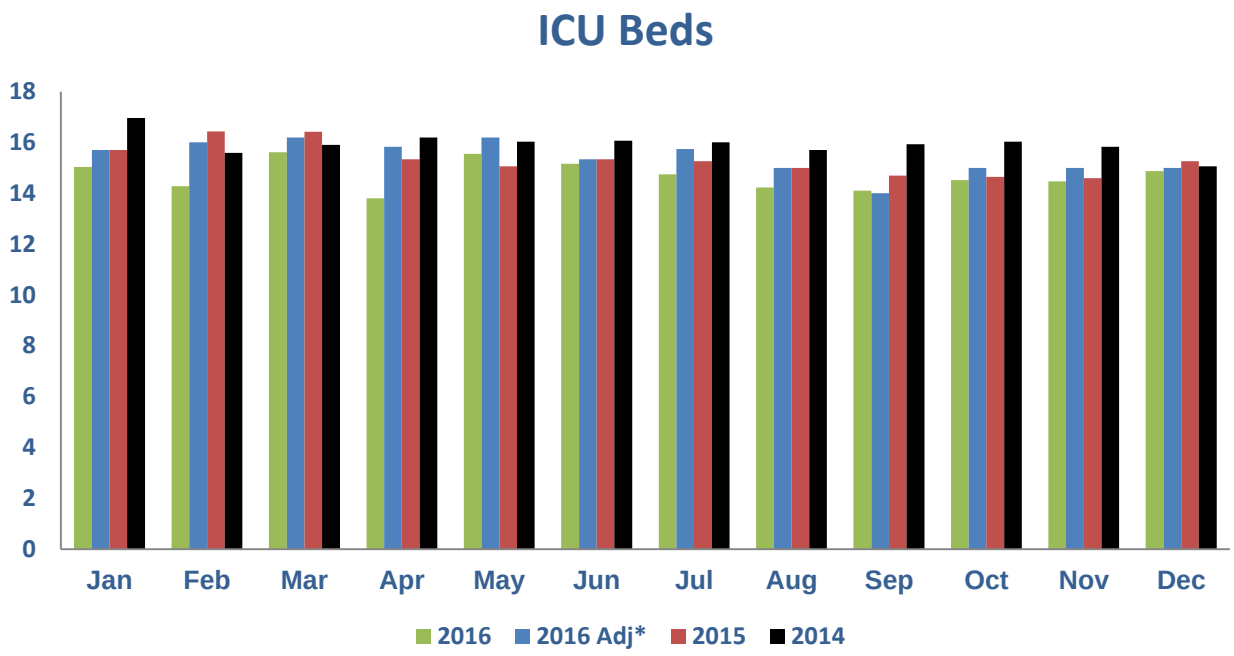
Scheduled Care Ward (SCW) admissions decreased on 2016 when compared to previous year; however, already noted above that length of stay increased. This increase was demonstrated to be caused predominantly by non-elective admissions to SCW (elective surgery ward). This in turn has resulted in fewer admissions to the ward.

Scheduled Day Ward (SDW) admissions have decreased and it is understood that changes in clinical practice is driving this where surgical care is moving toward ambulatory rather than inpatient care and consistent with this is an increase in using beds for “all day” patient admission rather than smaller procedures admitted separately in the morning and afternoon.

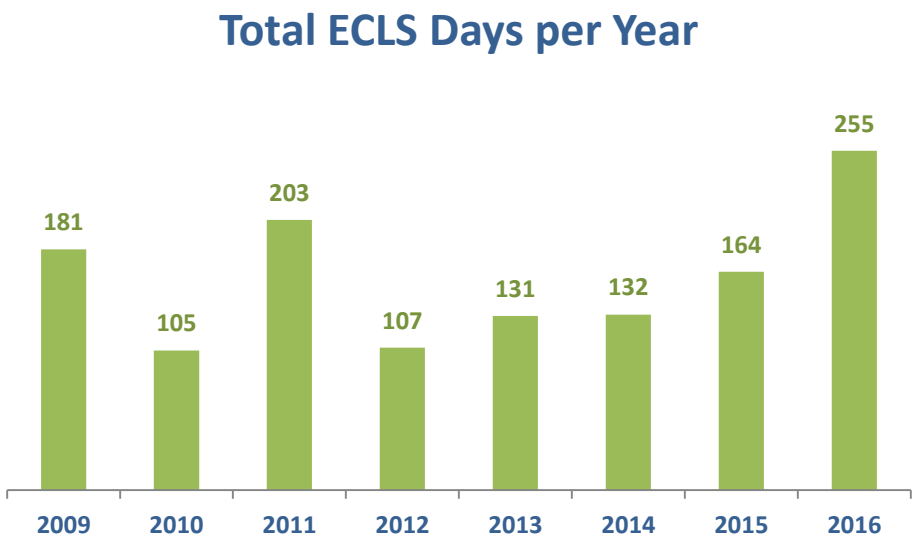




The overall annual trend as depicted previously, illustrates annual growth in critical care admissions. Increase in extracorporeal life support (ECLS) admissions also decreases capacity available for other critical care admissions as depicted below.



Capacity above illustrates average number of beds available in ICU each month; *the 2016 adj column depicts where this has been adjusted to reflect ECLS activity. Furthermore the graph below illustrates the growth in ECLS activity



The extracorporeal life support (ECLS) service provides comprehensive short-term support for adult patients with severe, acute, potentially reversible lung or heart failure. The programme is based in the Intensive Care Unit (ICU) with the care provided by intensive care nursing and medical staff with specific ECLS training.

Intensive Care Unit

Date of admission from 01/01/2016 to 31/12/2016

Age •Intensive Care Unit

Age (Range)	16 - 91
Age (Mean)	59.8
Age (Median)	

Age in Deciles •Intensive Care Unit

Age (Range)	Number of Admissions
0-9	0
10-19	11
20-29	47
30-39	73
40-49	86
50-59	215
60-69	287
70-79	234
80-89	60
90-99	3
100-109	0

High Dependency Unit

Date of admission from 01/01/2016 to 31/12/2016

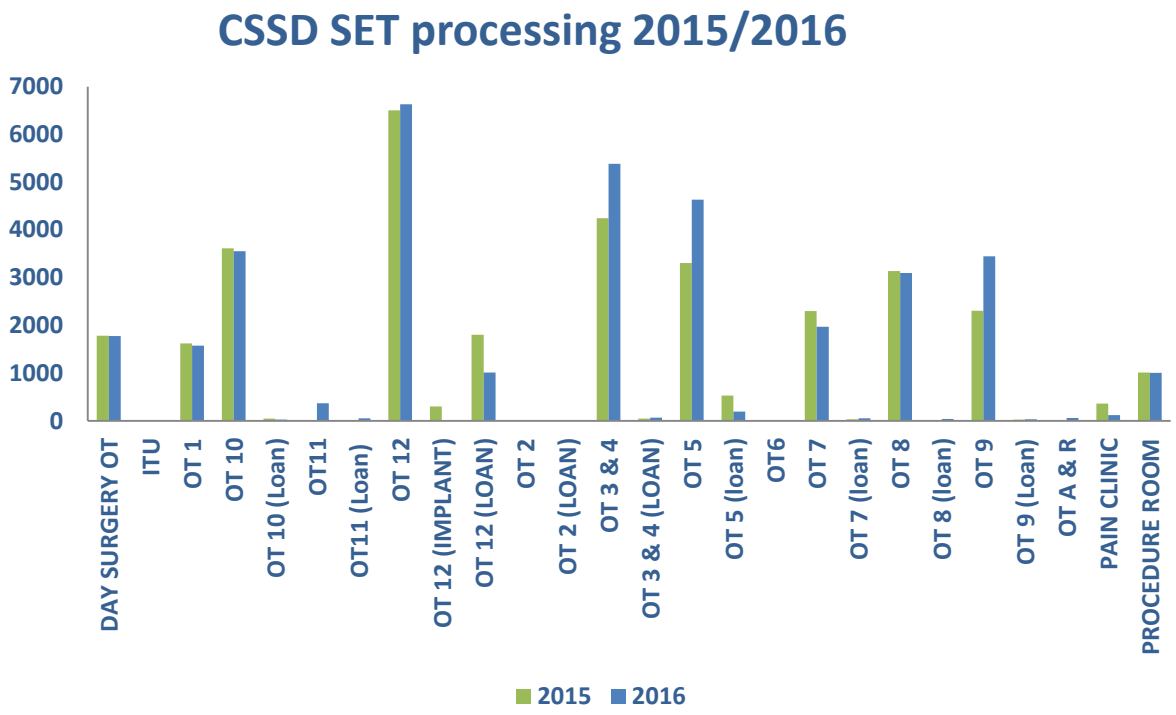
Age •Intensive Care Unit

Age (Range)	16 - 96
Age (Mean)	61.7
Age (Median)	

Age in Deciles •Intensive Care Unit

Age (Range)	Number of Admissions
0-9	0
10-19	15
20-29	38
30-39	100
40-49	133
50-59	233
60-69	300
70-79	311
80-89	145
90-99	15
100-109	0

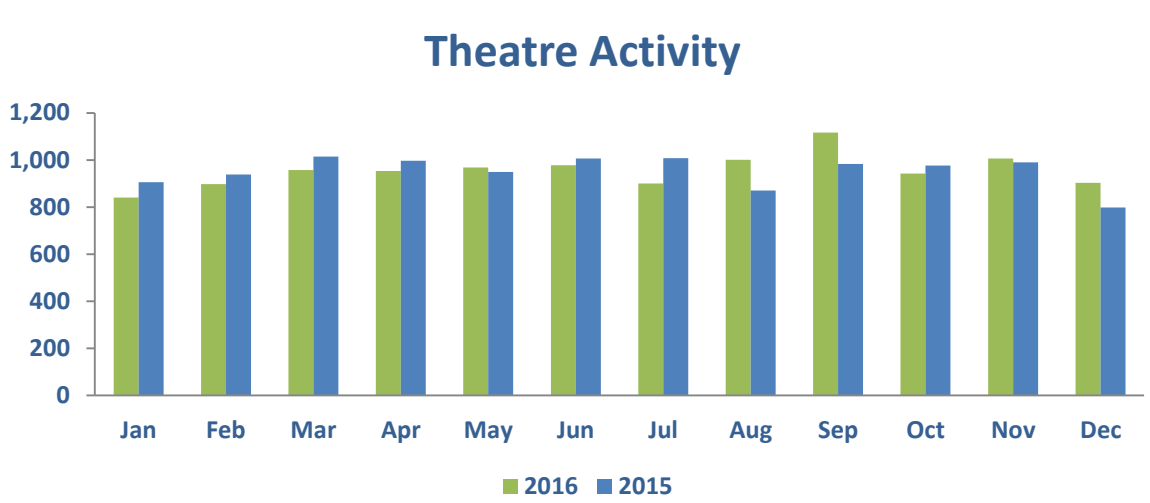
CSSD reprocessing of instrumentation



With the exception of increases due to the opening of Theatres 11 and Theatre 2; activity has remained consistent throughout the other CSSD service users.

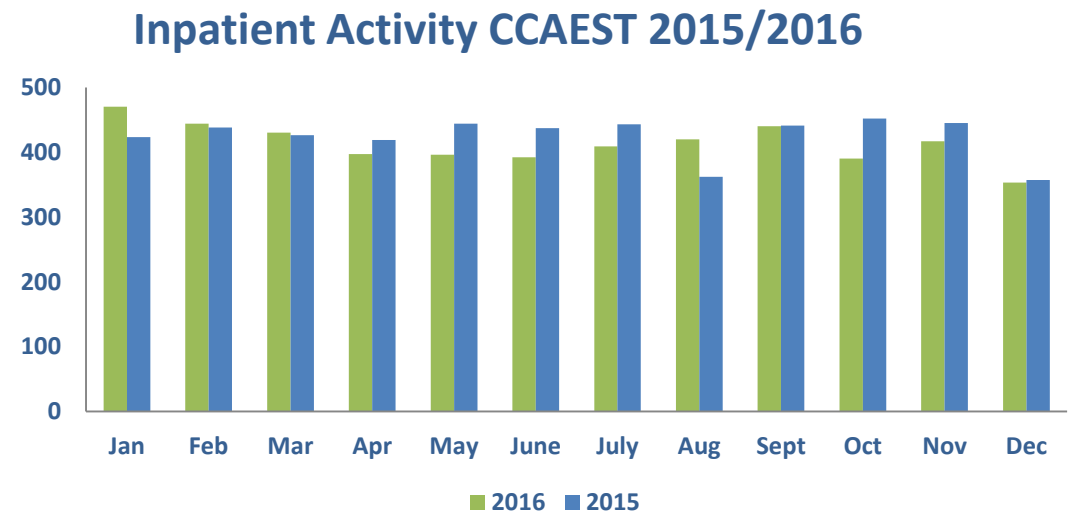
Theatre & Patient Activity

Theatre Activity

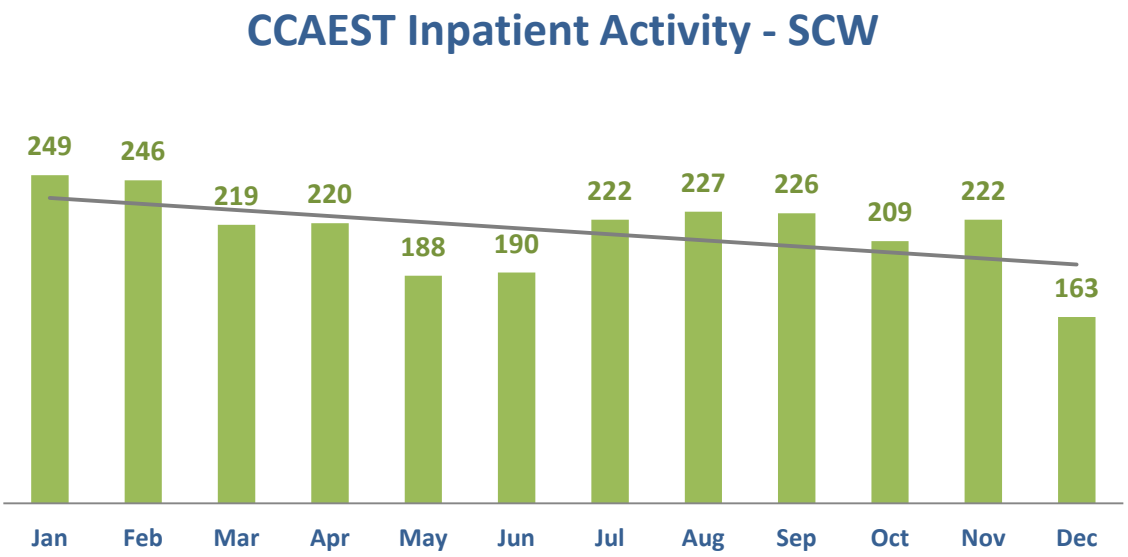


In 2016 OT 11 opened for Spinal activity on a phased basis. Towards the end of 2016 additional initiative lists were carried out in OT2 – this additional activity is evidenced in the chart above. By end 2016 two new operating days were added to OT2 for hepatobiliary and urology surgery.

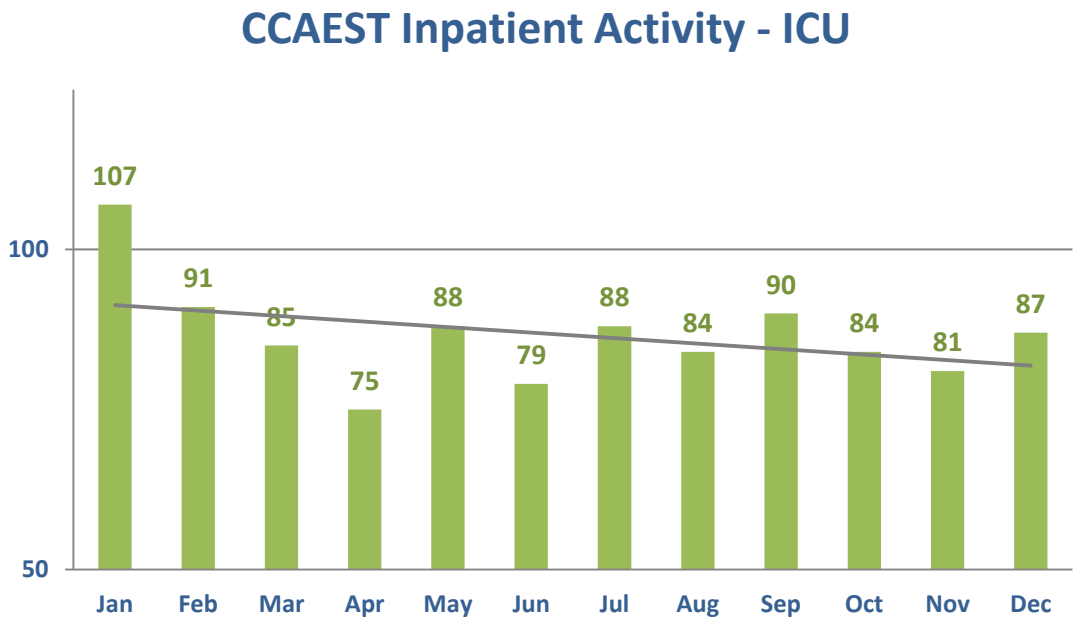
Inpatient Activity

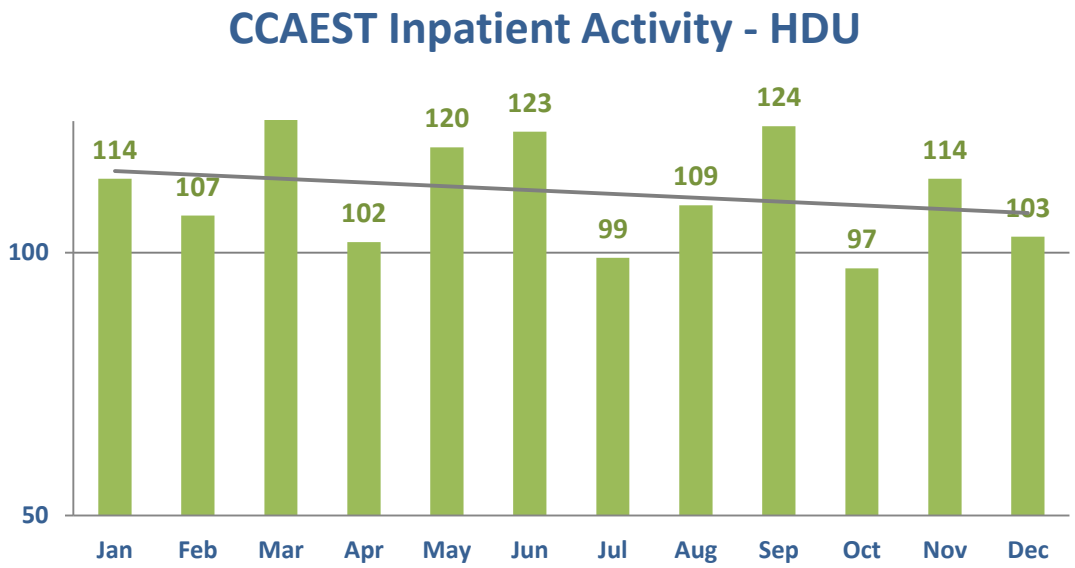


Analysis for Elective surgery ward and Critical Care Units is included below.



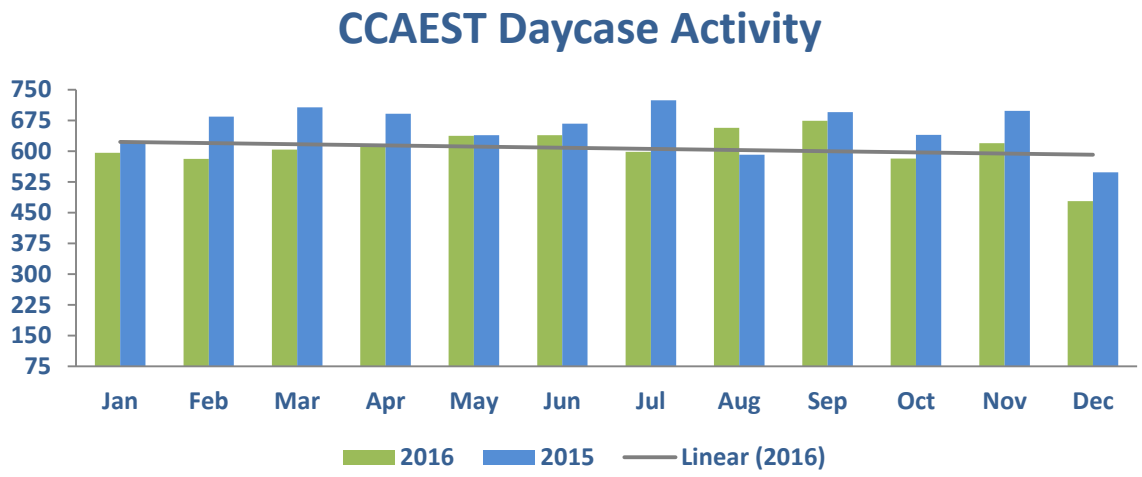
Overall inpatient activity in SCW is down on 2015 with 2,581 admissions in 2016 compared to 2,772 admissions in 2015. This could be attributable to the fact that 63% admissions and transfers to SCW in 2016 were elective patients whereas in 2015 this amounted to 73%. Non elective patients have a longer than average length of stay, therefore reducing beds available for elective admissions in 2016.





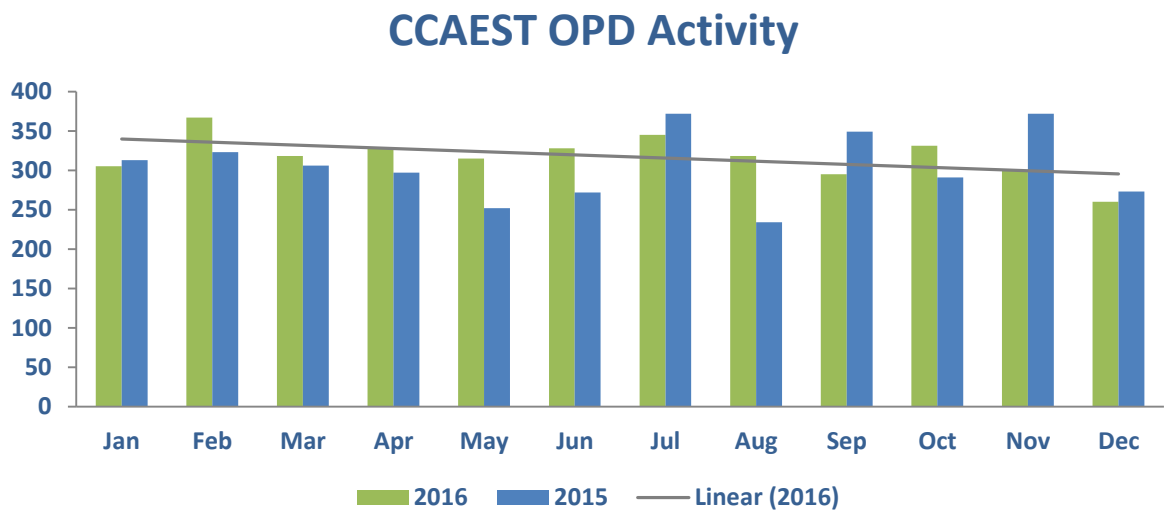
Overall critical care activity has increased and length of stay has reduced when compared to prior year. 2016 saw 2,378 admissions to Critical Care (compared to 2,315 in 2015). Average length of stay in ICU was 4.94 days (compared to 5.53 days in 2015). Average length of stay in HDU has also reduced (3.46 days compared to 3.67 in 2015). There was a total of 255 ECLS days in ICU during 2016 (compared to 164 days in 2015).

Day Patient Activity



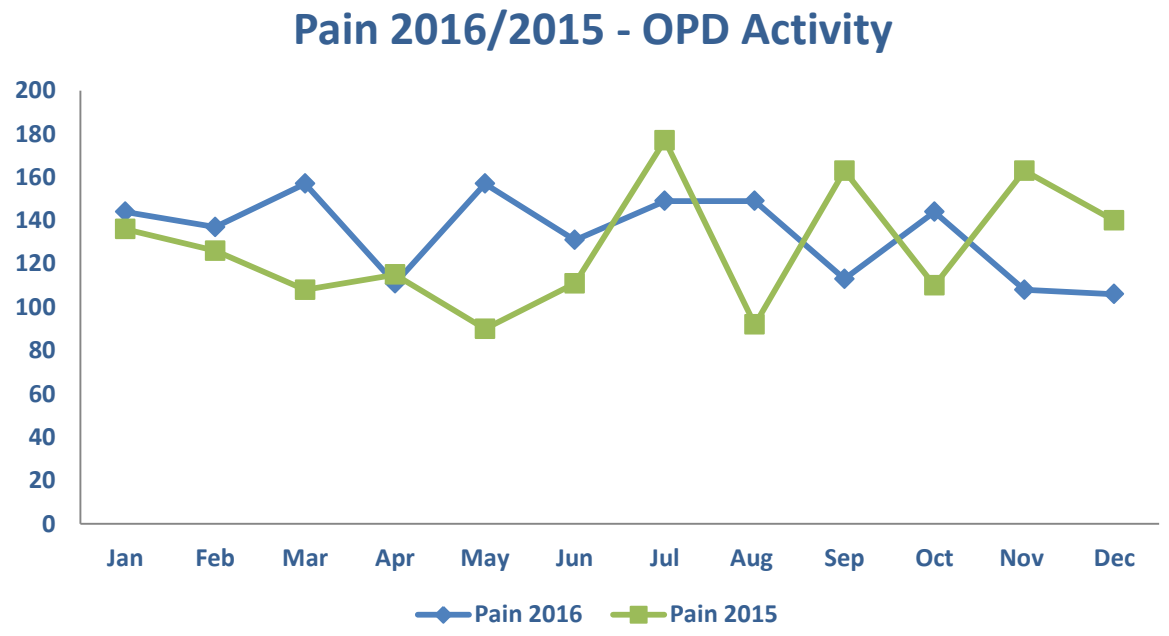
It is understood that the decrease in daycase activity results from a shift from inpatient to ambulatory care with a corresponding increase of day case beds being utilised for the same patient all day (longer recovery period) than more frequent turnover with less acute / complex casemix.

Outpatient Activity



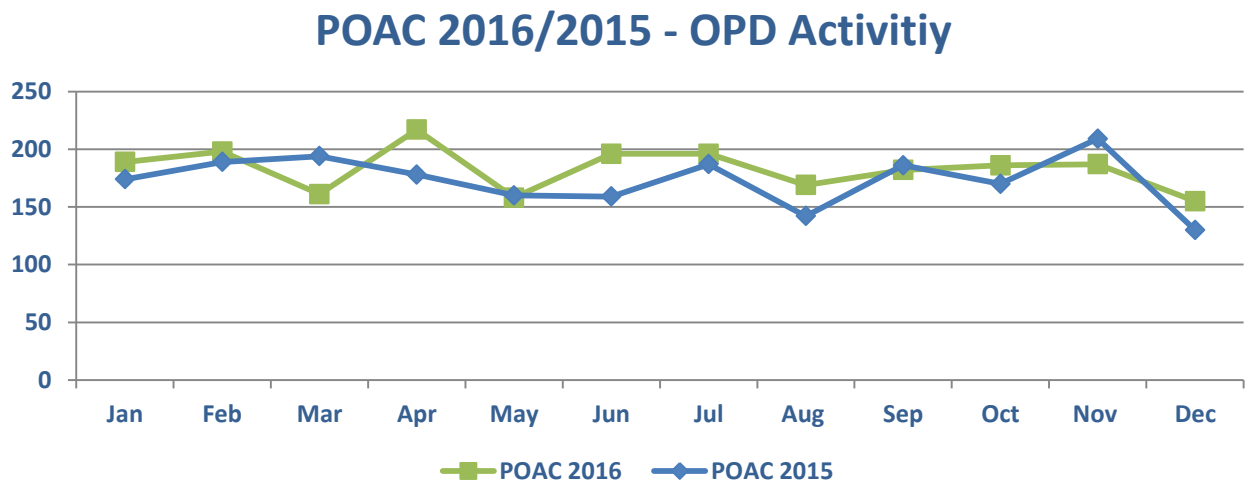
Overall outpatient activity increased in 2016 (3,810 attendances compared to 3,654 in 2015). Analysis by area outlined below:

Pain Medicine



Pain medicine outpatient attendances increase in 2016 (1,606 attendances compared to 1,531 in 2015).

Pre-Operative Assessment Clinic



Pre-operative assessment clinic attendances increased in 2016 (2,204 attendances compared to 2,123 in 2015).

Outpatient activity in both pain and pre-operative assessment clinic has in 2016 become more automated with greater recording on PatientCentre of activity. Pre-operative assessment has both chart review and telephone assigned templates on PatientCentre for the recording of activity and OPD referrals recorded on PatientCentre with the automated recording of DNA activity which had not been recorded in previous years.

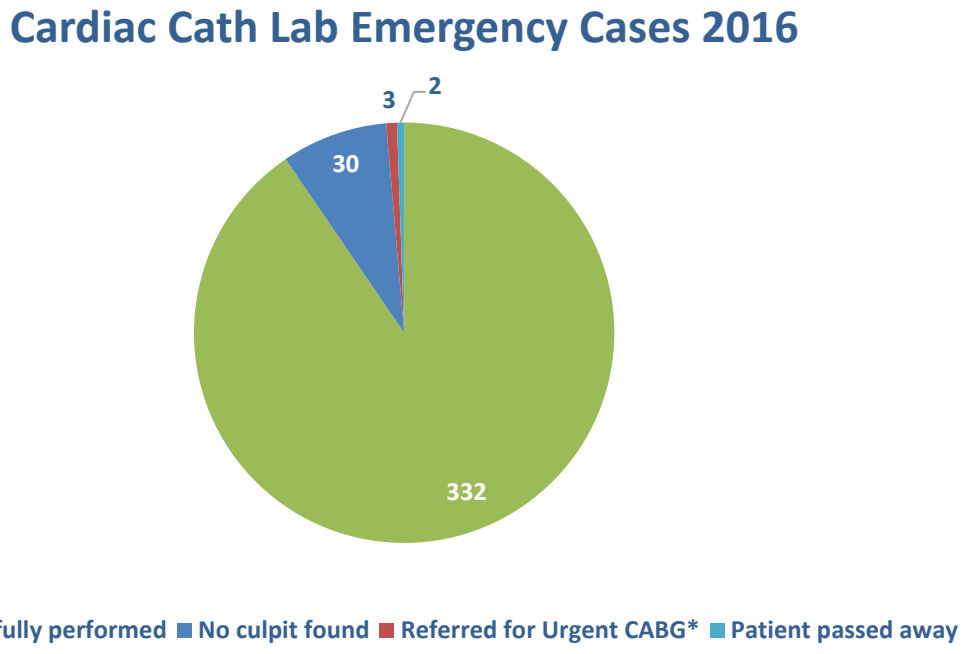
Emergency and Specialty Medicine

Acute Myocardial Infarction (AMI)

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.

357 emergency coronary angiogram/ PPCIs were performed in the Mater in 2016

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.

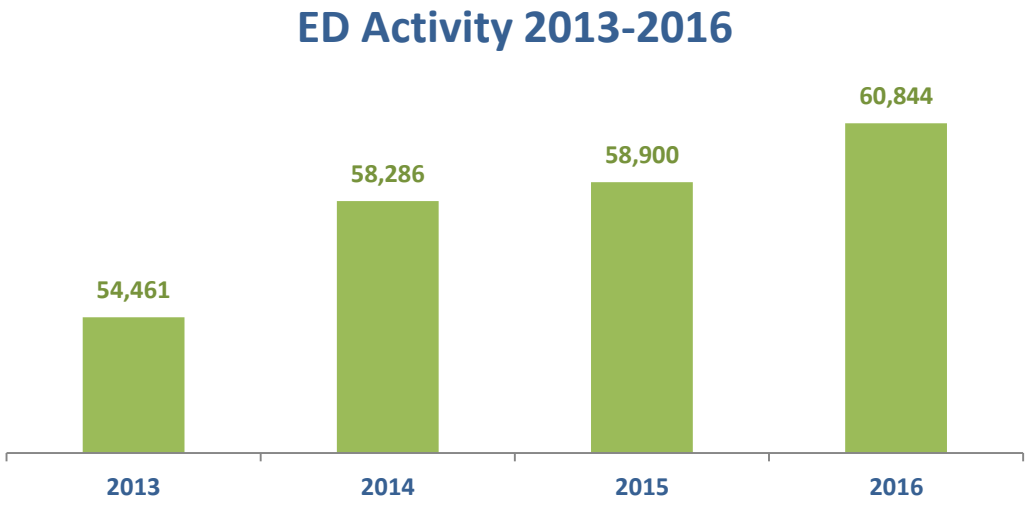


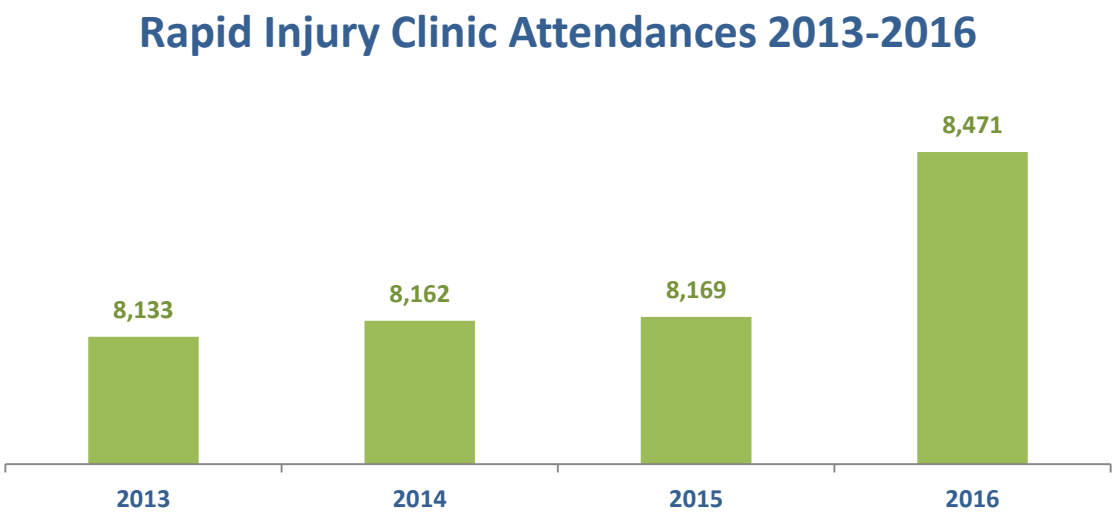
*Coronary Artery Bypass Graft

Emergency Department

The Mater Misericordiae University Hospital's Emergency 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, with a corresponding increased demand for beds the Mater hospital has implemented a number of strategies

- Opened an acute medical assessment unit to manage acute medical admissions for a variety of patients. The Unit is a short stay ward that utilises the multidisciplinary team and community services to facilitate a safe and early discharge.
- Opened a rapid injury clinic that 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.
- Service improvements have reduced the average length of stay (LOS), particularly in the over 70s group, thereby allowing for greater efficiencies and improved access to unscheduled care beds for patients.

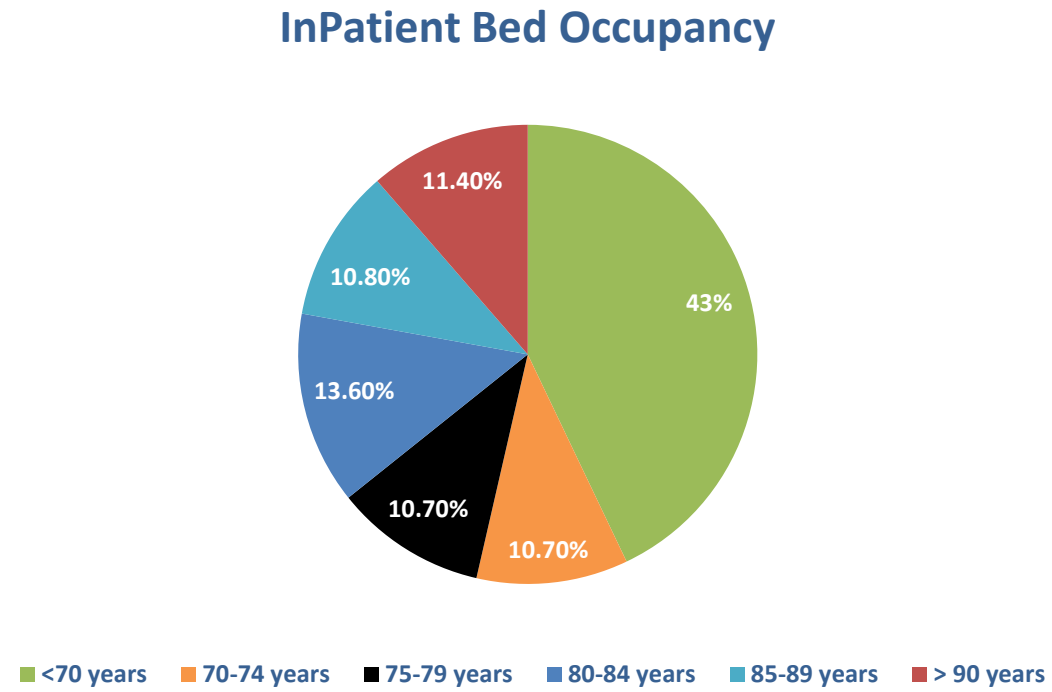


Figure 1 Snapshot of bed occupancy at the MMUH (excluding critical care) December 2016

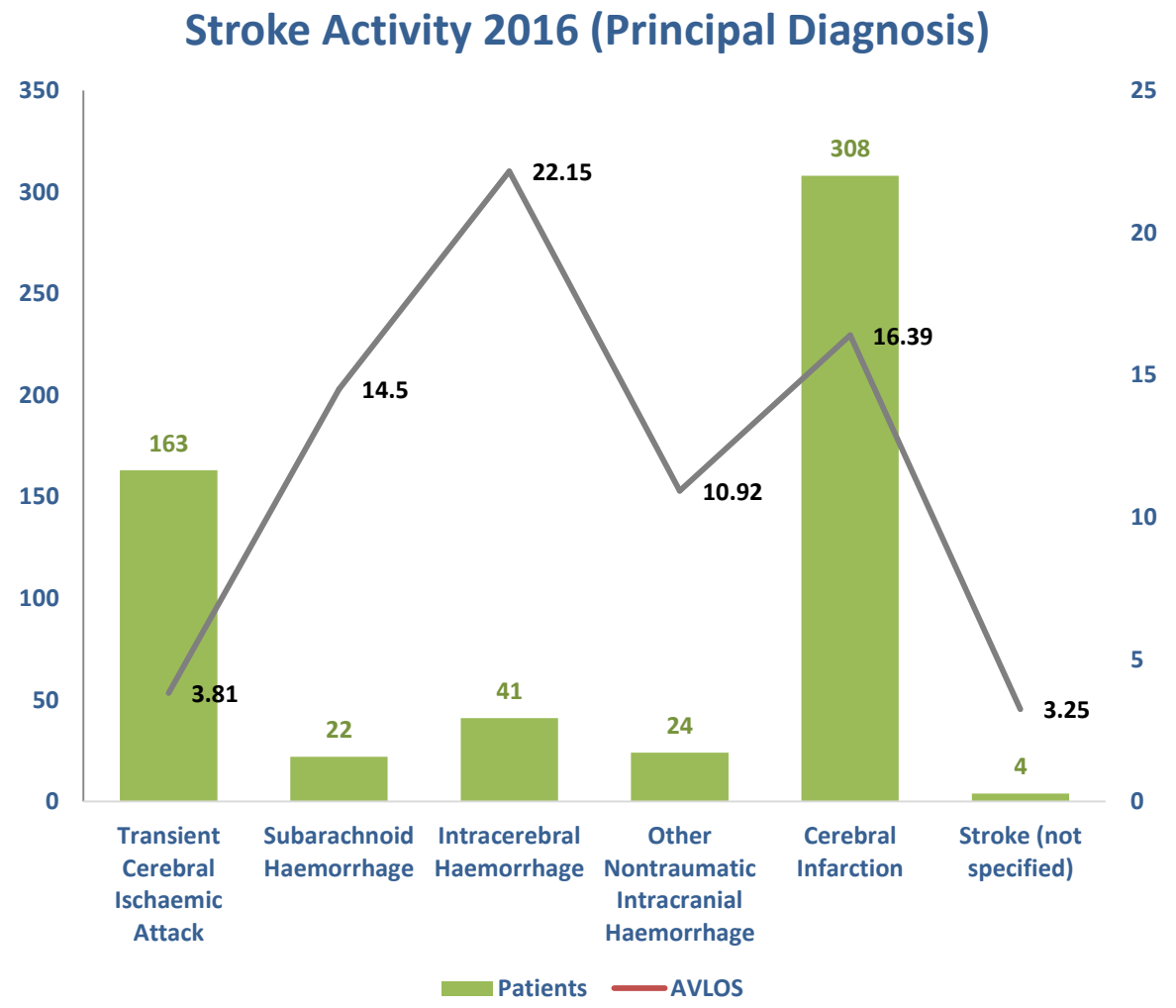
Stroke

Acute Stroke Service

International evidence shows that when stroke care is provided in hospital by nurses, doctors and therapists who specialise in looking after stroke patients and work as a co-ordinated team, that patients who receive this care are more likely to survive their stroke, return home and become independent in looking after themselves.

The Mater's acute stroke service brings experts and equipment under one roof to provide high quality treatment 24 hours a day to provide clear benefits to patients

- Reduce mortality
- Reduced institutionalisation
- Reduced dependency



The stroke service at the Mater Hospital admits acute stroke patients from within the Ireland East Hospital Group catchment area. 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
- Patients are admitted as a priority to the stroke unit where their condition is closely monitored 24/7
- Stroke medical and nursing expertise is available 24/7 x 365
- Smooth transfer of care to onward hospitals (if needed)

Transferring stroke patients (following initial specialist assessment/investigation and MDT assessments are completed and the patients are stable) to appropriately resourced Stroke Rehabilitation Units, where patients can access intensive daily MDT therapies, are known to improve clinical outcomes, reduce disability and mortality

The hospital also runs 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.

National Audit

The Mater Hospital participates in two national audits on stroke

- National Audit of Hospital Mortality Report (December 2016): National Office of Clinical Audit (NOCA)
- Report on the National Stroke Register 2015 (published December 2016): National Clinical Programme for Stroke and HSE Clinical Strategy & Programmes Directorate

National Audit of Hospital Mortality

This National Audit of Hospital Mortality (NAHM) Report from the National Office of Clinical Audit (NOCA) presents hospital mortality from 44 publicly funded acute hospitals. The National Audit of Hospital Mortality report is a significant step to further understanding and, most importantly, promoting the continuous improvement of the quality and safety of care provided in our acute hospitals.

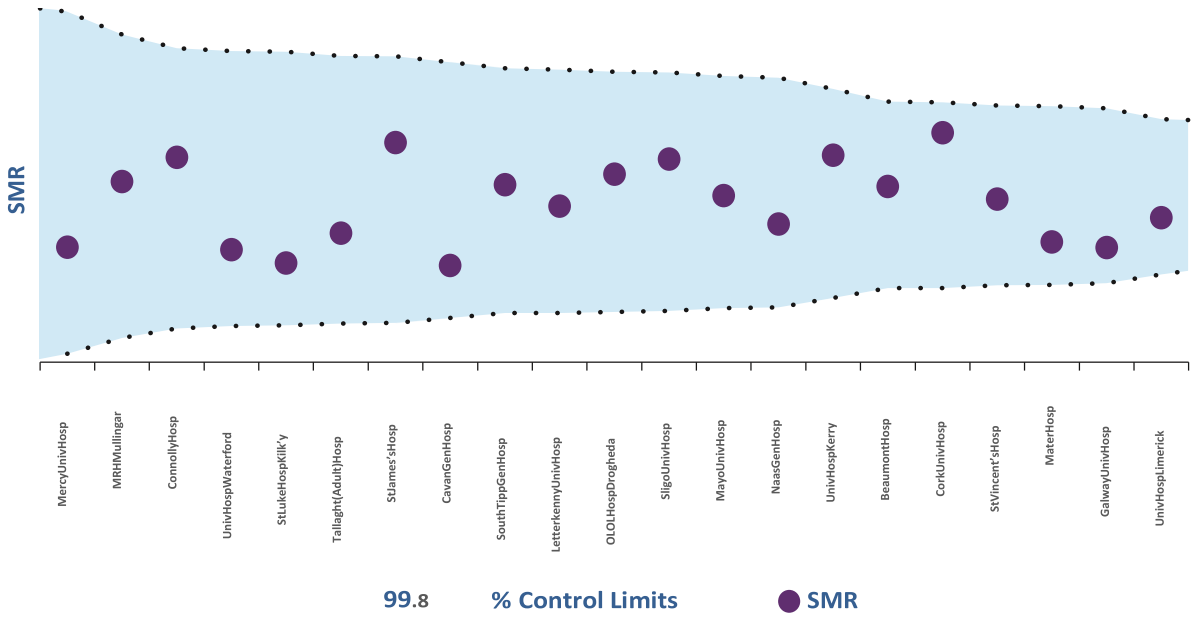
Individual hospitals receive quarterly NAHM updates that they use on an on-going basis to monitor their expected mortality ranges and to trigger prompt investigation regarding areas of concern. This report includes two key stroke diagnoses:

- ischaemic stroke
- haemorrhagic stroke

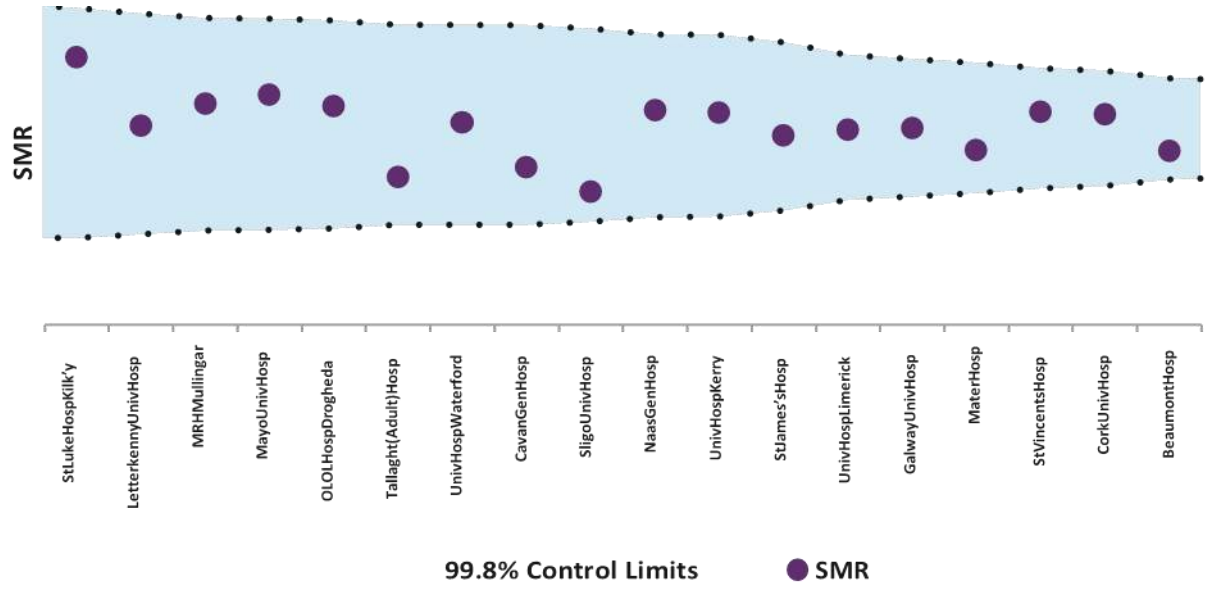
The National Audit of Hospital Mortality measures standardised mortality ratio (SMR) adjusted for population differences. It is a measure of mortality which allows individual hospitals to compare their observed death rate against the death rate that would be expected in that hospital if other variables affecting mortality could be taken into consideration.

$$\text{SMR} = \frac{\text{OBSERVED DEATHS X 100 PER YEAR}}{\text{EXPECTED DEATHS}}$$

National In-Hospital SMR Following Admission with Principal Diagnosis of Ischaemic Stroke, 2015



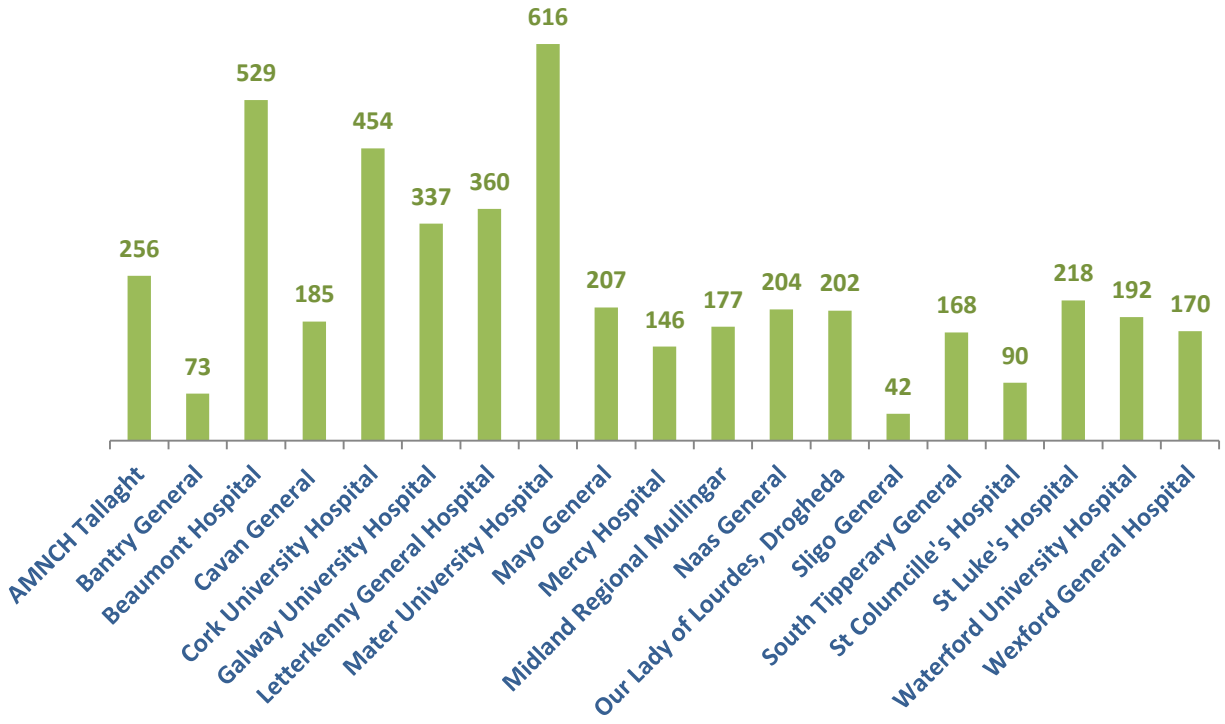
National In-Hospital SMR Following Admission with Principal Diagnosis of Ischaemic Stroke, 2015



National Stroke Register

The National Clinical Programme for Stroke, launched in 2010, included the development of a National Stroke Register as one of its core components. The register is considered a fundamental component of integrated stroke services being developed by the National Clinical Programme for Stroke project team and measures the effect of the implementation of the National Clinical Programme for Stroke.

Number of Cases entered onto the National Stroke Register 2015



The National Clinical Programme for Stroke defined three KPIs and associated targets in relation to acute stroke care. Data for 19 hospitals for 2015 from the National Stroke Register show that performance exceeded each of the targets at these hospitals.

- **KPI 1** The percentage of acute stroke patients who spend all or some of their hospital stay in an acute or combined stroke unit. The national target as per National Service Plan 2013 for the Stroke Programme is 50%
  KPI = 2,132/3,403 = 62.7%

- **KPI 2** For acute stroke patients admitted to an acute or combined stroke unit, the percentage of their hospital stay spent in the stroke unit. The national target as per National Service Plan 2013 for the National Stroke Programme is 50%.
  KPI = 26,019/44,361 = 58.7%

- **KPI 3** The percentage of patients with confirmed acute ischaemic stroke in whom thrombolysis is not contraindicated who receive thrombolysis. The national target as per National Service Plan 2013 for the National Stroke Programme is 9%.
  KPI = 315/2,997 = 10.6%

Centre for Liver Disease

The Centre for Liver Disease is responsible for the management of acute and chronic liver disease in ambulatory patients. A strong history of interest in clinical research means that the team at the Mater have access to and use the most up to date staging and therapeutic techniques and treatments. Patients attending the liver centre can be seen by doctors in one of the three clinics each week or nurses for blood tests, staging elastography (which has largely replaced liver biopsy) or discussions about treatment. In addition, genetic testing is done for haemochromatosis on site allowing a rapid turnaround and improved patient satisfaction.

The centre provides specialist assessment and treatment for patients with liver disease including

- Alcoholic liver disease
- Fatty liver disease
- Haemochromatosis
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Non-alcoholic steatohepatitis (NASH)

Improved Access and Outcomes

New treatments for hepatitis C have dramatically increased the number of patients cured who can be discharged to live the rest of their life “virus free”. There has been a corresponding increase in the numbers treated per month from four to fifteen over the last few years. The team at the liver centre have championed expanding access for patients with the greatest most. Links with the opiate substitution clinics have identified patients in need of urgent treatment, many of whom do not attend hospital. The combination of identifying this untreated population along with delivering the HCV treatment, has saved lives and reduced the number of young people presenting to the emergency department with decompensated liver disease. Ongoing follow-up of these patients is the subject of a PhD thesis which will commence in April 2017.

Regional Referral Centre

The Mater Hospital is a regional referral centre for haemochromatosis, hepatitis B and hepatocellular carcinoma (HCC). In haemochromatosis, our nurse specialist performs venesection at a time suitable for the patient. While we provide genetic testing for haemochromatosis on site enabling a rapid turnaround for patients. In addition, we run a nurse led HBV clinic for “inactive carriers” thereby reducing waiting times and halving the number of visits patients need to make. With the support of interventional radiology and hepatobiliary surgery we can provide all the multidisciplinary treatments (including Sirtex) available for HCC other than transplantation. We work in close collaboration with our IEHG colleagues in St Vincent’s University Hospital for patients requiring transplantation. Follow-up post-transplant can also be provided on the Mater campus.

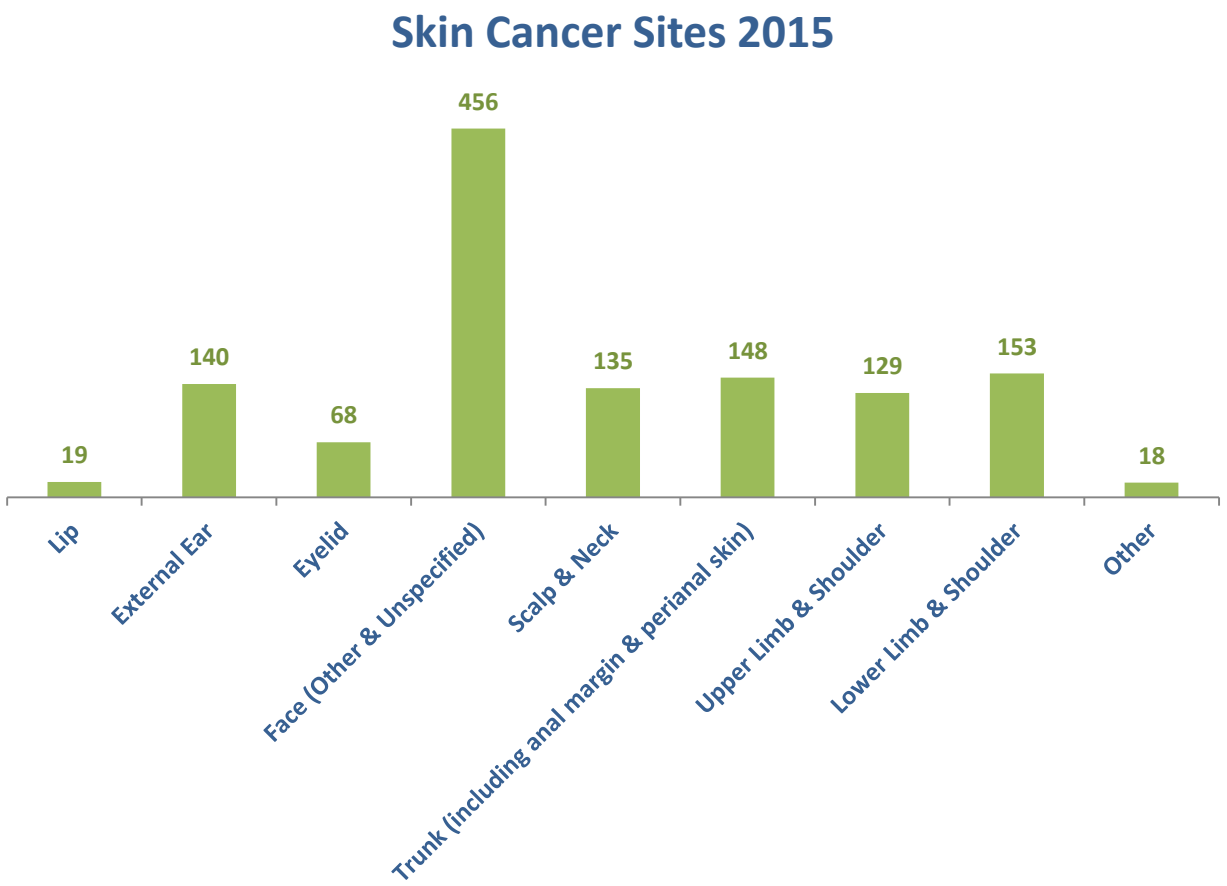
Multidisciplinary Expertise

Cirrhosis, the endpoint of most chronic liver disease, is also a research interest within the liver centre. Patients attending the centre can be confident they are staged appropriately improving the determination of prognosis and timing of transplantation. Decompensation with ascites or variceal bleeding is managed through close links with a dedicated GI ward and the endoscopy unit. Several interventional radiologists can perform transjugular intrahepatic portosystemic shunts (TIPS) and are available out of hours if need be. Working closely with the intensive care doctors ensures that these patients are managed in an appropriate setting to improve outcomes.

Dermatology

The dermatology team provides a comprehensive service for patients with skin problems. Our team diagnoses and treats all kinds of skin disorders and problems, including

- Skin cancers
- Psoriasis
- Eczema
- Acne and rosacea
- Skin conditions that arise from other diseases

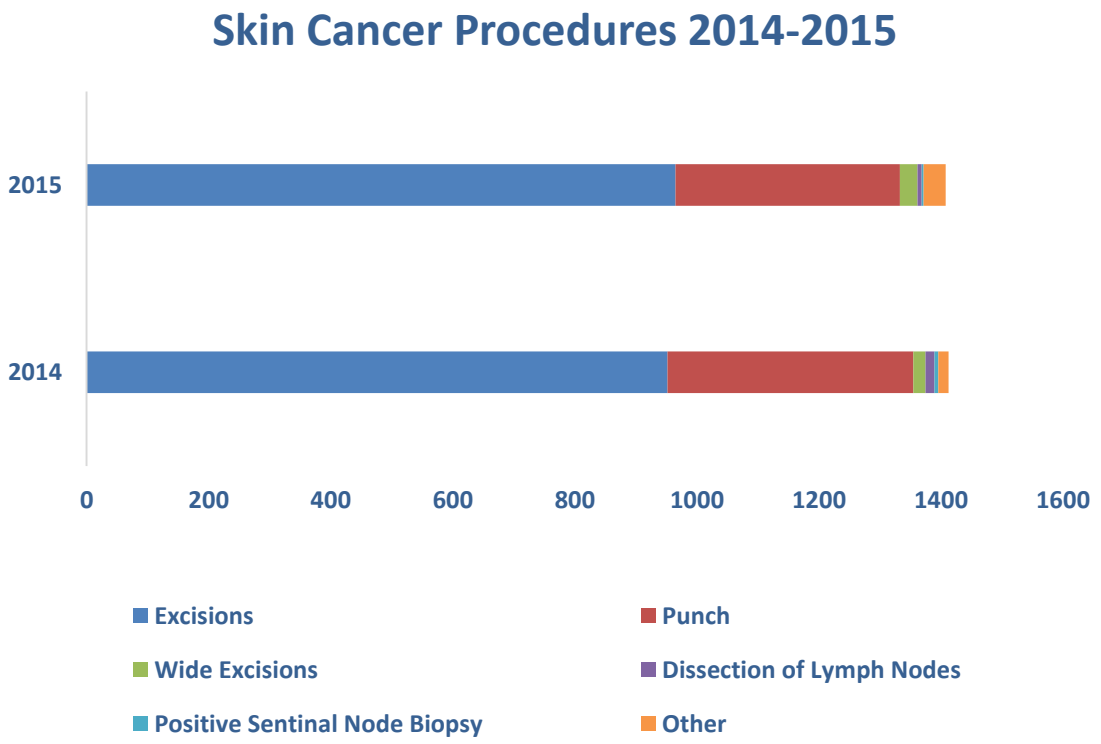


Source Clinical Audit Report 2015, Cancer and Surgery Directorate

1,139 patients were diagnosed with skin cancer in the Mater Hospital in 2015

The service provides a range of clinics

- General dermatology clinic
- Pigmented lesion clinic that screens for skin cancer
- Cryotherapy clinic (treatment option for pre-cancerous lesions)
- Systemics clinic for immunosuppressed patients
- Skin cancer surveillance clinic for our heart and lung transplant patients



Source Clinical Audit Report 2015, Cancer and Surgery Directorate

Dermatology Day Centre

The Mater Hospital is the national photobiology centre and provides a diagnostic and treatment service for people who suffer from UV-associated skin disorders (photosensitivity). In addition, the service provides several tests and treatments in our day centre including

- Phototherapy
- Patch testing
- Photodynamic therapy
- Topical therapy

Gastroenterology

The Mater Hospital's Gastroenterology service offers comprehensive, leading-edge care for patients with all types of diseases of the gastrointestinal tract. The team of four gastroenterologists and a clinical endoscopist use endoscopic procedures to diagnose and treat disorders of the gastrointestinal tract. The hospital is a tertiary referral centre and one of the national leads in ERCP (Endoscopic Retrograde Cholangio-Pancreatography).

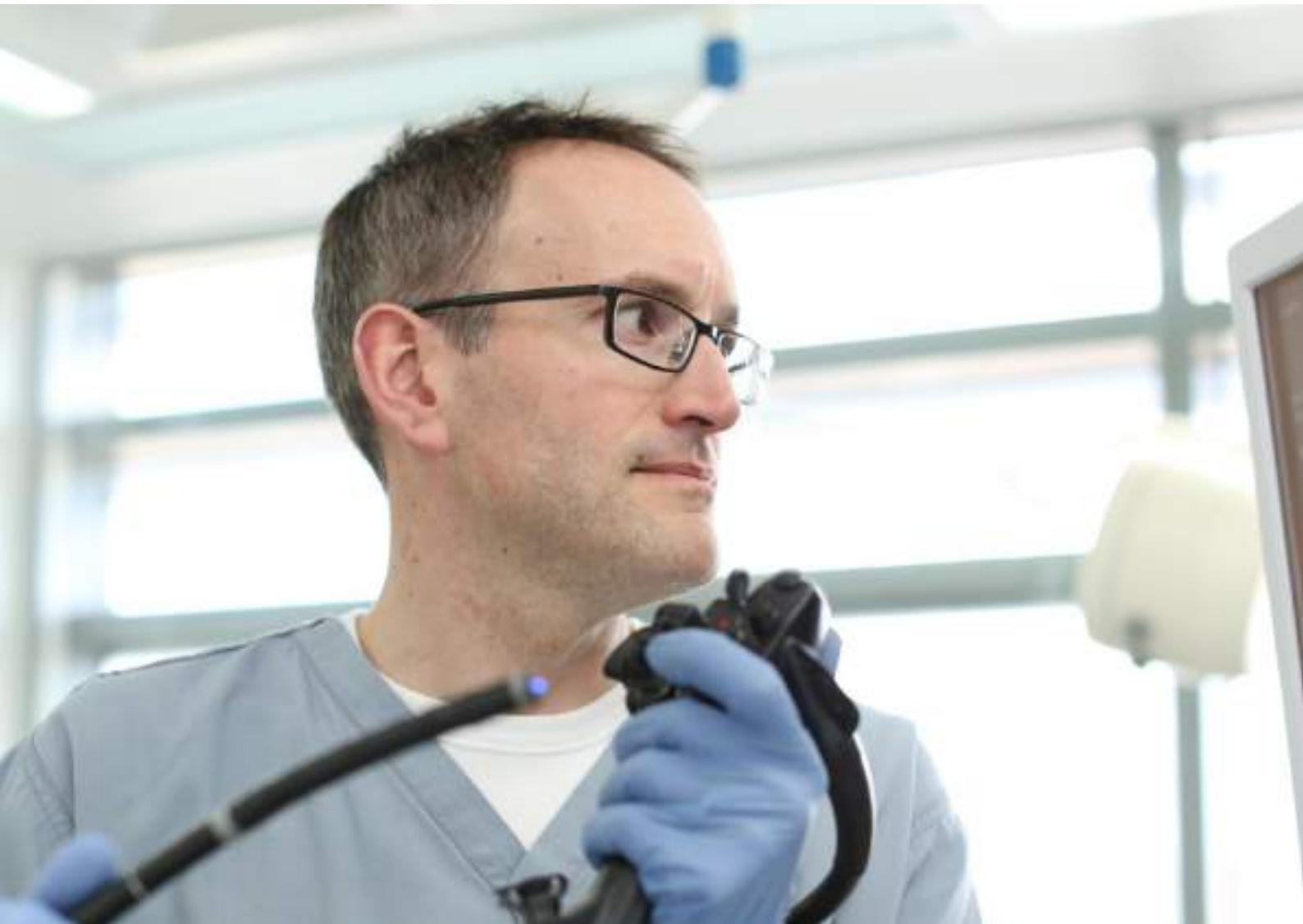
These procedures include

- Gastroscopy
- Colonoscopy
- Flexible sigmoidoscopy
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Endoscopic ultrasound
- Percutaneous endoscopic gastronomy

ERCP is 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.

The service is accredited by the Joint Advisory Group (JAG) on gastrointestinal endoscopy

BowelScreen

The BowelScreen programme began in October 2012 with the aim of offering free screening to men and women aged 55 to 74, on a two-yearly cycle. The purpose of BowelScreen is to identify the population most at risk of colorectal cancer and to target those most likely to benefit from early detection and treatment. Between 2012-2015 BowelScreen was offered to people in the 60-69 age bracket and diagnosed 521 cancers in that period. Over 71% of all cancers detected were stage I or II, meaning that they were detected at an early stage, when they could be more easily treated.

For the team in the Mater Hospital the National Colorectal Screening Programme accounts for about 20 surgeries annually

Family Screening Clinic

Colorectal cancer can run in families, and about 5-10 % of colorectal cancer is thought to be hereditary. The team at the Mater 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.
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 consist of a single individual or up to 20 family members. To date we have assessed 1,823 families since starting this service. The

team collaborates 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 2,700 patients.

Medicine for the Older Person

Individual patient needs are at the centre of our approach to care of the elderly at the Mater Misericordiae University Hospital. Our multidisciplinary team cares for the medical, physical, mental and social care needs of older people and offers a wide range of services to older people from Dublin's north inner city. The service provides care for inpatients, and for a large number of outpatients in our dedicated day hospitals and outpatient clinics and treats a range of conditions including

- Memory decline, as seen in dementia and mild cognitive impairment
- Movement disorders, such as Parkinson's disease
- Falls and blackouts
- Osteoporosis and bone health conditions
- Stroke
- General acute and chronic medical conditions commonly seen in older people, including heart failure, renal failure and respiratory conditions

The service works very closely with other health and social care professionals, including occupational therapists, physiotherapists, speech and language therapists, dietitians and medical social workers. We also provide extended medical and nursing care to community nursing homes in the area, as well as an outreach service to older, vulnerable patients in the community.

The services provided include

- Rehabilitation service
- Dedicated specialist geriatric rehabilitation wards in the Mater Hospital and close links with off-site rehabilitation facilities in St Mary's Hospital, Cappagh National Orthopaedic Hospital and Clontarf Hospital
- Post-acute care service (PACS) in Fairview
- Orthogeriatric service
- Inpatient care for people over 65 admitted with fractures, who are referred by the orthopaedic team and orthogeriatric outpatient clinics
- Long-term care planning and assessments
- Warfarin clinic service in our day 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 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

Post-Acute Care

The Mater Hospital is an acute hospital that specialises in treating patients who have urgent, short-term medical needs. Some patients reach a point of being medically stable but are not quite ready to go home or to go to a nursing home. For these patients, we provide a specialised service called post-acute care where we provide support to patients and their family until they reach their full potential and can be discharged from hospital.

The Mater has three post-acute care service units. These are the Synge, Yeats and Joyce units which are located in Fairview Dublin 3 and are all managed and staffed by the Mater Hospital. 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.

Psychiatry for Older Persons

The Mater's psychiatric service assesses and treats people over the age of 65 who have developed mental health problems for the first time and offers specialist mental health services for people who live in the Dublin postcodes 1, 3, 7, 9, 11 and 15.

The range of problems dealt with include

- Anxiety and related disorders
- Depression and elation
- Psychosis
- Dementia when it is associated with behavioural problems such as aggression and agitation or with symptoms such as depression, delusions and hallucinations

The service is often provided to patients living in their own home

Patients who are suffering from a very severe mental illness but aren't suitable home-based care and treatment may be admitted to the service's specialist acute psychiatric unit in St Vincent's Hospital, Fairview for a short period of intensive treatment.

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 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 adult metabolic service in the Mater Hospital provides multidisciplinary care for patients with known or suspected metabolic disorders. These disorders include phenylketonuria (PKU), galactosaemia and lysosomal disease. We help patients to manage their conditions with optimal diets that match their metabolic needs.

The NCIMD investigates suspected cases of metabolic disorders referred from hospitals throughout the country and provides specialised treatments for these patients

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 team, with input from medical, nursing, dietetic, psychology, administration, social work, physiotherapy, laboratory staff and play specialist.

Neurology

The Department of neurology integrates compassionate care with a rigorous research focus. The department is a leader in the treatment of diseases of the nervous system, and the leading academic department in Neurology in Ireland. At the hospital, we provide an inpatient service, including diagnostic testing for neurological conditions and support for their management, along with an outpatient service includes movement disorder, epilepsy, multiple sclerosis and stroke clinics.

Dublin Neurological Institute

The Dublin Neurological Institute (DNI) 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.

Specialist Clinics

The DNI provides a multidisciplinary, high quality and compassionate care to all patients with neurological conditions. 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

In addition, our clinical nurse specialists are available to give support and advice to the Mater Hospital's neurology patients in between their clinic visits. They also run weekly nurse-led clinics including

- Parkinson's Disease
- Multiple Sclerosis
- Epilepsy
- Headache
- Deep Brain Stimulation (DBS)

Neurological Physiotherapy

Neurological rehabilitation is a sub-specialisation of physiotherapy requiring a specialist neurologically trained physiotherapist. Neurological physiotherapy involves the treatment of people with movement and function disorders that have originated from problems within the body's nervous and neuromuscular system. These conditions often manifest themselves as muscle weakness, poor balance and coordination, uncontrolled muscle spasm and tremors, loss of function and decreased sensation. Neurological physiotherapy sessions are available by appointment and free of charge for all Mater Hospital neurology patients.

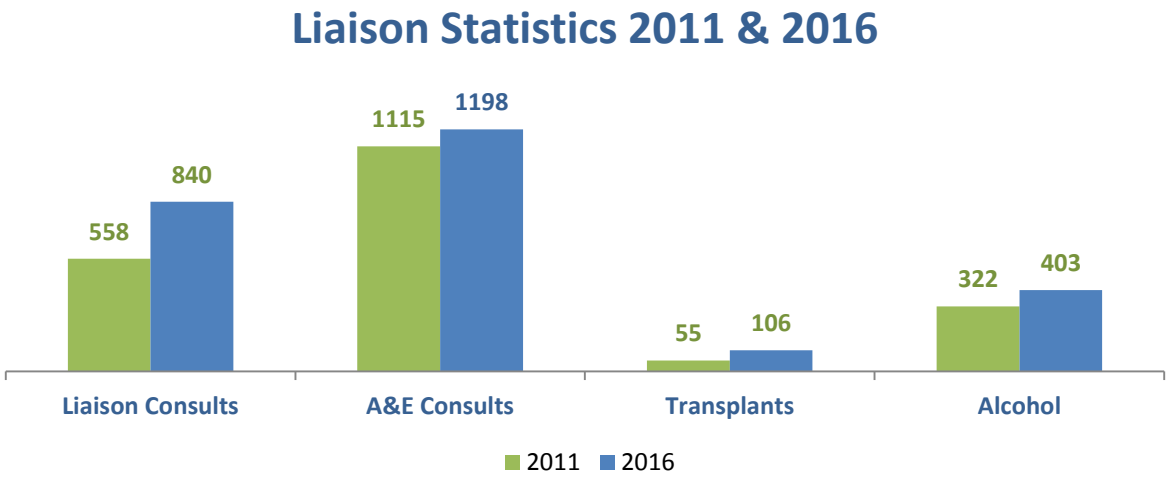
Psychiatry

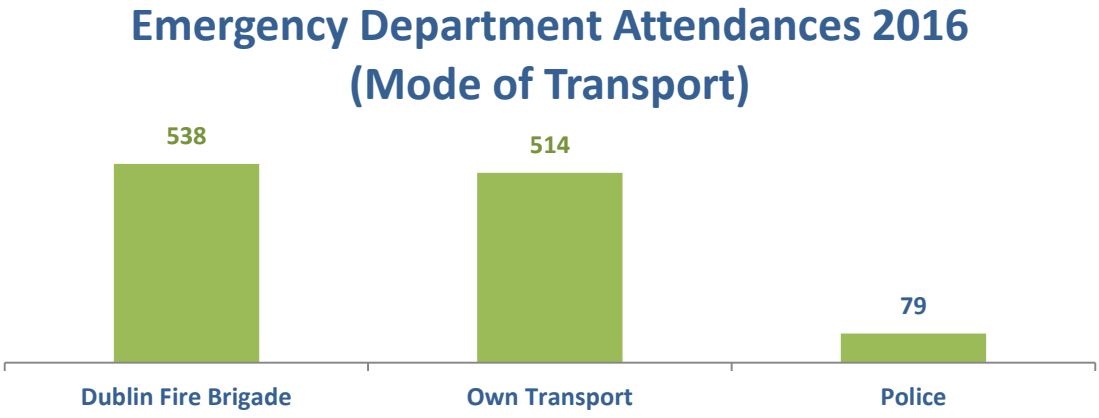
Four different psychiatry services are linked to the Mater Misericordiae University Hospital.

- Department of Adult Psychiatry
- Addiction Psychiatry
- Community Adult Mental Health
- Psychiatry for Older Persons

Adult Psychiatry

The adult psychiatry service provides psychiatric and psychological assessment and care to Mater Hospital inpatients as well as follow-up outpatient services to patients after discharge from the hospital. In addition, the service provides assessment of acute psychiatric presentations in the emergency department, on the wards and in outpatient clinics.





In 2016, over 1,100 consultations conducted for patients were seen in the Emergency Department

The team provides a specialist service to the National Heart and Lung Transplantation Unit and is made up of

- Consultant psychiatrists and trainee psychiatrists
- Psychologists
- Clinical nurse specialist
- Alcohol counsellor
- Secretarial staff

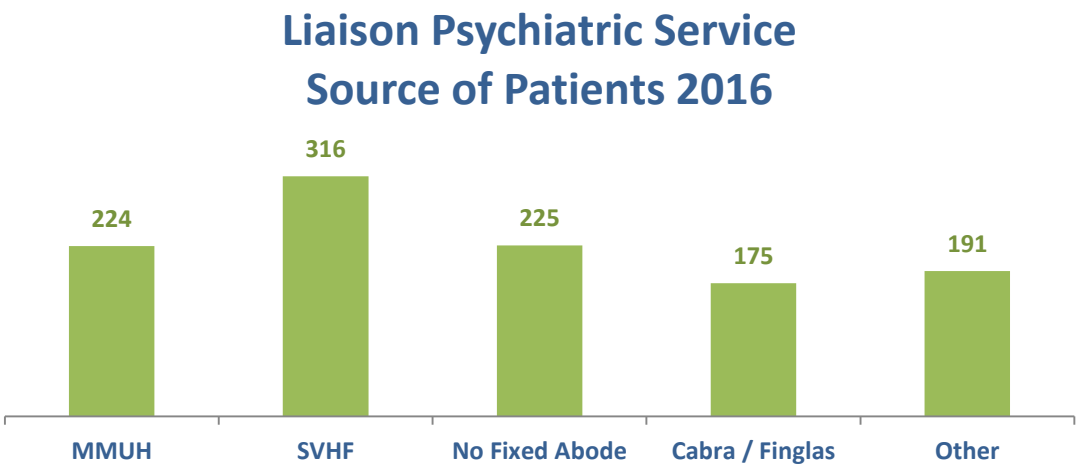
Addiction Psychiatry

The medical psychiatry service offers expertise in the assessment and management of substance use disorders for inpatients. The addiction psychiatry unit provides addiction treatment for patients with a problem with alcohol or drugs who are under the care of the infectious diseases service, and we work closely with the other psychiatric services at the Mater Hospital.

The addiction psychiatry service offers training placements to University College Dublin (UCD) medical students during their psychiatric attachments. We have also run addiction modules in medical and nursing postgraduate courses.

Community Adult Mental Health

The community adult mental health services offer a number of services, including community psychiatric nursing, psychology, occupational therapy, social work and psychiatry. The psychiatric service treat all general adult psychiatry conditions (depression, psychotic illnesses and stress related conditions) and operates a day hospital in Drumcondra and run clinics at Centric Health on the Navan Road. St Aloysius Ward in the Mater Hospital is a dedicated unit for patients who require hospital admission.



Education and Research
One of the two UCD professors of psychiatry is based in the Mater Hospital. About 150 students participate in lectures in psychiatry and teaching is provided to physiotherapy students and nurses. A weekly journal club is held and a monthly clinical update is run by the consultant staff.

The psychiatry service also participates in the hospital grand rounds – a weekly meeting where we review recent research and developments in clinical practice.

Rheumatology

The specialty of rheumatology involves the diagnosis and management of a broad range of conditions affecting the musculoskeletal system, in addition to a number of systemic autoimmune disorders. The team at the Mater Hospital have developed subspecialty clinics to manage patients with complex rheumatological disorders

- Gout and crystal disease
- Early Arthritis
- Connective tissue disease
- Ankylosing Spondylitis

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

Clinic Changes

In recent years, the management of rheumatoid arthritis (RA) has been transformed by new therapeutic agents. In 2016, the team at the hospital introduced Treat to Target RA Clinics to help improve the treatment of rheumatoid arthritis. International evidence has shown that treating to target in RA improves outcomes, with an ultimate goal of disease remission. The service also introduced capacity scheduling for most rheumatology clinics. This has lessened the number of patients who 'Do Not Attend', and allowed for the development of cancellation lists, improved patient flow through the service and minimised the waiting list. Also in 2016, video capillaroscopy was introduced to our clinical service as a tool to assist with the diagnosis of certain types of connective tissue disorders.

Radiology

The Radiology Directorate provides advanced imaging services to the patients and clinicians within the hospital, to GPs in the catchment area, and a tertiary care service to hospitals within and beyond the Ireland East Hospital Group.

Our radiology service is led by highly qualified radiologists with dedicated fellowship training from world-leading medical centres. The multidisciplinary team includes radiologists and radiographers, and nursing, physics, administration and support staff.

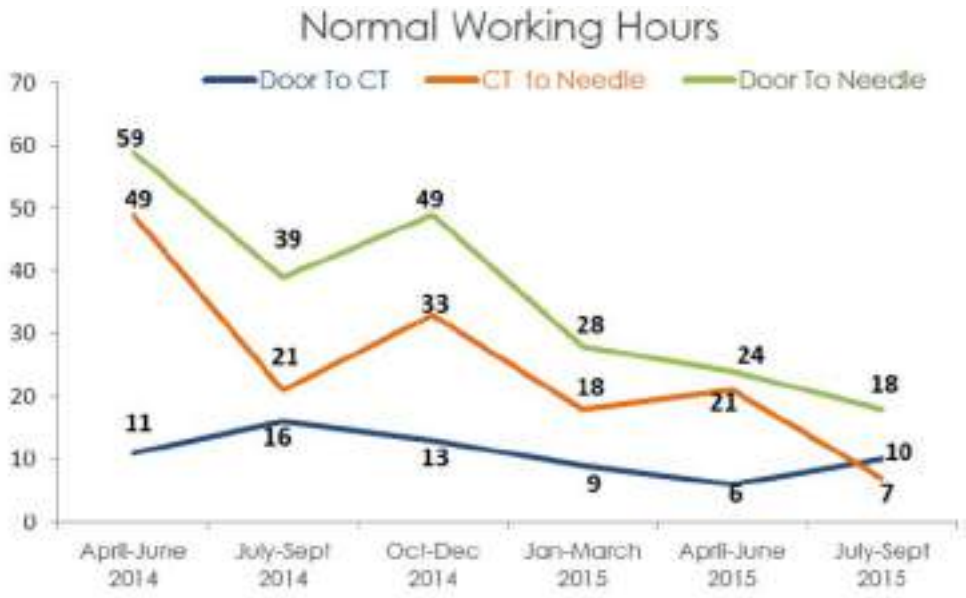
The department is actively involved in ongoing clinical research and training to ensure the best possible service is provided to all who access our service. The introduction of new technologies and equipment is always done with a patient focus very much to the fore.

Our range of services includes 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. Since 2014 the stroke unit, working closely with the radiology department, the emergency department and the Mater's Lean Academy, has made a concerted effort to reduce the door to needle time for stroke patients.

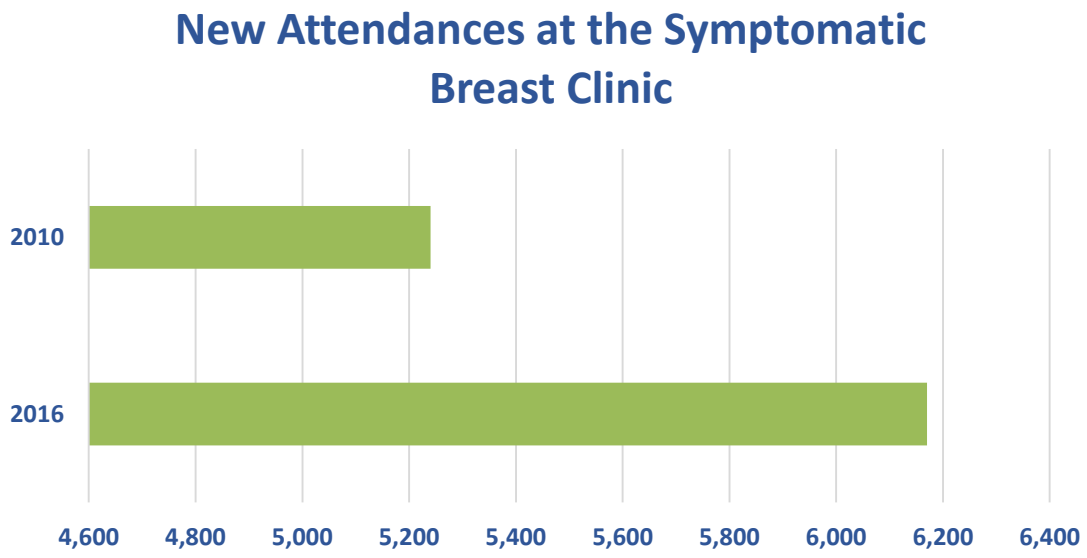
The radiology team of consultants and radiographers provide high quality patient centred radiology services to the Emergency Department 24 hours a day.



Earlier administration of intravenous recombinant tissue plasminogen activator after the onset of stroke symptoms is associated with greater functional recovery

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 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.

Nuclear Medicine

Nuclear medicine is a type of medical imaging that uses small quantities of radioactive material to diagnose and determine the severity of a disease within the body. It is also used to treat a variety of diseases. 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

Nuclear imaging is a safe, painless, and cost-effective way of gathering information that may otherwise be unavailable or require a more expensive and risky diagnostic test

One unique aspect of a nuclear imaging test is its extreme sensitivity to abnormalities in an organ's structure or function. It is used in the diagnosis, management, treatment and prevention of serious disease and often identifies abnormalities very early in the progression of a disease long before medical problems are apparent.

Although nuclear imaging is commonly used for diagnostic purposes, it also has valuable therapeutic applications such as treatment of hyperthyroidism, thyroid cancer, blood imbalances, and any bony pain from certain types of cancer.

Cardiac MRI

The Mater Hospital is a national leader in the management of complex structural heart disease. In patients with suspected structural heart problems a cardiac MRI may be recommended. The images produced by the use of magnetic resonance and a special dye help diagnose structural issues including

- the size of holes in the heart
- whether a cardiomyopathy exists
- or the extent of any damage to the heart muscle

Cardiac MRI offers superior images of the heart muscle when compared to other Imaging techniques such as echocardiography (cardiac ultrasound) or CT (computed tomography) and can produce high-quality moving or still images and is usually performed to offer complementary information that other exams cannot provide.

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

Personalised Treatment Approach

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. Our priority is to treat each patient with the most appropriate treatments available.

Below are some of the most common interventional radiology procedures performed in the Mater

- **Tumour ablation procedures** These minimally invasive treatments destroy tissue using extreme temperatures. Ablation may be used to treat tumours or alleviate symptoms. Examples of ablation procedures are radiofrequency ablation and microwave ablation.
- **Liver-directed therapies** This targets treatment directly to liver tumours, sparing nearby healthy tissue and reducing some side effects. Some therapies we use to treat liver tumours include Yttrium-90 radioembolization and chemoembolization.
- **Vascular work** Our team uses minimally invasive techniques to place stents, stop bleeding and block the flow of blood to or from tumour tissue to support chemotherapy and radiation therapy response.
- **Port and PICC line placement** Many patients are given temporary ports and PICC lines to minimise the number of needle pricks during chemotherapy treatment or diagnostic blood work.

Close interaction between the HPB service, Diagnostic and Interventional Radiology and Pathology is crucial to the delivery of HPB services for patients with hepatocellular carcinoma and for patients whose colon cancer has spread to the liver (stage IV).

CT Waiting List Initiatives

Routine Non-Contrast Scans

As part of the radiology directorates waiting list initiative the CT department added 4 extra non-contrast patients in main CT department Mon-Fri and an extra 2 urgent patients in ED totalling 14 OPD slots Mon-Thurs. Prior to the implementation of this the waiting time for a routine scan was 365 days (1 year). Following implementation of this service the waiting time for a routine scan was decreased by half to 180 days (6 months).

Haematuria Clinic

Over the last few years the increase in attendance at the OPD haematuria clinic combined with the requirement of most patients to have imaging to investigate the underlying cause, has led to an increased demand on the CT service. An initiative to manage the increased demand was undertaken in 2016 and involves 2 OPD patients to be prepped in the clinic i.e. cannula inserted and renal profile checked. They are then brought to the emergency department CT scanner and scanned on the day of their clinic attendance with an aim of having a report within an hour post scan.

Radiographer-Led CT Colons

In line with international experience the radiology directorate commenced a radiographer-led CT colon project in 2016. One radiographer was trained, as part of the ongoing service improvement programme, with the aim of training all CT radiographers under radiologist supervision. The purpose of this project is to minimise disruption to workflow of patients in the CT department, as radiographers will be able to perform the procedure without assistance from the radiologists, and thus enable the examination to be completed in a more time efficient and cost-effective manner. It also provides an excellent opportunity for radiographers to advance their practice within the CT department and for continuous professional development.

Interventional Radiology Lean Project

Peripherally inserted central catheters (PICC) are a type of central venous catheter mainly used with oncology patients and those with chronic diseases. They allow long-term central venous access without the need to have a surgically or radiologically inserted tunneled central venous catheter or chest/brachial port. They are most often used in patients who require long-term IV administration, like chemotherapy or antibiotics, or parenteral nutrition; or in cases where peripheral access with standard IV cannulas is difficult or impossible.

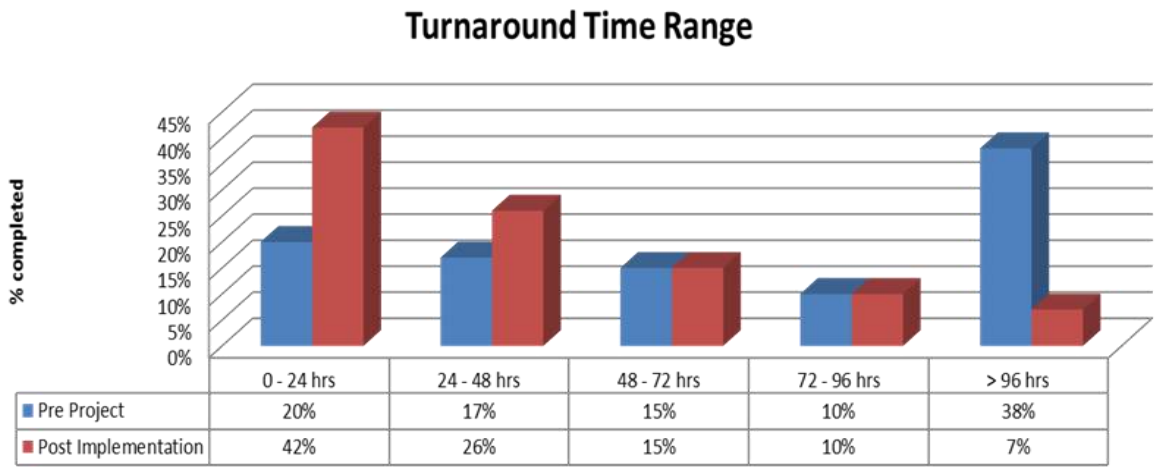
In 2016 the interventional radiology team at the Mater commenced a lean project with the aims of

- Improving response time for PICC line procedures by 1 day average
- Reducing variation in service and introduce consistency

Project Interim Results

Turnaround Time (TAT)

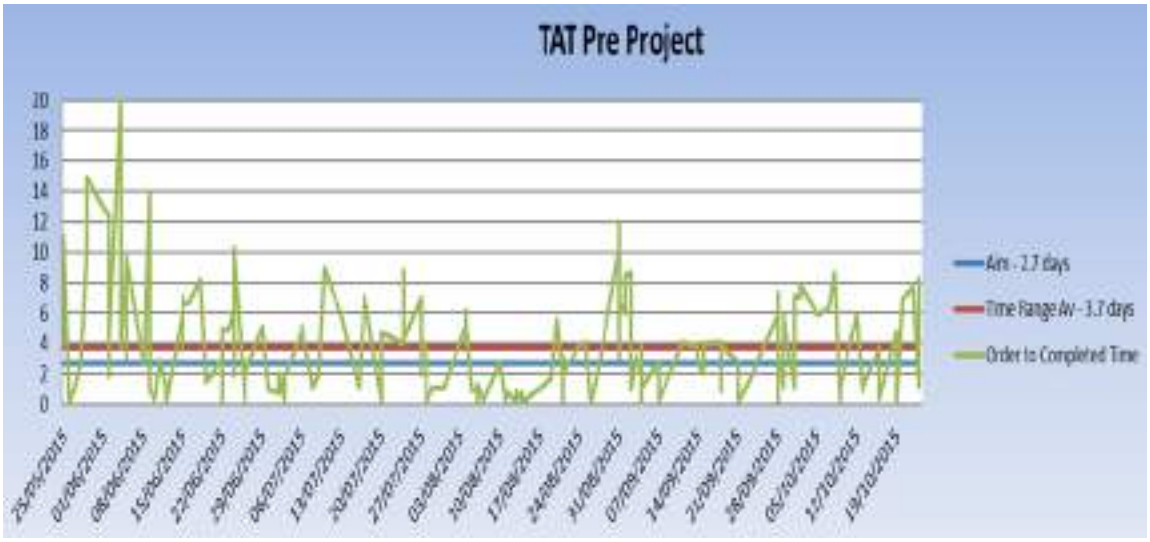
- Average TAT 2015 3.7days; Approx. 10 patients per week
- Average TAT Post Implementation 2016 1.8 days Approx. 13 patients per week

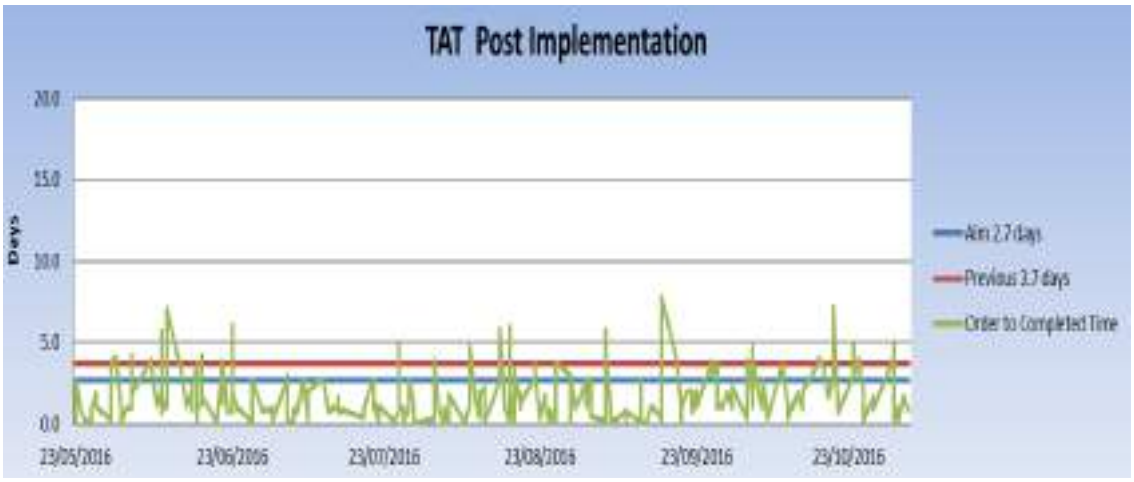


	0 - 24 hrs	24 - 48 hrs	48 - 72 hrs	72 - 96 hrs	> 96 hrs
Pre Project	20%	17%	15%	10%	38%
Post Implementation	42%	26%	15%	10%	7%

Reduce Variation Comparison of productivity week 21 to 44 2015 vs 2016 showed a 39% increase (83 patients) in number of PICC lines completed

Reduced Variation





Results achieved through changes to work flow and work practices – no additional resources were provided

Pathology

The pathology directorate at the Mater Misericordiae University Hospital provides local, regional and national diagnostic services in all laboratory medicine disciplines. The directorate is committed to providing a high quality, efficient, cost effective and comprehensive pathology service to its users who include Mater Misericordiae University Hospital clinicians, other hospitals and general practices in the area.

The case–mix has become increasingly more complex over time and a greater emphasis on oncologic pathology (colorectal, breast, gynaecological, lung, urological and head and neck cancer) is expected to continue into the foreseeable future. Laboratory resources are devoted to high quality analysis and reporting on these patients' biopsies and resected specimens. Significant experience has been built up over time in both the hospital's consultant histopathologists and medical scientific staff in the analysis of these specimens.

Multidisciplinary team meetings take place on a weekly/ monthly basis relating to patients from oncology, breast, BreastCheck, gastrointestinal, urology, skin, haematology, ENT, urological, lung and melanoma services.

There are six departments, supported by central specimen reception and the pathology office.

Blood Transfusion

Blood transfusion provides a routine and emergency blood grouping and compatibility testing service for surgical and medical patients and provides a stock of manufactured blood products. It includes haemovigilance and traceability functions.

Clinical Chemistry and Diagnostic Endocrinology

Clinical Chemistry and Diagnostic Endocrinology provides a routine and emergency service in clinical chemistry and immunodiagnostics and involves the investigation and monitoring of endocrine, bone and reproductive disorders.

Haematology

Haematology provides a routine and emergency service in haematology and investigates haematological abnormalities. The department also provides a routine and specialised coagulation service.

Histopathology/Cytopathology

Histopathology/Cytopathology provides a diagnostic histopathology and cytopathology service (excluding cervical cytology). The service includes BreastCheck and the symptomatic breast service and the other cancer specialties.

Immunology

Immunology provides a diagnostic service for the investigation of disorders affecting the immune system, including a multiple myeloma service, autoimmunity and rheumatic diseases testing, HIV monitoring, allergy investigations and immunochemistry

Microbiology

Microbiology provides a routine and emergency diagnostic service in the investigation of bacterial, fungal and parasitic infection. It also contributes to disease surveillance and infection prevention and control.

The directorate provides clinical advice on the ordering of examinations and on the interpretation of examination results, with an emergency service available outside of routine working hours for defined testing services

Designated Cancer Centre

The Mater Misericordiae University Hospital is one of the eight nationally designated cancer centres. Pathology provides a key service as part of the cancer team, with a complete and accurate pathology report crucial to getting a precise diagnosis and deciding on the best treatment plan for each individual patient.

Patients at the Mater Hospital benefit from the experience and expertise of our pathologists. The pathologist determines the precise type and severity (stage) of the cancer and may also work with other members of the care team to recommend a treatment strategy that could include observation, surgery, chemotherapy, radiation therapy, or a combination of these approaches.

For most types of cancer, a biopsy is the only way to make a definitive cancer diagnosis. The most common types of biopsy include

- incisional biopsy, in which only a sample of tissue is removed
- excisional biopsy, in which an entire lump or suspicious area is removed
- needle biopsy, in which a sample of tissue or fluid is removed with a needle

As cancer care becomes more personalised, obtaining a biopsy sample that provides enough material not only for diagnosis but for genetic analysis is critical.

The pathology report details the type of cancer involved, whether it's invasive and able to spread to other parts of the body, and how far the cancer has penetrated into surrounding healthy tissues. It also includes information about

- Histologic grade, which compares the size, shape, and other characteristics to those of your healthy cells.
- Mitotic rate, which details how often the cancer cells are dividing.
- Lymph node status, which documents whether the cancer has spread to nearby lymph nodes or other organs.
- Stage, or extent of cancer in the body based on the tumour's size, location, and spread. The pathologic stage, along with the results of other diagnostic tests, guide individualised treatment options.

Health and Social Care Professions

Overview

The Health and Social Care Directorate was created in late 2013 as part of the wider hospital reorganisation into a clinical directorate structure. The directorate comprised the following speciaties

Audiology
Clinical Nutrition & Dietetics
Occupational Therapy
Physiotherapy
Podiatry
Clinical Psychology
Medical Social Work
Speech & Language Therapy

Audiology

The audiology department's academic activity in 2016 included

- Monthly contribution to the Royal College of Surgeons in Ireland (RCSI) vestibular physiotherapy seminars.
- Part of the practical training and education programme of University College Cork and the University of Manchester MSc audiology students.
- Part of the education programme at the Royal Victoria Eye & Ear Hospital Vestibular Physiotherapy Advanced Course
- Presented the hospitals clinical outcomes at the HSE National Bone Anchored Hearing Aid (BAHA) Audit Day.
- Ongoing training of UCD students' through weekly audiology seminars, dementia education days and the Introduction to Hospital Life transition year MMUH scheme.

A total of 2,987 new and return patients accessed audiology services in 2016

The department's service delivery on behalf of the National BAHA Programme has been recognised by the Health Research Board in October last year. While the audiology and ENT departments were delighted to receive a Healthcare Innovation Award at the Irish Medical and Surgical Trade Association (IMSTA) Med Tech awards ceremony for our multi-disciplinary auditory implant clinic. The team have also been rewarded the Irish Middle Ear Implant Programme Pilot site funding, which will be implemented in 2017.

Clinical Nutrition and Dietetics

In 2016, the integration of the International Nutrition Care Process was continued in the Mater. This is a significant change in each step in the dietitian assessment, nutrition diagnosis, implementation of a nutrition plan, and monitoring process. All dietitians are now using the assessment step following appropriate training. Audit of use with 24 items in each Dietitian assessment, indicates a compliance rate of 92%.

Last year also saw dietitians take over responsibility for the governance of the parenteral nutrition (PN) service with a corresponding increase in workload. Work was undertaken with pharmacy, medical teams, nursing and parenteral nutrition providers to revise all policies and procedures.

The use of parenteral nutrition increased by 31% last year with an average of 12.7 patients per day, associated with hyperthermic intraperitoneal chemotherapy (HIPEC), complex ICU patients, transplantation and major colorectal and cancer surgery. There was also an increase in the number of patients requiring home parenteral nutrition, with 4 new patients being planned for Home PN in 2016. An increase of 50% on 2015 new starts. There were up to 10 Home PN patients being supported by the dietitian service at any point in time.

The metabolic service also expanded in 2016 as the second dietitian post was available for the full year. The large phone service and blood monitoring service included 1,900 metabolic blood results reported to patients by the dietitians and over 800 phone sessions with patients.

The formalisation of the second senior dietitian post allowed the renal dietetic service to be re-structured, and a database is being used to ensure that renal patients receive equity of access based on diagnosis when stable, and then prioritisation when nutrition issues are identified.

Occupational Therapy

There was a 20% increase in patients seen in 2016 by Occupational Therapy

Pharmacy

The Pharmacy Department provides a suite of patient centred, safety-oriented services with cost effectiveness as a cornerstone.

Service delivery is provided in five discrete services

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

Drug Expenditure Procedures

Spending on hospital medicines is increasing at a greater pace than any other type of healthcare expenditure. The Mater Misericordiae University Hospital has developed a number of strategies to manage medicines access and expenditure, incorporating the strategic goals and the values of our organisation.

Pharmacy Award

Jennifer Brown, Pharmacy Head of Operations, was the winner of the Excellence in Hospital Pharmacy Award at the 2016 Clanwilliam Pharmacist Awards held in Dublin's Mansion House on November 26, 2016, the first winner for the Mater Misericordiae University Hospital at these awards.

In October 2016, the updated Procedures Governing the Activities of medical representatives within the MMUH were implemented to guide the appropriate relationship between Medical Representatives and MMUH healthcare staff, and to enhance medicines management and MMUH drugs formulary adherence.

In December 2016, the Policy for Participation in Compassionate Use Programmes (CUP), Compassionate Access Programmes (CAP), Early Access Programmes (EAP) & Named Patient Programmes (NPP), Mater Misericordiae University Hospital, was developed and implemented in recognition of the increasing hospital participation in these programmes. The policy aims to minimise the clinical risk and governance issues and the financial liability for the institution, as well as considering the resource pressures linked to participation.

The Drug Expenditure Monitoring Review Committee works to evaluate, monitor and measure drug expenditure in the hospital. This is achieved through the on-going review of the monthly 'Top 50' drug report to identify drug expenditure trends and the need for intervention. The committee also assessed applications for drug use that will/may have a budgetary impact on the hospital, maximised reimbursement and funding for drugs and ensured that value for public expenditure principles are applied.

Dispensary Services

Innovation, New Devices and New Services
Porters using hand held tablet devices connected to Wi-Fi
Porters continue to be involved in the top-up process for bulk pharmacy products, including fluids and enteral and sip nutritional supplements, hospital-wide.

In 2016, the dharmacy department porters transitioned from using palm pilots to hand-held tablet devices, allowing for instantaneous requisition transmissions to the dispensary using Wi-Fi.

Temperature monitoring standards in line with international standards
Temperature monitoring standards in the Pharmacy Department were reviewed in 2016 and are now fully in line with Health Products Regulatory Authority (HPRA), the Pharmaceutical Society of Ireland (PSI) and the World Health Organisation (WHO) standards. The process involved

- Departmental review of probe locations to optimise positioning.
- Procurement of a new pharmaceutical grade refrigerator and freezer, and a new condenser for the Pharmacy Department cold room
- Whole department temperature mapping.
- Policy development and implementation to ensure on-going compliance.

New Dispensary Services/ Procedures
Controlled Drug (MDA) supply is a labour intensive process governed by legislation and must be carried out under the supervision of a pharmacist. In 2014, a Lean process improvement project commenced and over 18 months this has saved € 17,807 due to a reduction of 660 Nursing hours & 160 pharmacy hours in MDA supply processes. Additionally, in 2016 the department further streamlined the process leading to the introduction of an electronic report compiling daily transactions to facilitate the extensive documentation requirements. This new procedure has led to further saving of 150 minutes per week of pharmacist time.

Implementation of Electronic Parenteral Nutrition (PN) Ordering
The Pharmacy Department and Department of Clinical Nutrition and Dietetics collaborated on an initiative to improve the ordering process for hospital parenteral nutrition (PN). A long established manual process was in place involving the dietitian sending paper prescriptions to the pharmacy department, followed by order generation in pharmacy and subsequent discussion with the dietitian for verification prior to supply. With an exponential rise in PN usage (47% year to date) this process was no longer feasible, and was impacting on the timely daily deliveries to wards via the pharmacy porter service.

The collaboration involved a review of work practices in the PN prescribing/ ordering /confirmation/ delivery process. The newly implemented process involves the dietitians using the Hospital Information System to electronically order PN when prescribed, and subsequently contacting the pharmacy before the delivery time (15.00) to verify the order.

This has led to the removal of several time-consuming steps for both dietitians and pharmacists, leading to a 57% reduction in PN bag dispensing turnaround time from 7 minutes to 3 minutes per bag. The number of bags supplied has remained constant at approximately 100 per week. The reduced dependency on manual processes has contributed to increased efficiency for all parties and a safer process.

Clinical Pharmacy Services

Extemporaneous Compounding of Ophthalmic Eye Drops Video
To aid the discharge process for patients needing extemporaneous eye drops, a video was developed by Ms Sarah Molony, Deputy Clinical Pharmacy Services Manager, to demonstrate the extemporaneous compounding process for community pharmacists. When MMUH patients are being discharged on extemporaneously compounded eye drops, the MMUH ward pharmacists liaises with the community pharmacist and provides supportive material including a protocol for preparation of the eye drops and the video link. The project was selected for short presentation at the annual Hospital Pharmacist Association of Ireland (HPAI) conference, and also was recognised at the Hospital Professional Awards with Ms Sarah Molony, Deputy Clinical Pharmacy Services Manager winning Hospital Specialist of the Year for this work.

New Clinical Pharmacy Services Introduced
Medicines Reconciliation
In July 2016, the Pharmacy Department introduced a pharmacist-led medicines reconciliation service. The service is based on World Health Organisation (WHO) High 5 Medication Reconciliation project recommendations.

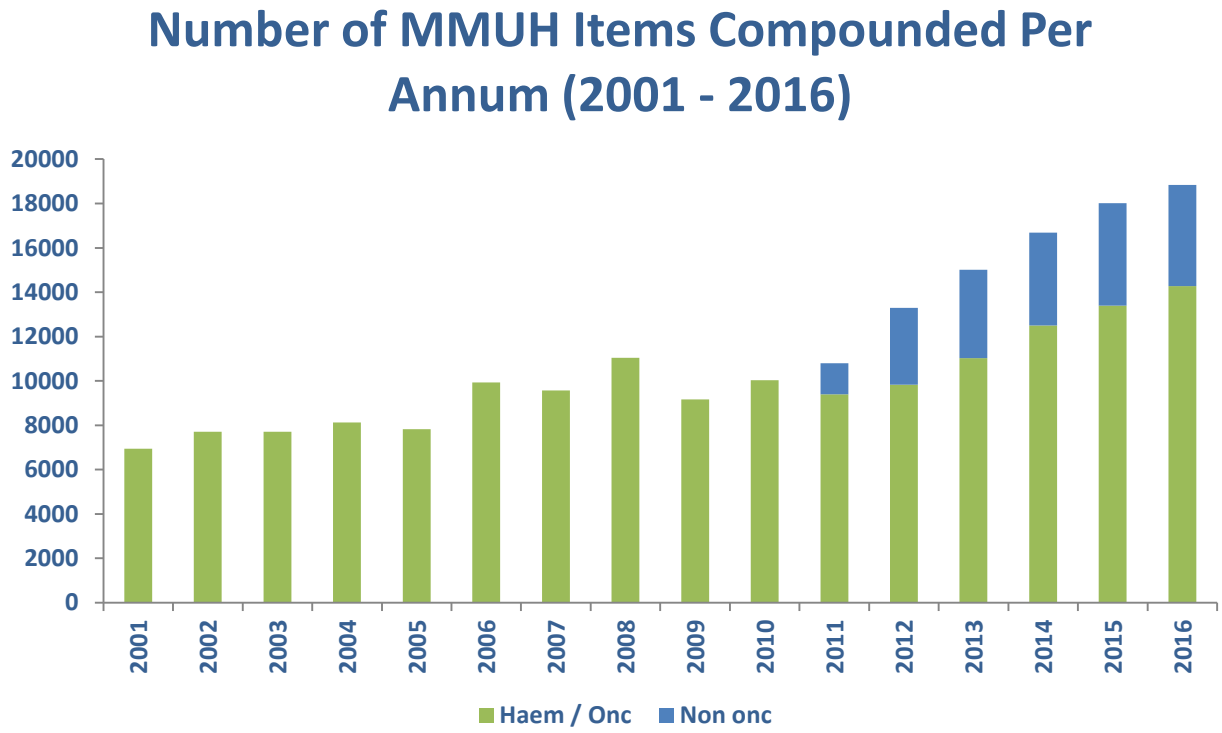
Quality measures for medicines reconciliation are monitored in line with WHO recommendations. The hospital is within the WHO target range for both the 'Mean Number of Outstanding Unintentional Medication Discrepancies per Patient' and the 'Percentage of Patients with at Least One Outstanding Unintentional Discrepancy'.

The recent HIQA report from the Unannounced Inspection of Medication Safety in the hospital, commended the MMUH Medicines Reconciliation Service as an example of good practice. The report notes that the hospital should seek to explore the expansion of this service to implement admission to discharge medication reconciliation across the continuum to include all patients.

Patient Safety

Medication variance reporting - Over 1,700 medication variances were reported in the MMUH in 2016. Of these variances, 80% were reported by pharmacists demonstrating the key role that pharmacists play in promoting and supporting a patient safety culture in the MMUH.

Aseptic Compounding Services (ACS)
In 2016, the aseptic compounding service delivered aseptically manufactured products for the oncology, haematology, ophthalmology, neurology, renal, respiratory, surgical and other specialities. Production levels rose from an average of 1,500 items per month in 2015 to an average of 1,570 items per month in 2016. In total, 18,830 items were manufactured in 2016.



Aseptic Compounding Unit (ACU) Innovation
ACU Relocation
In April 2016, a new state of the art aseptic compounding facility was completed and released to the Pharmacy Department for validation work. Once the unit was deemed sterile and safe for the aseptic production of chemotherapy, ACU relocation took place in May 2016. The Aseptic Compounding Service co-ordinated and successfully executed the move from their outdated facility, located in a transportable sterile suite external to the main hospital building, to the new facility in the Whitty building, co-located with the Oncology Haematology Unit.

The logistics of this move were complicated as this extremely busy service could not afford any down time and therefore the relocation needed a high degree of precision, organisation and planning. The professionalism and capability of the service was clearly demonstrated as the manufacture of chemotherapy moved overnight from the outdated compounding facility to its new facility without restriction on services, delays in patient treatment or additional costs by outsourcing the compounding of chemotherapy during the transition period. The new unit incorporates cutting edge technology to improve the MMUH compounding services.

Aseptic Compounding Unit Preparation Area

Implementation of Gravimetric Compounding
Following relocation in 2016, the ACS began the implementation and validation of gravimetric chemotherapy compounding, a first in Ireland.

Gravimetric compounding is a new concept worldwide; it uses a single visual check of each dose by an operator while the second check is computerised. This computerised check is completed through use of electronic balances in the pharmaceutical isolators. The balances take a number of weights to confirm that the correct dose of chemotherapy has been prepared including

- Empty syringe
- Full drug vial
- Syringe containing the required dose
- Vial after dose has been withdrawn
- Infusion bag before drug has been added
- Infusion bag after drug has been added

For all drugs manufactured using this process a validation period took place where the doses were triple checked (one computerised check and two visual checks) and the associated paper work was reviewed by manual calculation to ensure there was no deviation between the computer and manual calculations.

Medicines Information (MI)

The Medicines Information (MI) service processed 1,363 enquiries in 2016 over a total time of 1,358 hours (see Table 1).

Total number of enquiries received	**1,363**
Total time taken (hours)	**11,358**
Average time per enquiry (mins)	**59**
Enquiry Level	
Level 1 (Simple enquiries or data)	852 (62.5%)
Level 2 (Complex enquiries – multiple sources)	449 (32.9%)
Level 3 (Complex enquiries - professional judgement required)	62 (4.5%)

Protocols, Policies, Procedures and Guidelines Development
In 2016, the MI service developed, through multidisciplinary collaboration, 80 prescribing guidelines, protocols and interdepartmental policies governing the clinical use of drugs in the hospital. The development of a comprehensive, practical protocol governing use of IV potassium chloride in consultation with Prof O'Meara, and endorsed by the Drugs and Therapeutics Committee, in July 2016, has afforded much-needed clarity around appropriate administration of this concentrated electrolyte. As a result, there have been no enquiries concerning same to the MI service since July 2016. Equally, the launch of 43 newly updated IV drug administration protocols by MI, in conjunction with the Clinical Pharmacy Service, has eliminated variation in prescribing and administration practices across clinical areas and led to an elimination of enquiries concerning same. The recent HIQA audit which focussed on availability of, and access to, prescribing information across the hospital has highlighted the importance of this component of the MI service.

Drug Funding Applications
The MI service has a pivotal role in the Drug Funding Application (DFA) process. All DFAs received by the Head of Pharmacy Services / Pharmacy Head of Operations are logged in the DFA database and the cost impact assessed. Where further information is required (e.g. evidence supportive of a particular indication, dose, place in therapy), this is researched and documented by MI. In 2016, a total of 91 DFAs were processed.

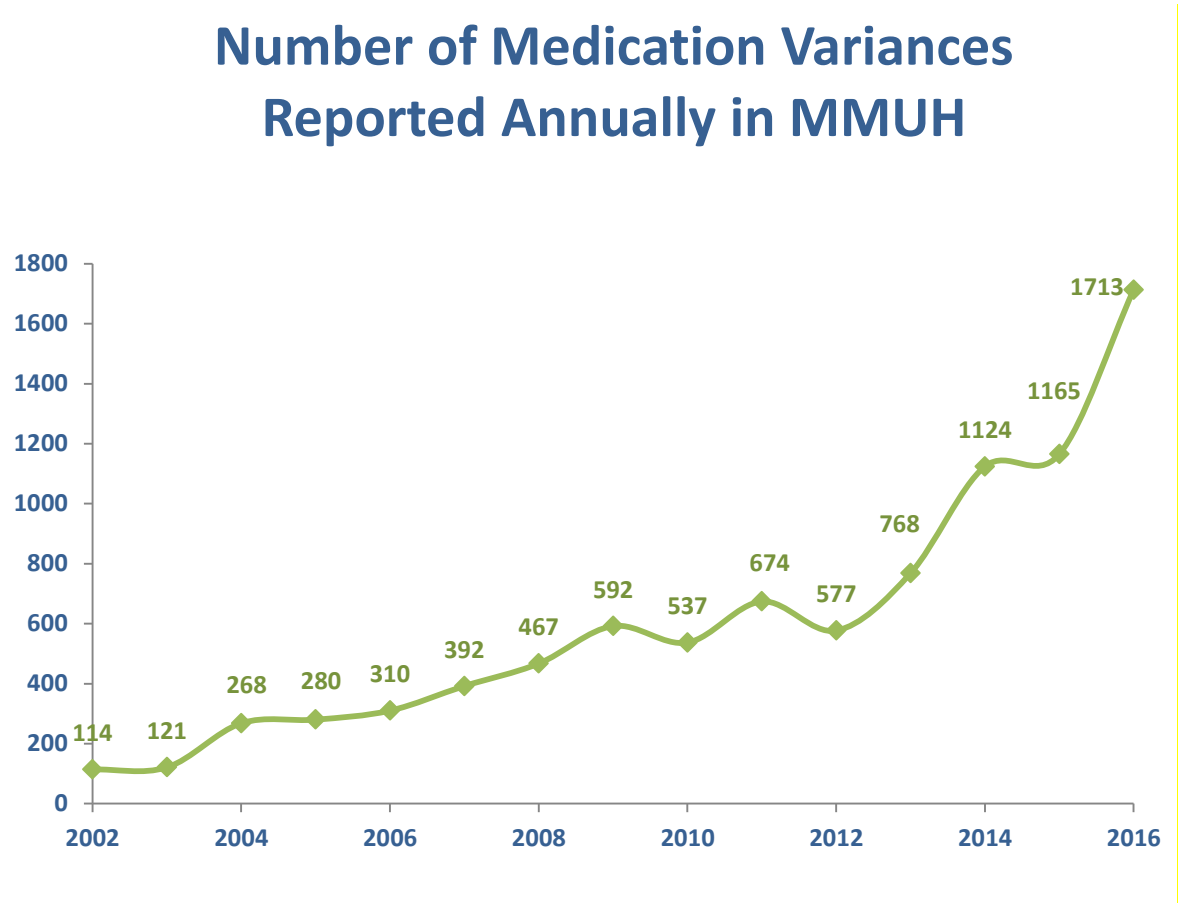
Drug Safety

Audit
An audit of concentrated electrolyte usage was completed in December 2016 to determine the appropriateness of prescribing, administration and storage of concentrated electrolytes in the hospital. The results were mainly positive, reflecting good hospital practice in this internationally recognised high-risk area. Clinically, all prescriptions for concentrated electrolytes were indicated

and appropriately prescribed. Four audit results were recommended for further action and a re-audit will be completed to determine implementation. Hospital-wide communications were circulated to highlight the main audit results and recommendations for improvement.

Incident Reporting

The Pharmacy Department has a reputation for actively working, both locally and nationally, on medication safety issues. Voluntary incident reporting systems have been recommended by various bodies as a way to improve patient safety and hospital staff voluntarily report medication variances which occur each year. Reporting levels in the main have been increasing over the years.



The increase in variances reported in 2016 compared to 2015 represents an almost 50% rise in reporting. It is well accepted that organisations that report more medication incidents usually have a better and more effective safety culture. The MMUH Strategic Plan 2015-2017, clearly outlines the hospital's ambition to be the safest hospital in Ireland and this increase in reporting is a very positive reflection on the hospital's safety culture. It indicates commitment to the strong focus the MMUH places on improving the safety of medication in the hospital.

These medication variance reports provide rich detail on medication-related incidents which is then collated, analysed and used by the Drug Safety Committee, in conjunction with the Drugs and Therapeutics Committee, as the basis for developing quality improvement initiatives.

Drug Safety initiatives undertaken hospital wide in 2016 include

- Several drug safety policies updated including Guidelines for the Safe Use of Neuromuscular Blocking Agents and Guideline on the Assessment of Venous Thromboembolism Risk.
- Medication Safety Alert on High Strength Insulin Preparations, Sept 2016.
- New enteral feeding device connectors called ENFit were introduced throughout the MMUH in August 2016. This introduction of this practice change was co-ordinated in the hospital by the Department of Clinical Nutrition and Dietetics in conjunction with the Procurement & Logistics Department, the Drug Safety Committee and the Department of Nursing.
- A poster was developed by the Pharmacy Department on behalf of the DTC to help staff to access drug-related information on the MaterNet more easily.
- 'Learning from Medication Errors' presented by Drug Safety Facilitator at many different medical and nursing education sessions throughout 2016 including ICU nurse education in February 2016, an Anaesthetics education meeting in May 2016, Intern teaching in July 2016 and Medical Grand Rounds in October 2016.

HIQA Inspection

The Health Information and Quality Authority (HIQA) completed a one-day medication safety inspection in the MMUH in November 2016. This was only the second such inspection in the country. In advance of the inspection, a pre-inspection information request was completed and submitted to HIQA along with specifically requested documents including the 2015 medication variance annual report, the DTC TOR and the previous 12 months meeting minutes from DTC.

Physiotherapy

The physiotherapy service is dedicated to providing a high-quality service to both inpatients and outpatients and is proactive and reacts positively and decisively to externally driven changes and patients' needs.

2016 saw an increase in activity across the department, compared with figures from 2015 with new patients increasing by 534 and repeat patients by 2,456.

Key Service Changes in 2016

Service Reconfiguration

- Staffing within the rehabilitation service was reconfigured to develop the specialist rehabilitation service. This service targets the more complex patient cohort and for 2017 looks to progress the service provided to the amputee patient cohort and to develop the concept of key working.
- The reconfiguration of a senior post within the rehabilitation service was carried out to appoint a senior person with experience in the speciality of oncology/haematology. This service provides expert opinion and education for the first time to this patient cohort, and will aim to develop future requirements for patients with a cancer diagnosis.
- At the end of 2016, staff within the rehabilitation service was reconfigured to address the increasing demand on the care of the older person physiotherapy service.

Service Development, Access Improvement

- The respiratory integrated model of care was developed in 2016 to improve access to pulmonary rehabilitation for patients with chronic obstructive pulmonary disease (COPD).
- A senior physiotherapist was put in place to address the hospital's pulmonary rehabilitation waiting. Pulmonary rehabilitation began in the community in October 2016 with 21 patients commencing this programme.
- A class based exercise programme for outpatients with a diagnosis of Parkinson's disease was started in November 2016. The new programme had 30 visits in the final two months of the year. This class will continue weekly for 2017.
- In December 2016, the physiotherapy lymphoedema service was extended to accept referrals for patients with secondary lymphoedema related to cancers other than breast cancer. The staffing to this service was increased to support the extension.
- Additional senior physiotherapy resources were put in place to further develop and co-ordinate the physiotherapy service for the National Heart and Lung Transplant Programme.

Waiting Lists

- 2016 saw a reduction in both the urgent and routine outpatient waiting lists. This was achieved through collaborative working with Cappagh National Orthopaedic Hospital, dedicated resource allocation and through the use of class based intervention for patients with ankylosing spondylitis, back pain and knee pain.

Audits and Research

- 29 service audits were carried out across the Physiotherapy department in 2016. These included environmental, clinical, process and system review.
- A HRB research training fellowship was secured by one of our senior physiotherapists in September 2016. Research will commence in 2017.
- One of our senior physiotherapists completed her Masters in Neuromusculoskeletal Physiotherapy in UCD. Her thesis is entitled “Efficacy Of A 6 Week Exercise And Education Self-Management Intervention For Patients With Fibromyalgia”.

Psychology

2016 saw an increase in psychiatrists in the service and a consequent increase in the rate of referrals. Specific and additional report has been provided in the following areas

Diabetes & Endocrinology

A 5-month trial period providing a limited psychology service was undertaken for patients at risk due to lack of access to psychology. The groups included

- Patients with eating disorders
- Patients with difficulties with management of emotional distress
- Younger adolescents transitioning from the children’s hospitals who had previous psychological support there and no longer have this support in the Mater
- Pregnant or pre-pregnant women who are at risk if treatment not adhered to
- Specific disorders require psychological support in managing them such as Turners Syndrome.

This resulted in 25% of 1:1 psychology referrals of 1 WTE psychologist in liaison psychiatry coming from diabetes and endocrinology. With 85% of patients having diabetes and 15% Turners syndrome. There were 2 groups run for pre-pregnant women with diabetes and a group run for young adults with diabetes.

Heart Lung Transplant

The heart lung transplant service can now directly access psychology as a result of an additional senior post. As a result of the new liaison psychiatry transplant clinic, we have seen an increased number of referrals to the psychologist.

Increased activity/time in the area of complex referrals such as young cystic fibrosis patients with poor/ non-adherence poses a significant risk to these groups as the consequences of poor compliance are irreversible.

Pain Department / Liver Centre

New initiative: Chronic Disease Self-Management Programme
In 2016, the hospital introduced a new initiative for patients with chronic pain and disease to enable greater self-management of distress and pain and reduce the level of OPD service engagement. A pilot group was run successfully in October 2016 for a 6-week period. Pre and post data has been gathered for outcomes and is in the process of being analysed. The goal is to provide patients with more independence in the management of their chronic disease, with less reliance on the hospital's emergency and out-patient departments.

Liver Centre Research

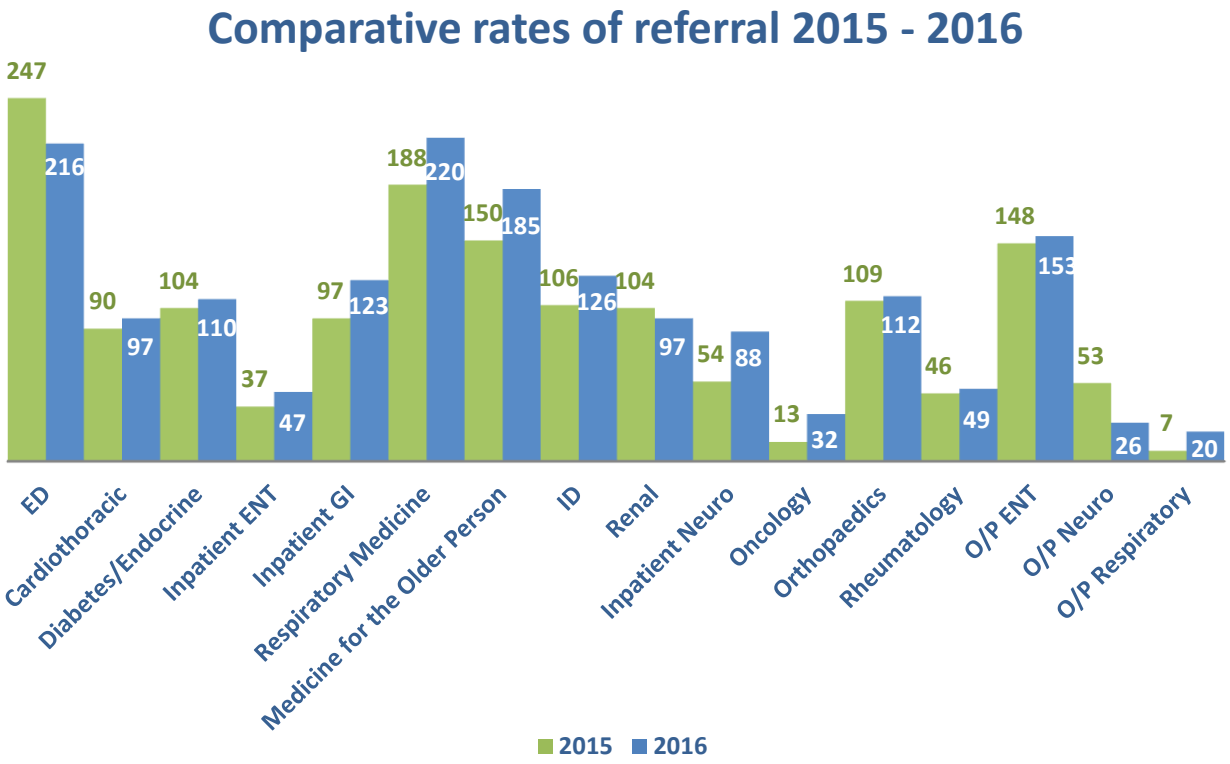
Dr Lowry has developed a research study on the Irish population norming of the hepatic encephalopathy screening measure, the Psychometric Hepatic Encephalopathy Score (PHES). Gathering data on about 80 individuals to date with the assistant psychologists facilitating this process. The objective is to get data on approximately 500 individuals, stratified across gender, age and education categories to support the use of this tool within Irish hospital setting.

Metabolics

A new senior clinical psychologist (Dr Philomena McCarthy) has set up a psychology service for patients with inherited metabolic disorders. This has reduced the waiting list and provides individual and group interventions as well as neuropsychological testing of cognitive decline in patients associated with medication side effects and medical condition. Patients can now be monitored which informs the team and patient on the continuation or discontinuation of medications. The new programme has facilitated the transition of patients across from the children's service.

Speech and Language Therapy

During 2016, the speech and language therapy (SLT) department saw an average of 210 patients per month, and provided 1,591 new assessments, and 7,505 reviews. This activity was provided by an average clinical capacity of 6.4 WTE per month. The department experienced a 4 % increase in referrals into the service. Significant increase was noted in referrals for instrumental assessment (up by 18% on 2015). This is an indirect indicator of increasing complexity of patients seen.


Comparative rates of referral 2015 - 2016
247
216
90
97
104
110
37
47
97
123
188
220
150
185
106
126
104
97
54
88
13
32
109
112
46
49
148
153
53
26
7
20
ED
Cardiothoracic
Diabetes/Endocrine
Inpatient ENT
Inpatient GI
Respiratory Medicine
Medicine for the Older Person
ID
Renal
Inpatient Neuro
Oncology
Orthopaedics
Rheumatology
O/P ENT
O/P Neuro
O/P Respiratory
2015
2016

	% Increase/Decrease since 2015	
Cardiothoracic	8%	(n=7)
Inpatient ENT	27%	(n=10)
Inpatient GI	27%	(n=26)
Respiratory Medicine	17%	(n=32)
Medicine for the Older Person	23%	(n=35)
ID	19%	(n=20)
Inpatient Neuro	63%	(n=34)
Oncology	146%	(n=19)

Referrals to SLT by Speciality: 2015 vs 2016

Areas of significant increase include referrals from the GI service, in particular for patients with oesophageal difficulties. Increases are also noted for Medicine for the Older Person and respiratory referrals. These increases are in keeping with anticipated demand from an ageing population, as well as those with chronic diseases such as COPD. Inpatient neurology referrals have increased by 63%. This demand has significantly impacted on inpatient assessment and intervention required, but has meant limited outpatient service is available. Unanticipated increase was noted for oncology. This is likely reflective of significant under-referral in the past. Hospital focus on appropriate use of speciality wards, as well as changes to the takeover of care post call likely also impacted referral patterns.

In addition to ongoing provision of evidence based clinical service, the department has continued to contribute to research, training and education, and service development. During 2016, 27 students received supervision in the department. Staff contributed to lectures in the University of Limerick and Trinity College Dublin. An updated dysphagia training module was rolled out to all wards in the hospital.

Development Initiatives

Increased Access to FEES

There has been an increase in demand for instrumental swallow assessments for inpatients in the hospital. During 2016, the service has responded by increasing access to fiberoptic endoscopic examination in swallowing (FEES). An additional slot per week (representing a 25% increase in access) has been in place since March 2016.

Four endoscopists carried out a total of 124 FEES in 2016 covering inpatients, outpatients and patients referred from primary community care in North Dublin. This represents a 14% increase from FEES completed in 2015.

75% of FEES procedures are completed on inpatient wards. 32% of inpatients have more than one FEES during their inpatient stay. The largest cohort of patients having a FEES procedure is that under the care of cardiothoracic speciality (35% of inpatient FEES completed were on St Cecelia's Ward and Cardiothoracic High Dependency Unit).

Swallow Screening for Stroke
It is recommended that all patients admitted with stroke receive standardised swallow screening prior to any oral intake and within 4 hours of admission. The soon to be launched National Stroke Programme Swallow Screening Guidelines will set this as a key performance indicator for stroke care, and swallow screening is included on the National Stroke Register.

In the Mater, the SLT department introduced the Massachusetts General Hospital Swallow Screening Test (MGHSST), and prior to 2016, all stroke clinical nurse specialists, as well as some emergency department clinical nurse managers had received training. To expedite swallow screening, training for registrars on the stroke team commenced in mid-2016. To date, four stroke registrars have completed the training, and implemented the screening.

Training of medical team means that patients can access robust swallow screening early in their care pathway, allowing appropriate referral for full swallow assessment when required, and reducing unnecessary periods of holding patient's nil by mouth.

Communicating Positively with People with Cognitive Impairment A need for increased support for families and carers of people with cognitive impairment was identified within the Medicine for Older People SLT service. In 2016, a new information and training session was introduced in the hospital. This group focuses on how cognitive impairment can cause communication difficulties and how to support ongoing meaningful interactions with people with cognitive difficulties. In addition, the group is an opportunity for families and carers to meet others in a similar situation, share experience and insight and provide support.

SLTs identify families of patients from all around the hospital who might benefit, and they are given the opportunity to attend. Feedback has been overwhelmingly positive, and these sessions will continue to run through 2017.

Vocal Cord Paralysis Service
See page 93.

Laryngectomy Problem Solving Clinics
Medical advances in terms of surgery and treatment options mean that the SLT department provides intervention for an increasingly complex cohort of patients post laryngectomy. In 2016, the department collaborated with Severn Healthcare and Atos Medical to establish problem solving clinics. These clinics involve collaborative assessment and review of patients with specific complex needs, in order to best plan equipment and SLT care. In 2016 twelve patients were seen in 5 problem solving clinics. Some patients are seen more than once.

This collaborative approach has resulted in improved patient experience as communication ability is maximised, decreased repeat visits from a group that require frequent review, and decreased equipment costs.

Social Work Department

2016 was another busy and exciting year for the social work department. The team now consists of 21.6 staff covering both inpatient and outpatient services. A total of over 8,000 patients were seen by the social workers during the year with an average of 35% direct v 65% indirect work completed. We supported 270 patients and their families during the complex process of accessing

long term care and facilitated 610 discharges with home care packages. There were over 400 referrals to the department for support around homelessness, reflective of the growing housing crisis the in demographics of our catchment area.

2016 saw completion of our 2016-2018 strategic plan for the department. This process allowed us to prioritise key areas for review and development over the next 2 years and we continue to use this document as a real-time workplan for the team. We have completed a review of roles and responsibilities for senior members of the team, identified key areas for training and development, completed a review of communication structures and recording practice, and are involved in ongoing audits of specific areas of social work practice.

The social work team, as frontline staff at the interface between the acute and primary care sectors, are often impacted by changes in local and national social care policy and funding decisions. As agents for social change we are actively involved in advocating both at individual and community level for our service users and have completed submissions on Long Term Care, access to home care packages and homelessness.

Our role as complex case managers and advocates exposes us to the challenges experienced by our primary and social care colleagues and we have embraced an integrated model of working. We have hosted 2 social work networking and learning events across the many social work departments across community healthcare organisation (CHO) area 9 and have developed a comprehensive directory of services which is invaluable to staff in the interactions across all HSE divisions.

Our counselling support role is evident at both individual patient/family level and in group settings with the continuation of our biannual bereavement evening, monthly Coping with Cancer group, CLIMB programme and regular metabolic service support groups.

As one of the first health and social care professions regulated by CORU we have placed an emphasis on learning opportunities and reflective practice in preparation for our first CORU audit cycle in May 2017.

The department maintains its commitment to continuous professional development and excellence in social work practice and demonstrated this with various oral and poster presentations at both national and international conferences such as the Irish Association of Social Workers National conference, the Irish Gerontological Society, the Irish Psycho Oncology Symposium, the International Society for Acute Medicine Conference and the Irish Patient Safety Conference.

Finance Report

Statement of Income and Retained Earnings

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2016

	2016 €'000	2015 €'000
Turnover		
Revenue grants	**244,160**	240,168
Other income	**51,243**	50,347
Capital grant amortisation	**5,359**	6,814
	300,762	297,329
Costs		
Staff costs	**(195,718)**	(192,963)
Non pay costs	**(99,678)**	(94,651)
Depreciation	**(5,359)**	(6,814)
	(300,755)	(294,428)
Operating surplus	**7**	2,901
Interest receivable and similar income	**13**	11
Interest payable and similar charges	**(24)**	(30)
(Deficit)/surplus on ordinary activities before taxation	**(4)**	2,882
Taxation	**-**	-
(DEFICIT)/SURPLUS FOR THE FINANCIAL YEAR	**(4)**	2,882
Retained earnings - deficit at the beginning of the reporting period	**(11,008)**	(13,890)
Retained earnings - deficit at the end of the reporting period	**(11,012)**	(11,008)

Balance Sheet

BALANCE SHEET AS AT 31 DECEMBER 2016

	2016	2015
	€'000	€'000
Fixed Assets		
Tangible assets	**17,782**	20,634
Financial Assets	**-**	-
	17,782	20,634
Current Assets		
Debtors	**32,846**	44,221
Stocks	**7,525**	7,413
Cash at bank and in hand	**7**	20
	40,378	51,654
Creditors: Amounts falling due within one year		
Creditors	**(38,493)**	(48,772)
Bank loans and overdrafts	**(12,896)**	(13,889)
	(51,389)	(62,661)
Net current liabilities	**(11,011)**	(11,007)
Total assets less current liabilities	**6,771**	9,627
Capital grants	**(17,782)**	(20,634)
NET LIABILITIES	**(11,011)**	(11,007)
Financed by:		
Capital and reserves		
Called up share capital presented as equity	**1**	1
Retained earnings - deficit	**(11,012)**	(11,008)
SHAREHOLDER'S DEFICIT	**(11,011)**	(11,007)