

## CASE STUDY – VRS 2018/19

### OUTPATIENT SCHEDULING IN PUBLIC HOSPITALS



Jamie Owen

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Technology

Supervisor: Dr Belinda Spratt

#### Outpatient Scheduling in Public Hospitals

Large public hospitals frequently serve as a regional hub for a variety of outpatient services. Despite improved access to healthcare for many rural communities, patients are still often redirected to capital city hospitals with access to a greater range of specialists and equipment better suited to their needs.

Given the cost and impact of long-distance travel, this often leads to the challenge of scheduling appointments within multiple outpatient clinics for a single trip. While many patient care pathways are well defined, appointment lengths are variable and it is difficult to plan for unexpected ad-hoc services requested to assist in diagnosis and treatment. This project investigated the multi-appointment outpatient scheduling problem in large public hospitals. Jamie worked to create a mixed integer programming model to minimise the total time patients are required to spend at a hospital.

#### Quotes – Jamie Owen

“My project is on helping to improve outpatient appointments by including patients’ preferences in the decision-making process. By doing this, patients will get appointment times they want more than are available for more often. This means that no shows could be reduced, decreasing everyone’s waiting time.”

“My VRS experience has been valuable in allowing me to experience completing a non-curricular project at a high level, and it has reaffirmed my desire to complete an honours year.”

“I plan to continue with the project into my honours year, broadening the scope of the model and using advanced solving techniques to help solve it.”

#### Quotes – Dr Belinda Spratt, Lecturer in Operations Research, Science and Engineering Faculty, Mathematical Sciences and Statistical Sciences, Queensland University of Technology

“The efficiency of healthcare systems is an important area of research that benefits the wider community. Jamie’s work on outpatient appointment scheduling can be used to improve the accessibility of healthcare by balancing patient preference with queue fairness.”

“This project has been an excellent opportunity for Jamie to get a feel for research before commencing his honours degree in mathematics.”