

## **Data analytics at Alexandra Health System: A new journey in healthcare**

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**BY CENTRE FOR MANAGEMENT PRACTICE**

By June 2014, Lau Wing Chew, Chief Transformation Officer (CTO) of Alexandra Health System (AHS) in Singapore, had implemented several administrative improvements using data analytics. His team in the Health Analytics Unit (HAU) had introduced initiatives such as the operating theatre (OT) dashboard, ageing-in-place programme, and several population health plans.

Three years earlier, Lau was faced with the challenge of meeting the demand for the Acute & Emergency (A&E) Care Centre services at Khoo Teck Puat Hospital (KTPH), the largest facility within the AHS network of medical institutions. The centre had exceeded its intended patient capacity by 50 patients a day.

There was a shortage of beds and the utilisation of critical resources like doctors, nurses, and space was sub-optimal. Lau knew data analytics was widely used in other industries to make decisions, but was also aware that the stakes were higher in healthcare.

Instead of deploying more employees to handle the overwhelming demand, Lau analysed the situation and discovered that 70% of patient visits were for non-emergencies. For the critical cases, he implemented the OT dashboard to monitor the 14 operating theatres in AHS for cancellations, overruns, and late starts. This enabled just-in-time scheduling of the operating theatres and reduced patient waiting times.

Lau adopted key performance indicators from US hospitals for the OT dashboard, such as the utilisation rate of operating theatres and the theatres' daily schedule, to provide users with an overview of available resources. The HAU team constantly updated the metrics to enhance the efficiency of the hospital's processes.

The Head of Anaesthesia and Chairman of OT Committee, Associate Professor Koh Kwong Fah commented on the administrative progress.

*With the dashboard data, we are engaging clinicians to modify some of their workflows to deliver care to our patients with fewer delays. The senior management had also seen that the data presented by the dashboard was in a more usable manner, and the use of the OTs have been improved significantly with accurate predictions.*

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The next issue Lau sought to address was the excess demand for subsidised in-patient beds. He learnt that out of 21,000 patients, 425 had been admitted three or more times over six months, taking up 10,000 bed days, equivalent to 11% of total available bed days.

Lau wanted to change the focus to improving the home environment of patients,

*Healthcare spending has focussed on the building of hospitals and funding of acute care; much less has been spent on supporting patients to cope with health issues in their homes... a disparity that we can start to address with home visits.*

Lau formed an Ageing-in-Place (AIP) team, which included nurses and part-time social workers to help people receive care at home. The programme was so successful that by the end of 2012, 47% of the chronically ill were not readmitted, freeing 5,000 bed days in a six-month period. Patients that took better care of their health suffered fewer physical ailments and were readmitted less frequently, which also reduced their financial burden.

After the success of AIP, Lau pursued population health initiatives to bring health awareness beyond the hospital walls, and help residents maintain healthy lifestyles. Data analytics provided insights on patient lifestyle and diet through the results of health screenings, and could predict when patients might require medical attention.

Lau was encouraged that the insights drawn from data analytics benefitted AHS and its patients. He hoped it would continue to guide the organisation's strategic directions and improve its operational processes.

The views expressed in this column are the author's own and do not necessarily reflect this publication's view, and this article is not edited by Singapore Business Review. The author was not remunerated for this article.