Mater Medical Research Institute (MMRI) is a world class institute committed to discovering new ways to prevent and treat conditions affecting people locally, nationally and globally. From babies to adults, MMRI helps our community lead healthy lives.

MMRI works to uphold the values of its founders, the Sisters of Mercy. Nestled within Mater’s world-class hospitals at South Brisbane, its close proximity allows a unique ability to successfully combine medical research with clinical practice, helping us deliver the best outcomes for our patients, staff and the wider community.
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Message from the MMRI Board of Directors

The MMRI Board of Directors are pleased with the progress made in 2011 to expand the size and scope of MMRI—to not only better support Mater, but to provide greater research capability locally, nationally and internationally.

In 2011 we worked hard to enmesh our research with clinical services to better integrate our output and provide greater outcomes for patients, staff and the community. Incidentally, the improved structure has also led to a substantial increase in the number of quality medical and scientific publications—which helps strengthen Mater research in the eyes of our peers across the globe.

MMRI cultivated important relationships in 2011 which will see the scope of our research expand in 2012. We were actively involved in the establishment of the new collaborative Translational Research Institute (led by Professor Ian Frazer), as well as the development of a new partnership with The University of Queensland which will ensure MMRI is well integrated with the major players in health research now and in the future.

I would like to thank the MMRI’s board members for their dedication to developing research at Mater and acknowledge the important role that the Sisters of Mercy and the Mater Health Services Board have played in the development of our strategic plans in order to achieve our mission to discover, develop, translate and commercialise medical research that integrates with clinical activity at Mater.

Professor Ian Zimmer
Chairman of MMRI Board of Directors

2011 Board of Directors

- Professor Ian Zimmer (Chair)
- Dr Carrie Hillyard (Deputy Chair)
- Mr Jim Walker, AM
- Dr John O’Donnell
- Professor Geoff Kiel
- Sister Deirdre Gardner RSM
- Professor Brandon Wainwright
- Professor David McIntyre
Message from the MMRI Executive

In 2011 we fully realised our goal of integrating research with clinical practice, thus strengthening research outcomes for the community and tackling health problems with a more multidisciplinary, hands-on approach. As part of this integration and our overall expansion strategy, we also recruited talented new researchers who will join MMRI in 2012. The six new researchers, two of whom are clinical researchers, will bring new expertise, team members and research funding that will complement and expand our current themes and programs.

Like most, the devastating natural disasters of 2011 had a profound impact on the people at MMRI, and as part of our response we undertook a number of important health-related research projects which focused on the effects of the floods, cyclones and earthquakes. MMRI is now collaborating with Canadian researchers to monitor the effects the Queensland floods had on pregnant women and the development of their unborn children. In addition, our team also instigated a research project that will continue for many years that will help children cope with the trauma of natural disasters.

MMRI is on a very stable financial footing and thanks to increasing grant funding and support from Mater Foundation, philanthropists and Mater Health Services our revenue grew by 20 per cent in 2011. This solid financial position enables us to implement our plans to expand and integrate research at Mater in the long-term.

The executive team thanks our staff and others involved with major structural changes this year, and for all their hard work throughout 2011.

We would also like to thank the MMRI Board of Directors, the Sisters of Mercy and the Mater Health Services leadership team and board for their great support and guidance as we continue to provide strong research outcomes for our patients and the community.

Professor John Prins
CEO/Director

Professor Michael McGuckin
Deputy Director (Research)

Associate Professor Mark Bowles
Deputy Director (Operations)
We progressed on the ‘jet fuel exposure syndrome project’, which involved investigating the cytotoxic effect of military aviation fuel and solvents used to remove fuel tank sealant. In 2011 work from the themes’ apoptosis and cytotoxicity lab in collaboration with Mater hospital-based researchers led to the development of a number of new models that will allow examination into the effect of these chemicals when they are carried in the blood.

With funding support from the Rammaciotti Foundation we purchased a new time lapse microscope that allows researchers to observe and understand cancer cell death at a level that was previously not possible.

The theme produced an important paper which was highlighted in a recommendation and review by the Faculty of 1000, which identifies and evaluates the most important articles in biology and medical research publications. The results indicate a protective role for the protein MUC13 and serves to emphasise that a better understanding of the role of cell surface mucins and their function in response to inflammation or bacterial invasion, may provide a framework for development of therapies to protect the bowel wall. Such therapies would be useful in the prevention of inflammatory bowel disease relapses.

The theme produced another important paper which extended previous work showing that the cell surface protein CDCP1 promotes survival of cancer cells. They described a novel competitive process involving CDCP1 and two important cell signalling proteins that are essential for the survival of cancer cells as they spread around the body.
The year saw a broadening of the research focus of the ‘Understanding and preventing disease’ theme across Mater. Key collaborations were fostered between biomedical scientists working at the coal face of molecular discovery and clinical researchers intimately involved in patient care. A prime example is the collaboration between Mater Urologist Dr Peter Swindle, Pathologist Dr Bhuvana Srinivasan and the theme’s Associate Professor John Hooper who have been combining their expertise to identify the genetic drivers of prostate cancer stem cells.

Another emerging area of strength was in ovarian cancer, where theme researchers have joined forces with Mater clinicians to develop research projects to treat this malignancy.

Additionally, we’ve worked closely with The University of Queensland to establish a new research program to understand how diet may be used to improve the responses of prostate cancer patients to their treatments.

The ‘Understanding and preventing disease’ theme enjoyed a successful year producing more than 50 publications and were supported by both grant and fellowship funding of almost $2 million from government and non-government organisations.

Associate Professor
Jon Whitehead
Theme Leader
Understanding and preventing disease
A successful collaboration between MMRI and The Scripps Research Institute in San Diego has led to a greater understanding of how cancer spreads in the human body.

MMRI’s Associate Professor John Hooper and fellow researchers Professor James P Quigley, Dr Berta Casa and Dr Elena I Deryugina from The Scripps Research Institute have found a key element in understanding the steps in the development and spread of cancer cells.

In 2003, Associate Professor Hooper discovered and co-named the cell surface protein CDPC1 and found that it was highly prevalent on the surface of human tumour cells which spread around the body.

Further research conducted over the last few years by this collaborative team has now also implicated CDPC1 in the progression of a number of cancers including those from colon, breast, prostate, stomach, lung, kidney, pancreas and skin.

“When a cancer cell breaks away from the primary tumour it is usually destroyed by a process known as apoptosis before it can move through the bloodstream or colonise a new organ,” Associate Professor Hooper said.

“However, tumour cells that have intact CDCP1 are able to avoid apoptosis and this greatly enhances their ability to colonise distant organs.”

“It is possible that if we can prevent the function of CDCP1 we may have the ability to help stop the spread of cancer to other organs.

“In the future this means we may be able to develop drugs to help block CDCP1 which will benefit patients who are at risk of developing metastasis.”
MMRI’s research into developing new therapies for patients with cancer continues to be strengthened thanks to ongoing support from the Smiling for Smiddy fundraising program.

Smiling for Smiddy is an annual program of cycling and triathlon challenge events which raise funds to support world-class cancer research at MMRI.

The funds aid MMRI to further their research in the areas of melanoma and prostate cancer as well as complementary therapies to improve quality of life for cancer patients.

The first Smiddy event was held in 2006, when three cyclists embarked on an epic journey from Brisbane to Townsville to raise funds for cancer research and honour the memory of their friend, Adam Smiddy, who had passed away from an aggressive melanoma at age 26.

Since then, Smiling for Smiddy has evolved and expanded, boasting a dedicated community of riders, support crew and donors united by a common goal—to cure cancer.

“Smiling for Smiddy events are held not only to remember Adam, but all those who have faced this devastating disease,” Smiling for Smiddy founder, Mark Smoothy said.

Last year Smiling for Smiddy grew to include five events throughout the year, raising more than $720,000 and bringing the total funds raised to more than $2.5 million since the program’s inception.

“It has been an amazing journey so far but it has really only just begun,” Mark said.

“After all, ask yourself, how far would you go to fight this devastating disease?”

Smiling for Smiddy also distributes funding each year to other beneficiaries including PA Research Foundation, Flinders Medical Centre Foundation and Melanoma Patients Australia.
Reduced intubation rates after introduction of HFNP oxygen delivery study, the results of which have significantly decreased the rates of insertion of a tracheal tube for infants with bronchiolitis, a procedure which is stressful for the infant and their parents.

Systematic review of nursing management of dysphagia in individuals with acute neurological impairment which will ensure that the clinical guideline is based on current best practice.

Involvement in an extensive range of studies investigating ways to improve pain management for cancer patients, including studies on the use of ketamine in the management of cancer related pain and investigating the ability to utilise saliva samples instead of blood samples as a means of monitoring therapeutic levels of pain medication.

Development of an improved diagnostic test for genetic abnormalities which will improve the clinical management and genetic counselling for patients and their families.

Development of guidelines and recommendations for the use of Plerixafor (an immunostimulant used to multiply hematopoietic stem cells in cancer patients).

Commencement of two clinical trials investigating mesenchymal stem cells in the treatment of idiopathic pulmonary fibrosis and treatment-refractory Achilles tendinopathy.
The ‘Improving treatment of disease’ theme has continued to expand both in research capacity and outputs. Researchers within the theme had over 80 publications published, many in highly ranked journals.

Research funding also continues to increase, with a number of successful grant and fellowship recipients, including seven researchers within the theme receiving funding from the National Health and Medical Research Council (NHMRC).

Funding through Mater Foundation has also allowed several Mater research initiatives to proceed, including a three-year research study led by Dr Chris Allan into a lesser-known side effect of surgery for the treatment of melanoma: swelling of the limbs known as lymphoedema. This multi-disciplinary study is a first for Australia and aims to halve the number of patients diagnosed with lymphoedema as a result of surgery for the treatment of melanoma.

As well as developing their own research, the theme’s researchers continue to be heavily involved in international multi-centre clinical trials. Participation in these studies enables patients to obtain treatments they would otherwise be unable to access outside the context of the research environment and enables Mater clinicians to keep abreast of the latest treatment options for patients.

In 2011, several of these studies had significant clinical impact with at least three resulting in new medications being added to the Pharmaceutical Benefits Scheme (PBS) as a result of the study findings.

Professor Janet Hardy
Theme Leader
Improving treatment of disease
Chances are you know or have known someone who has been diagnosed with cancer. Latest statistics show there are 12.7 million new cases of cancer diagnosed each year around the world, which is on the rise. As cancer prevalence increases, so too does the need for research.

Anyone who has suffered from cancer or who has held the hand of a cancer sufferer knows that cancer is painful. And it has become apparent through international surveys and human rights reports that cancer pain is undertreated.

Currently, pain is generally managed through a multipronged approach of opioid analgesia (such as morphine and oxycodone), non-opioids (such as steroids, anti-inflammatories, anti-depressants) and non-drug treatments delivered via counsellors, allied health specialists and occupational and relaxation therapists.

Through research, Mater aims to improve pain management to help cancer patients locally, nationally and internationally.

Mater’s Director of Palliative Care, Professor Janet Hardy, and pharmacologist, A/Professor Ross Norris, are currently exploring the most effective methods of managing severe pain caused by cancer by selecting the best type and dose of analgesia for individual patients.

This can be done by monitoring the levels of the drug in the blood stream. In one of their projects they will assess whether it is possible to do this using saliva, thus reducing the need for repeated blood tests.

Thanks to the generosity of our donors, Mater has already purchased new automated drug delivery systems to provide continuous pain relief to cancer sufferers.
Through our ongoing relationship with Suncorp, Mater has been able to research elements of skin cancer to benefit our sun-drenched community.

As a result of Suncorp’s funding, Mater researchers were the first in Australia to begin a three-year investigation into a lesser-known side effect of surgery for the treatment of melanoma: lymphoedema.

Sadly, up to 40 per cent of patients who have lymph nodes removed in the groin area due to melanoma will develop lymphoedema. This chronic and incurable condition develops when a patient’s lymphatic system is blocked, resulting in a fluid build-up in the tissues and limb swelling.

The study will collect data to determine if early intervention through the use of compression garments and performing lymphatic drainage for six months after undergoing melanoma surgery reduces the rate of lymphoedema.

The pilot study aims to halve the number of patients diagnosed with lymphoedema.
Mothers and Babies Health
Delivering healthy new life

Programs

- Maternity care to meet the needs of mothers and babies
- Optimising outcomes for mothers and babies at risk
- Critical care of at-risk newborns

Mission

To align exceptional care to high quality basic, clinical and translational research, focused on improving all aspects of health for mothers and babies. To increase knowledge of the influential events during pregnancy and early life that impact on healthy development and disease later in life and to apply that knowledge to prevent disease.

Highlights

- A series of papers on stillbirth in the prestigious medical journal *The Lancet*. Aimed at improving pregnancy outcomes globally with a focus on prevention of this tragic pregnancy complication, this series captured global media attention and is likely to lead to substantial improvements, particularly in the developing world.
- The ‘QF2011 flood study’, researching effects of stress in the womb. This secured a $1.8 million grant from the Canadian Institutes of Health Research.
- Development and expansion of the Murri Clinic for Indigenous women birthing at Mater Mothers’ Hospital. Positive outcomes have led to additional funding for Indigenous health workers to continue this important service.
- Development of the ‘Healthy start to pregnancy’ resources and their evaluation in the Mater Mothers’ Hospital antenatal clinics. This enables us to focus on prevention of pregnancy complications in women with obesity or under nutrition.
- Publication and implementation of new diagnostic criteria for gestational diabetes across a variety of health care contexts. Recognition of Mater’s role in this process was evidenced by invited presentations at the American Diabetes Association and the Federation of Obstetrics and Gynaecology.
- Development and translation into practice of new guidelines for neonatal resuscitation.
This year proved an exciting one for researchers across the multidisciplinary areas covered by the ‘Mothers and babies health’ research theme. Expanding from a funding base of around $140 000 per year, the theme secured further direct and collaborative grants totalling more than $4 million to be used over the next four years.

Publication results were also excellent, with more than 50 publications, many in highly ranked journals. This bears testimony to the impact of research carried out within the theme. Of particular importance was The Lancet stillbirth series, headed by Associate Professor Vicki Flenady, which has had worldwide impact in shining light on this tragic aspect of maternity care.

Organisational changes designed to stimulate cross disciplinary research have been very fruitful within the theme, with a prime example being the ‘Queensland Flood 2011’ study. This study is an international (Australia and Canada) cross disciplinary effort involving researchers from basic science, midwifery, endocrinology, placental biology and child development.

This project aims to investigate the mechanisms and effects of stress in the womb on babies’ later development. It provided a superb example of Mater’s cooperation and positive attitude, which propelled the project from a promising concept, into a major research focus over a six month period. We worked closely with the ‘Healthy development’ theme to develop this project, again outlining the strengths of MMRI’s ability to ensure productive collaborations across Mater.

Professor David McIntyre
Theme Leader
Mothers and babies health
A Queensland-based study, implemented by MMRI in response to the impact of the 2011 floods on pregnant women, has evolved into an international collaboration of researchers, securing a $1.8 million grant from the Canadian Institutes of Health Research.

The ‘QF2011 flood study’ led locally by Professor Sue Kildea and in Montreal by Professor Suzanne King, investigates the effects of the floods on pregnant women and their families.

The primary aim of the study is to learn more about how a highly stressful event, such as a flood, might affect pregnant women, their unborn child and their child’s physical, behavioural and psychological development.

To gain a broad understanding of the effects of the Queensland floods on pregnancy, the study sought women with a range of different experiences—from no impact and temporary inconveniences, through to those who had major and ongoing disruption to their lives.

“This investigation involves a longitudinal study meaning we are able to make observations of the impacts of such events over an extended period of time,” Professor Kildea said.

“We already have over 130 families that have returned the 12 month post flood questionnaire and will be participating in the 16 month child assessment.

“It is also the only one of its kind to collect biological specimens at birth, which makes this research even more extraordinary.”

Findings of the study are anticipated to be released in a rolling fashion over the coming years.

The study is jointly funded by McGill University in Canada, MMRI, Australian Catholic University and Child and Youth Mental Health Service (Mater Health Service).
Every year, thousands of generous individuals make a donation to help our smallest and most vulnerable Queenslanders. As well as helping premature babies currently at Mater, donations are used to help fund research to improve outcomes for mothers and babies in the future.

Eddie Duncan is one of Mater’s most generous and committed supporters, donating $20 000 in 2011 towards care and research for mothers, babies and children.

A long-time donor, Eddie’s relationship with Mater began more than two decades ago after receiving treatment for bowel cancer in 1989.

“I’d always thought very highly of Mater—they were there for me when I needed them most and I just wanted to give something back.”

His experience at Mater led Eddie to join with friend and colleague Ferney Woods and his employer at the time, Western Transport, to donate $100 000 towards Mater’s ‘New Life Centre’—which provided operating theatres, labour wards, a birthing centre and special care nurseries for mothers and babies.

Since then Eddie has given a generous amount every year through the Duncan Family Trust and is so committed to helping Mater that he is making sure his gift will continue even after he has gone.

“It is something that I started so I just want to continue that support,” Eddie said.
Conclusion of a large study of more than 800 primary school children who were exposed to Cyclone Larry found that 12 per cent met criteria for severe or very severe post-traumatic stress disorder three months after the cyclone. This was the first large scale post-cyclone investigation of child mental health and builds upon previous post-bushfire research. Through this research we identified features which make children more susceptible to developing stress, which can be used to identify and help children in the future.

Publication of a study in animal models which shows that high maternal circulating sulfate levels are critical for maintaining pregnancy and normal fetal growth and development. This study has highlighted the important and unappreciated roles of sulfate in pregnancy. It has the capacity to explain some developmental problems in children and to identify women and babies at risk, as well as develop strategies to ensure normal development.

Publication of two new studies after monitoring nearly 8000 mothers who gave birth at Mater between 1981 and 1983. For the past 25 years, the study has collected data on a vast range of themes for example maternal lifestyle, maternal mental health, child physical and mental health and educational outcomes. The impact of these studies are significant in that they are looking at childhood antecedents of adult outcome and mental health outcomes.
This year has been a successful year for researchers within the ‘Healthy development’ theme with 25 publications of our paediatric research in published international literature. Our theme has major programs in early human growth and development, psychological and emotional wellbeing in children and adolescents (via Kids in Mind) and in 2011 we added a new program in sleep and breathing which encompasses clinical research at Mater Children’s Hospital.

One of the highlights of the year was the start of a major new multidisciplinary research project led by Professor Frank Bowling and funded by the Department of Defence which seeks to gain deeper understanding of pathology resulting from jet fuel exposure. This project involves clinicians and scientists from Mater Children’s Hospital, Mater Pathology and MMRI working together to solve this complex problem which faces defence personnel and others in the community.

2011 was a year of natural disasters in Queensland and researchers from the theme were integrally involved across the state, using our expertise in trauma in children to help families affected by the floods and cyclone to cope. Our studies of coping in these children and their response to our help, will inform our practice and refine our techniques so we can provide an even better form of assistance in the future.

Professor Brett McDermott
Theme Leader
Healthy development
In the aftermath of a natural disaster, supporting the emotional needs of Queenslanders, in particular those of children and young adults, is just as critical as rebuilding the physical environment.

MMRI researchers and disaster response experts, Professor Brett McDermott and Associate Professor Vanessa Cobham, have played a crucial role in delivering emotional and psychological treatment and support to children and young adults across Queensland following the natural disasters that struck the state in early 2011.

“Post-traumatic stress in young people following natural disasters is a very real concern and one which can impact severely on a young person’s wellbeing,” Dr Cobham said.

“As part of our state-wide disaster response, we travelled to highly impacted areas of the state, such as the Lockyer Valley, to screen children and adolescents for post-traumatic stress disorders.

“We then provided treatment on an individual basis to identified children in the form of a trauma-focused cognitive behavioural therapy (TF-CBT) protocol that I developed with Professor McDermott.”

The protocol, entitled ‘My Story of the Flood’, consists of two parent sessions and up to eight weekly child sessions, with a booster session conducted four weeks after the end of therapy.

Associate Professor Cobham and Professor McDermott also travelled to New Zealand to provide two days of training in TF-CBT to Child and Adolescent Mental Health (CAMHS) staff in Christchurch following the devastating earthquake that impacted the city in February 2011.
In a win for patients, families and the wider community, in 2011 MMRI made a discovery key to improving treatment options for sufferers of 22q11.2 deletion syndrome (also known as Velo Cardio Facial Syndrome or VCFS).

Second only to down syndrome in incidence, deletion syndrome causes a chromosome to be deleted resulting in significant abnormalities in child development. These abnormalities typically relate to the face, palate and heart, as well as immune system deficits, kidney problems, learning and behavioural difficulties and speech delays.

Approximately one-third of sufferers also have elevated metabolite levels in their blood which can lead to mitochondrial diseases—causing liver disease, brain disorders and other problems. Many children with deletion syndrome also have an increased risk of seizures and psychological complications that may extend to adulthood.

Thanks to a generous donation from Golden Casket, MMRI researchers were able to identify three mitochondrial genes which will enable further investigation and lead to improved treatment. Mater enjoys a long standing partnership with Golden Casket, which provides an annual $500 000 donation in its commitment to Queensland’s children’s hospitals. It’s corporate support like this which is critical to future medical breakthroughs.
In May 2011 MMRI hosted 180 participants from across Australia at the MMRI Stem Cell Symposium.

The symposium, entitled ‘Induced pluripotent stem cells: hurdles to their clinical translation and their solutions’, saw scientists and clinicians travel from across the country to listen to presentations covering both basic science and its clinical application.

Technology is developing rapidly in the stem cell field and the capacity to reprogram adult cells to form specialised cells found in tissues is now possible. However, there remain significant challenges in bringing this ability into the clinic and these challenges were the focus of this year’s symposium. The two day program covered a diverse range of topics including a presentation by MMRI staff members Dr Tom Chung, who presented on the implications of memory tissue origin of induced pluripotent stem cells on choice of tissue source for differentiations of organ-specific progeny and Dr Cate Browne who presented on reprogramming without virus, plasmids or factors.

The keynote speaker for the event was Professor Martin Pera, founder of the Eli and Edythe Broad Centre for Regenerative Medicine and Stem Cell Research and now with the University of Melbourne, who presented reprogramming with factors only.

MMRI’s Stem Cell Symposium encourages scientific interaction and discussion and offers an opportunity to create future collaborations through short-themed presentations.

It also provides several networking opportunities, allowing further scientific discussion among like-minded scientists and clinicians in a relaxed atmosphere.
For MMRI researcher Dr Ingrid Winkler, 2011 proved to be a very successful year.

Dr Winkler was awarded a National Health and Medical Research Council (NHMRC) Career Development Award, which recognises the country’s leading health and medical researchers.

Travelling to Canberra to receive the award, one of only eight awarded in Australia, Dr Winkler was recognised with top ranking for her research into the manipulation of haematopoietic stem cell niches to improve therapeutic outcomes for patients undergoing chemotherapy to treat their cancer.

Dr Winkler was also recognised with a Queensland Smart Future Fellow award as well as a Cancer Council Queensland grant to fund research on novel strategies to help cure patients with leukaemia and help others survive chemotherapy.

Dr Winkler said that it was while she was working as a nurses-aid in a hospital in Nordlingen (a small village on the Romantic Roman Road near Bavaria, Germany) and tending to older patients undergoing chemotherapy to treat their cancer, that she realised the need for further research in this area.

“I have a burning desire to help patients survive their chemotherapy so they have the chance to be cured of their cancer,” Dr Winkler said.

“My job as a nurses-aid in Europe affected me profoundly. Chemotherapy is terrible; the side-effects just awful.

“I knew then I had to return to Australia, do my PhD and initiate research on how to help these patients survive their therapy and conquer their disease.

“To have my research recognised is a great honour and I am delighted to receive these awards as I know the more we focus on this research, the greater ability we have to help benefit sufferers of cancer.”
In December 2011 MMRI was awarded a National Health and Medical Research Council (NHMRC) project grant for $547 634 over three years to undertake research to develop a better understanding of the causes of stillbirth and improve the quality of data through developing an evidenced-based investigation protocol.

For 1 in 130 women in Australia pregnancy will end tragically when their baby is stillborn. ‘Mothers and babies’ theme Program Head, Associate Professor Vicki Flenady, said the overall aim of the research program was to reduce the number of stillbirths.

“The death of a baby before birth is a devastating event for parents and families and without data on the risk of stillbirth during pregnancy and improved data quality around investigation and classification of stillbirths, it is difficult to develop effective preventative strategies,” she said.

“A thorough understanding of the risk of stillbirth throughout pregnancy is necessary to mount effective interventions.

“At present in Australia, the approaches to investigation and data on the causes of stillbirth are inadequate to inform such interventions.

“This research program aims to address this issue by adding to the body of knowledge relating to the risk of stillbirth and examining trends in stillbirth causes of death especially within groups of women who may be at higher risk of stillbirth.”

A NHMRC scholarship was also awarded to Ibi Ibiebele to undertake her PhD examining a woman’s risk of stillbirth according to her individual characteristics throughout pregnancy.

Grant to help prevent stillbirths
Associate Professor Vicki Flenady's papers on stillbirths in high income countries were included in the publication of the first comprehensive set of stillbirth estimates released last year. The Lancet stillbirth series, published on 14 April 2011, was authored by 69 experts from more than 50 organisations across 18 countries and has had a worldwide impact in shining a light on this tragic aspect of maternity care.

The series is aimed at improving pregnancy outcomes globally with a focus on prevention and treatment of common major pregnancy complications by systematically addressing gaps between evidence and practice. It also aims to promote much-needed action to improve the devastating number of stillbirths occurring around the world.

The release of the publication also provides a foundation for the Centre for Translating Research into Practice to address key areas for improvement in maternity care including the detection and management of antenatal fetal growth restriction.
In 2011 Developmental Paediatrician Dr Honey Heussler played event organiser when she launched the Celebrating Diversity Exhibition at the Brisbane Powerhouse in October.

The exhibition, which brought together the works of local and international photographers, including renowned former fashion photographer Rick Guidotti, featured people who are living with genetic conditions.

“There is a wide range of genetic disorders, which present in a range of different ways,” Dr Heussler said.

“Some disorders can cause developmental delays while others can cause behavioural difficulties such as anxiety, autistic-like features and aggression, learning difficulties or medical symptoms.

“Many of these children and families are often perceived very negatively and there are many superstitions about some of these disorders in the community.

“This exhibition was about seeing these children and families as who they are, not just defined by disorder.

“The exhibition not only celebrated this diversity but it also highlighted the impact of genetic syndromes and the need for more research into this complex area.”

A subsequent exhibition of these photographs, hosted by Brisbane City Council, also received very positive attention.

The photographic exhibition coincided with the 14th International Research Symposium hosted by the Society for the Study of Behavioural Phenotypes (SSBP) which was convened locally by Dr Heussler.

“Research is vital in this area to try and improve our treatment approaches for individuals affected by genetic syndromes,” Dr Heussler said.

“The SSBP International Research Symposium was a great opportunity for medical professionals in this field to come together and explore the latest research, some of which is taking place at MMRI.”

The symposium was an international medical conference that discussed the latest scientific research into genetic disorders like Fragile X, 22q11.2 deletion syndrome (also known as Velo Cardio Facial Syndrome or VCFS), rett syndrome, angelman syndrome and autism.
Medal Recipients

MMRI would like to congratulate the following medal recipients, given in honour of the Sisters of Mercy

The Sisters of Mercy was founded by an Irish woman, Catherine McAuley, in 1831. The Sisters went on to establish Mater in Brisbane in 1906 and have nurtured Mater for more than 100 years. The spirit of Mercy continues to define Mater people and their exceptional work.

Associate Professor John Hooper

Sr Regis Mary Dunne Medal for outstanding research contribution, which recognises a researcher who has excelled in relation to opportunity.

(Associate Professor John Hooper pictured with Sr Regis Mary Dunne)

Associate Professor Vicki Flenady

Sr Eileen Pollard Medal for incorporating research into clinical care provision, which recognises an individual who has consistently translated research into clinical practice.

Mrs Mary Lakey

Sr Madonna Josey Medal for outstanding contribution to MMRI, which recognises an individual who has made significant contribution to the operations of the institute.
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<td>Mater Health Services</td>
<td>Recent developments in the management of brain tumours</td>
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<td>10-Jun</td>
<td>Dr Christine Knox</td>
<td>QUT</td>
<td>The female genital tract has a rich normal microbial flora: the effect on pregnancy and the neonate</td>
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<td>17-Jun</td>
<td>Prof Paul Glasziou</td>
<td>Bond University</td>
<td>From research to evidence implementation</td>
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<tr>
<td>1-Jul</td>
<td>Dr Mireille Lahoud</td>
<td>Walter and Eliza Hall Institute, Melbourne</td>
<td>The dead cell receptor Clec9A and its applications for immunotherapy</td>
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<tr>
<td>8-Jul</td>
<td>Anne Morrison, Maree Hill and Steven Jones</td>
<td>Australian Health Practitioner Regulation Agency</td>
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<td>15-Jul</td>
<td>Dr Ingrid Winkler</td>
<td>MMRI</td>
<td>Stem cells and the bad seeds: a gardeners’ guide to leukaemia</td>
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<td>22-Jul</td>
<td>Sohil Khan</td>
<td>Mater Health Services</td>
<td>Melatonin for sleep disorders in children with developmental disabilities: translating evidence into practice</td>
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<td>29-Jul</td>
<td>Loretta Marron</td>
<td>Mater patient</td>
<td>Chiro’s ‘keep your hands off our kids!’</td>
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<td>5-Aug</td>
<td>Dr Michael Towns</td>
<td>BD Diagnostics</td>
<td>Blood culture: optimising clinical practice</td>
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<tr>
<td>Date</td>
<td>Speaker</td>
<td>From</td>
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<td>12-Aug</td>
<td>Dr Ranjeny Thomas</td>
<td>University of Queensland</td>
<td>Clinical development and trials of antigen-specific dendritic cell tolerising immunotherapy for rheumatoid arthritis</td>
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<tr>
<td>19-Aug</td>
<td>A/Prof Graham Radford-Smith</td>
<td>Queensland Institute of Medical Research</td>
<td>Genetics of inflammatory bowel diseases</td>
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<td>26-Aug</td>
<td>Nick Rushworth</td>
<td>Brain Injury Australia</td>
<td>Brain Injury Australia</td>
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<tr>
<td>2-Sep</td>
<td>Ben Phyllis and Michael Angliss</td>
<td>UniQuest</td>
<td>Intellectual property and commercialisation</td>
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<tr>
<td>9-Sep</td>
<td>Dr Helen Stapleton</td>
<td>Australian Catholic University</td>
<td>Surviving teenage motherhood</td>
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<td>16-Sep</td>
<td>A/Prof Joanne Young</td>
<td>Queensland Institute of Medical Research</td>
<td>Colorectal cancer under the microscope</td>
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<td>23-Sep</td>
<td>Dr Karen Campbell</td>
<td>Deakin University, Melbourne</td>
<td>Childhood obesity and obesity in pregnancy</td>
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<td>30-Sep</td>
<td>Dr Mike Doran</td>
<td>QUT</td>
<td>Cartilage dust: better than pixie dust?</td>
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<tr>
<td>7-Oct</td>
<td>A/Prof Cynthia Whitchurch</td>
<td>University of Technology, Sydney</td>
<td>Extracellular DNA slime of pseudomonas aeruginosa facilitates multicellular behaviours</td>
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<tr>
<td>10-Oct</td>
<td>Prof Karel Marsal</td>
<td>Lund University, Sweden</td>
<td>Clinical management of IUGR and postnatal development of very preterm IUGR neonates delivered on fetal indication</td>
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<tr>
<td>14-Oct</td>
<td>Dr Julia Lawton</td>
<td>Edinburgh University, Scotland</td>
<td>Support self-management after attending the DAFNE program in the UK: a longitudinal, qualitative investigation</td>
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<tr>
<td>21-Oct</td>
<td>Dr Illaria Croci</td>
<td>UQ Diamantina Institute</td>
<td>Non-alcoholic fatty liver disease</td>
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<td>24-Oct</td>
<td>Dr Geoff Faulkner</td>
<td>Roslin Institute, Scotland</td>
<td>Jumping genes: retrotransposons and the genetic identity of mammalian cells</td>
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<tr>
<td>4-Nov</td>
<td>A/Prof David Leaviesley</td>
<td>QUT</td>
<td>Translating research through to improved wound healing outcomes</td>
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<tr>
<td>9-Nov</td>
<td>Prof Suzanne King</td>
<td>Douglas Hospital Research Centre, Canada</td>
<td>Pre-natal maternal stress during natural disasters</td>
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<tr>
<td>11-Nov</td>
<td>Prof Frank Bowling</td>
<td>Mater Health Services and MMRI</td>
<td>Brain energy metabolism - lessons from hypoglycemia</td>
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<tr>
<td>18-Nov</td>
<td>Dr Veronique Chachay</td>
<td>UQ Diamantina Institute</td>
<td>Resveratrol in the management of metabolic dysregulation of non-alcoholic fatty liver disease: a randomised double-blind placebo controlled clinical trial</td>
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<tr>
<td>25-Nov</td>
<td>A/Prof Naomi Rogers</td>
<td>The University of Sydney</td>
<td>Circadian rhythms in health</td>
</tr>
</tbody>
</table>
The year at a glance

Financial summary

Revenue
Total revenue for 2011 was $14.72 million, up from $12.28 million in 2010.

- Grant income of $4.26 million (29%)
- Donations and bequests of $3.87 million (26%)
- Mater Health Services infrastructure funding of $3 million (20%)
- Government infrastructure funding of $1.13 million (8%)
- Commercial funding of $0.15 million (1%)
- Other income of $2.29 million (16%)

Revenue streams by type
Expenditure

Total expenditure for 2011 was $14.48 million, up from $11.50 million in 2010.
- Research and development expenses $6.15 million (42%)
- Research support expenses $4.91 million (34%)
- Administration expenses $3.41 million (24%)
The year at a glance

Publications

In 2011 MMRI experienced a substantial increase in the quality and quantity of our publications in national and international health research literature. Throughout the year, MMRI researchers contributed over 200 publications, including papers in the leading clinical and scientific journals. Almost half of these publications were in ERA-A* or A-rated journals which places them in the top of their field.


Auld, B., D. Urquhart, M. Walsh, C. Nourse, and M.A. Harris, Blurring the lines in interferon (gamma) receptor deficiency:


Christensen, M.E., L.J. Sinfield, H. Cullup, N.J. Waterhouse, K. Atkinson, and A.M. Rice, Environmental conditions are important for establishing and evaluating pre-clinical models of GVHD. Bone Marrow Transplant, 2011.


Heazlewood, C. and K. Atkinson, Optimal tissue sources of mesenchymal stromal cells for clinical trials., in Mesenchymal


Hough, J.L., L. Johnston, S. Brauer, P. Woodgate, T. Pham, and A. Schibler, Effect of body position on ventilation distribution in preterm infants on CPAP. Paediatric and Critical Care Medicine, 2011.


Ting, J., Updated 2010 Consolidated Standards of Reporting


Wilkinson, A., L. Bian, D. Khalil, K. Gibbons, P.F. Wong, D.N.J. Hart, M. Harris, A. Cotterill, and S. Vuckovic, Type 1 Diabetic Children and siblings share a decrease in dendritic cell and monocyte numbers but are differentiated by expansion of CD4+T cells expressing IL-17. Journal of Clinical and Cellular Immunology, 2011. S2 Open Access.


## Current patents

<table>
<thead>
<tr>
<th>MMRI</th>
<th>Title</th>
<th>Application number</th>
<th>Priority date</th>
<th>Country</th>
<th>Status</th>
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<tr>
<td>MMRI-15</td>
<td>A method of Immunomodulation</td>
<td>PCT/AU2003/001038</td>
<td>15-Aug-02</td>
<td>Australia, Canada, Europe, United States, New Zealand</td>
<td>Granted</td>
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<td>MMRI-15</td>
<td>Treatment &amp; Prophylaxis</td>
<td>PCT/AU2008/001652</td>
<td>10-Dec-07</td>
<td>Australia, MMRI-15</td>
<td>Application</td>
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<td>MMRI-41</td>
<td>Improved Treatment &amp; Prophylaxis</td>
<td>PCT/AU2008/001810</td>
<td>10-Dec-07</td>
<td>Australia, Europe, United States, Canada</td>
<td>Application</td>
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<tr>
<td>MMRI-72</td>
<td>Improving adiponectin levels</td>
<td>US 61/521,615</td>
<td>9-Aug-11</td>
<td>United States</td>
<td>Application</td>
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</tbody>
</table>
Thank you

We would like to thank those who supported MMRI in 2011. Our research would not be possible without your support.

The following people donated more than $10,000 in 2011:

- Andy Greig & Ingrid Asbury
- ATCO Structures & Logistics Pty Ltd
- Australian Leisure & Hospitality Group Ltd
- BHP Billiton Mitsubishi Alliance
- CAF America - Bechtel Corporation
- Construction Income Protection Qld
- Fundraising efforts of David Roberts
- Fundraising efforts of Marion Roberts
- Girls Ball Association
- Ian & Louise Zimmer
- Lions Prostate Cancer Research & Treatment Project
- Marian & EH Flack Trust
- Mary Lakey & Committee
- Mr Cameron & Mrs Alison Gregory
- Mr Henry & Mrs Mary Wagner
- Mr John & Mrs Kay Gallagher
- Mr Peter & Mrs Catherine Quinn
- MV Chapman
- Pradella Family
- Queensland Hotel Association
- Smiling for Smiddy
- Spotless
- Tomkins Developments
- Xstrata Rolleston Coal Pty Ltd