

Improving patient care and reducing waiting times

Impact
Case Study

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CSIRO software predicts demands on hospital emergency departments to enhance patient care and resource management

the challenge Access to reliable public health care is a key foundation to Australia's social and economic well being. Increasing demands on staff and resources in public hospitals is resulting in critically overcrowded emergency departments. Delays can cause patients' conditions to deteriorate and can increase patient mortality by up to 30 per cent. To improve patient outcomes, National Health Reform is requiring 90 per cent of patients to leave emergency within four hours by 2015. A whole of hospital response will be required to meet this objective.

the response CSIRO has developed the Patient Admission Prediction Tool (PAPT) that **predicts emergency department patient arrivals**, their medical urgency and specialty, admissions and likely discharge times. PAPT provides a predictive picture of patient movement through the hospital. Patient load can be calculated with precision on a daily, weekly or monthly basis and demand can be forecast up to six months in advance. PAPT enables hospitals to make **significant improvements** in resource allocation efficiency, reduce waiting times, and increase timely access to emergency care.

the engagement PAPT was developed through deep collaboration between CSIRO's Australian eHealth Research Centre and Queensland Health, supported by Griffith University and Queensland University of Technology. CSIRO contributed expertise in converting medical data into a software tool that hospital staff are using to make decisions, allocate staff and hospital beds, and improve patient outcomes through prompt access to treatment.

the impact The PAPT system is now available in all 27 major public hospitals across Queensland. The potential value of improved patient outcomes (i.e. reduced mortality) once fully implemented is \$97 million per annum across Queensland and well over \$248 million per annum Australia-wide.

With PAPT, hospital staff have increased control of day-to-day operations. The ability to effectively manage bed allocation and staff resources decreases staff workload and stress, resulting in improved quality of patient care. As a result of **reduced waiting times** for emergency care, patients will achieve **improved health outcomes** and reducing overall time spent in hospital. This project has already reported an improved service efficiency of \$1 million. Based on these results, the projected direct productivity gain for Queensland is \$3 million per annum and \$23 million per annum across Australia.



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FOR FURTHER INFORMATION
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