

EMERGENCY MEDICINE FOUNDATION

Help save lives in medical emergencies
Invest in cutting-edge research



Emergency Medicine Foundation

HELPING CHILDREN BREATHE

After more than a decade of research, EMF-funded researchers are set to change the way we treat infants with respiratory illness.

Respiratory illness, specifically bronchiolitis, is the leading cause of paediatric hospital admissions in Australia. Annually, nearly 9000 children under the age of one-year are admitted to hospital with the illness, and 10 to 20 per cent require breathing support via a mask or intubation in a paediatric intensive care unit (PICU).

However, the number of PICU admissions could be almost halved, thanks to pioneering research by a Brisbane-based team, who are championing the use of high-flow nasal cannulation (HFNC) to treat bronchiolitic infants in the emergency department.

With a grant from the Emergency Medicine Foundation (EMF) – funded by Queensland Health – Emergency Medicine Staff Specialist, Dr Christa Bell and Lady Cilento Children's Hospital (LCCH) Paediatric Intensive Care Staff Specialist, Associate Professor Andreas Schibler, ran a pilot study using high-flow in emergency departments.

Their research led to an NHMRC-funded multi-centre, randomised clinical trial, which recruited 1400 infants from 17 hospitals across Australia and New Zealand.

From preliminary data, Associate Professor Schibler suspects that when high-flow is used early in bronchiolitis infants, it has the potential to reduce PICU admissions by 40 per cent and healthcare costs associated with treating infants with bronchiolitis by up to half. It could also allow infants in rural and regional areas to be treated closer to home.

"High-flow nasal cannulation is a game-changer, there's no question about it," said Associate Professor Schibler.

EMF has awarded grants to two further high-flow pilot trials, to assess the value of the treatment for children and adults presenting to the emergency department with respiratory illness. In a third EMF-funded trial, researchers are assessing the benefit of using HFNC when intubating critically ill children.

* HFNC provides a supply of warm, humidified oxygen via a thin nasal tube and, because it's easy to use and comfortable for the patient, infants don't require sedation.

OUR STORY

EMF is an Australian not-for-profit organisation, dedicated to emergency medicine research.

We fund innovative, evidence-based emergency medicine research that will improve clinical practice to save lives as well as deliver significant economic benefits to the healthcare system. In addition, we also help raise the profile of emergency medicine research and foster the transfer of research outcomes into real and practical benefits in medical emergencies.

EMF was initially established in 2007 as a Queensland Government response to broader issues of high workloads in emergency departments and the increasing demands of treating large numbers of critically ill patients.

Since our launch, EMF has rapidly established a reputation among emergency medicine professionals for delivering results and high-impact outcomes from research.

We are the only Australian organisation dedicated to driving, coordinating and supporting multi-disciplinary emergency medicine research at local, state and national levels.

EMF funding allows emergency medicine clinicians and researchers to make important contributions to the broader acute care sector. In many cases, our researchers are collaborating closely with clinicians and researchers in other fields such as cardiology, intensive care and paediatrics as well as pre-hospital care providers and retrieval (ambulance and aeromedical).

Government funding and strategic philanthropy support our research programs. In particular, we commend Queensland Health for its far-sighted investment in emergency medicine and the broader acute care health sector.



RAPID DIAGNOSIS FOR PATIENTS WITH CARDIAC SYMPTOMS

Since 2008, EMF has invested more than \$1 million in acute cardiac research projects led by Royal Brisbane and Women's Hospital (RBWH) Emergency physician, Adjunct Professor Louise Cullen.

Chest pain is the second most common complaint among patients presenting to emergency departments. However, only 15 per cent of these patients are actually suffering from acute coronary syndrome.

According to Professor Louise Cullen, these patients may undergo lengthy, intensive and costly assessments, which have traditionally taken between 12 and 24 hours.

"There has been little difference in assessment strategies and costs for the low and intermediate risk patients, resulting in the majority of patients experiencing prolonged hospital stays," Professor Cullen said.

To address this issue, Professor Cullen and her research team initially developed the ADAPT Protocol, which enables clinicians to accelerate the assessment of about 20 per cent of cardiac patients.

With funding from Queensland Health, the protocol was rolled out to 19 Queensland Hospitals between 2013 and 2015 as the Accelerated Chest Pain Risk Evaluation (ACRE) project. The project is estimated to be delivering \$11.2 million annually in economic

benefits to the State's healthcare system (although a QUT study put the figure at \$21 million).

In 2016, the National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand updated their Guidelines for the Management of Acute Coronary Syndromes (ACS), to incorporate the ADAPT protocol.

Professor Cullen's team has since developed a second protocol known as the Improved Assessment of Chest Pain (ImpACT) protocol, which can safely accelerate the assessment of up to 70 per cent of emergency patients presenting with chest pain. Using this newer protocol, emergency physicians can identify low risk patients not at risk of heart disease within two hours of arrival in the emergency department and discharge them without needing ongoing testing, and more rapidly assess other patients at higher risk for heart disease.

In 2016, Queensland Health awarded the team an \$800,000 grant to pilot ImpACT at the Cairns Hospital and potentially roll it out to further Queensland Hospitals.

It has been estimated that this newer protocol could deliver additional economic benefits of \$12.4 million annually if rolled out in all Queensland hospitals.

WHY IS EMERGENCY MEDICINE RESEARCH IMPORTANT?

This year, one in three Australians will seek medical treatment at an emergency department—with 30% admitted to hospital.¹

Without question, emergency medicine professionals are at the medical frontline, providing critical lifesaving care and bridging the gap between primary and acute hospital care.

With an ageing population and increasing chronic disease burden, an emergency health system that provides leading-edge, responsive patient care as well as strengthening primary healthcare and

reducing demand on in-hospital care is a priority.

That's why EMF is investing in innovative ideas for improving our emergency healthcare. We are an important part of the solution to Australia's complex healthcare issues as well as a vital pathway for developing innovative new clinical approaches.

“ In 2015-16, just four EMF research projects were conservatively estimated to deliver \$22.3 million in annual economic benefits to Queensland's healthcare system. If five of our projects were rolled out nationally, they could lead to \$467 million worth of annual economic benefits.”

1. Australian Institute of Health and Welfare 2015. 'Emergency department care 2014–15: Australian hospital statistics.' Health services series no. 65. Cat. no. HSE 168. Canberra: AIHW.



SOFTWARE TOOL PREDICTS PATIENT ARRIVALS IN EMERGENCY DEPARTMENTS

EMF awarded a \$100,000 grant in 2008 to Gold Coast University Hospital Emergency Department Director, Dr David Green for the trial of a new Patient Admission Prediction Tool (PAPT).

Dr Green and his research collaborators showed that PAPT could predict with more than 90% accuracy: the number of emergency department patient arrivals; the medical urgency and required speciality; and admission and discharge times.

“PAPT allows staff in emergency departments to see what their patient load will be like in the next hour, the rest of the day, the next week or busy periods,” said Dr Green.

The tool is now used by 31 Queensland hospitals (including the State’s 27 major public hospitals), allowing them to accurately predict patient admissions. This means they can roster appropriate staff, allocate the right number of beds, book surgeries ahead of time and reduce emergency waiting times for patients.

Dr Green and his team developed PAPT in collaboration with CSIRO’s Australian eHealth Research Centre and Queensland Health, with support from Griffith University and the Queensland University of Technology.

CSIRO have estimated that if PAPT was rolled out nationally, it could deliver productivity gains of up to \$23 million in direct cost savings from improved bed usage, reduced elective surgery cancellations and patient health benefits.

OUR RESEARCH PROGRAMS

EMF has a proven track record in establishing and coordinating effective emergency medicine research programs.

EMF currently runs two emergency medicine research programs: our flagship Queensland program and a recent national Rural and Remote program.

Our Queensland program has been operating since 2007, with ongoing funding from Queensland Health. Between the launch of the first grant round in 2008 and the end of 2016, EMF had awarded more than 130 grants and scholarships, worth almost \$13 million. This program is improving patient care and healthcare services as well as increasing emergency medicine research capability.

Our Rural and Remote research program was launched in late 2014, with grants awarded in 2015 and 2016. We are working to secure further funding to expand this valuable program.

Long-term, EMF hopes to establish additional national and state-based research programs, facilitating life-saving innovations in all areas of emergency medicine.



IMPROVING CARE FOR THE ELDERLY IN A MEDICAL EMERGENCY

Australians over 65 years of age account for one in five presentations to an emergency department.

To improve the care of the elderly in a medical emergency, EMF has invested close to \$600,000 in aged-care research projects.

In 2010, EMF awarded a \$280,539 grant to Princess Alexandra Hospital Emergency Staff Specialist, Dr Ellen Burkett, to develop a framework and quality care indicators for treating elderly patients who present at an emergency department.

When these indicators were piloted, they were shown to have the additional benefit of a 31.17 per cent reduction in emergency department presentations of frail patients from residential aged care facilities.

The research formed the basis of the revised Australasian College for Emergency Medicine (ACEM) policy for care of older persons in emergency departments.

In addition, Dr Burkett's research also led to a \$3.7 million grant from Queensland Health in 2014 – and a further \$2.9 million in 2016-17 – to develop the Comprehensive Aged Residents Emergency and Partners in Assessment, Care and Treatment (CARE-PACT) program.

This program is helping to define best practice in the acute care of the elderly in residential facilities.

RESEARCH SUPPORT NETWORK (RSN)

This strategic initiative is supporting and fostering research by emergency medicine clinicians and staff.

Launched by EMF in 2015, the RSN is successfully distributing a wealth of research skills and knowledge to emergency medicine researchers, irrespective of their location.

The RSN operates via a hub and spoke model, with each hub supported by a Research Development Manager. This Manager provides support for emergency medicine researchers based in hospitals within the hub as well as working closely with the hospitals to build research capacity. An RSN Manager coordinates the Network as well as providing support for hospitals and researchers based outside of the hubs.

The team provide leadership and support for researchers as well as developing multi-disciplinary collaboration opportunities. The RSN is also actively engaging in mobilising new knowledge into better clinical practice.

Initially, EMF is running the RSN in Queensland. However, EMF is actively seeking State and Federal Government funding to continue this program in Queensland and extend its reach nationally.

“EMF is positioned to promote collaborative research across Australia and build the capabilities of Australia’s emergency research community.”

ASSOCIATE PROFESSOR
ED OAKLEY
EMF Director
Director of Emergency Medicine,
Royal Children’s Hospital Melbourne

IV DRIPS DON'T SOBER DRUNKS

Despite the popularity of using IV drips to sober drunken patients, EMF-funded researchers found the standard treatment makes no difference to how quickly they sober up.

As a result of the research outcomes, two of Queensland's largest Emergency Departments, the Gold Coast University Hospital and the Royal Brisbane and Women's Hospital, have stopped the routine use of IV fluids to treat drunken patients and emergency health specialists in Australia and overseas are also reviewing their policies.

Emergency Departments in the Gold Coast Health Service District treated more than 150,000 patients in 2015 and researchers estimated that up to \$500,000 was saved by no longer treating these patients with unnecessary IV fluids.

One of the project leaders, Dr Siegfried Perez said, "Intravenous fluids were widely thought to reduce the blood alcohol content but our research established that they make no difference.

"From our study, we found that while observation is still needed, it seems IV fluids do not speed up a patient's discharge."



HOW YOU CAN SUPPORT EMERGENCY MEDICINE RESEARCH

In Australia, 99% of the population will visit an emergency department at one point during their life time. Helping EMF find better ways to treat people in a medical emergency could save your life or the life of someone you love.

There are many ways you can help EMF find better ways to save lives. In supporting EMF, you can also have the satisfaction of knowing that within a short time frame, the majority of research we fund impacts the way Australians are cared for in a medical emergency.

- Raise awareness about emergency medicine research by following us on social media
- Visit our website and sign up for our newsletter
- If you're an emergency medicine professional interested in research, join our Research Support Network

- Talk to us about how your hospital, research institute or organisation can partner with us to co-fund a research program or specific grant
- Make a tax-deductible donation to help fund research

For more information or to talk to us about other ways you can support emergency medicine research, call today or visit our website. (Our contact details are listed on the back cover.)



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