
CONFERENCE ABSTRACT

Predictive Analytics can help identify true demand for Hospital Admission Risk Program (HARP) Services.

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Introduction: Increasing global demand exists for innovative models of care that promote proactive management of chronic disease in the community, with the aim of enhancing patient experience, clinical outcomes and cost-effectiveness. Additionally, program logic suggests such approaches could reduce demand on hospital emergency department and bed-based services.

During 2018-19, Melbourne's geographically largest public health service network (Eastern Health) participated as an intervention site in "Health-links Chronic Care" (HLCC), a multi health-network study led by the Victorian Department of Health (DHHS) in association with the Commonwealth Science and Industrial Research Organisation (CSIRO). The HLCC study applied predictive analytics to routinely-collected Victorian public hospital Patient Admission Systems data, to identify patients at risk of three or more admissions in the upcoming twelve months. Individual health services then further screened these patients, and offered additional proactive community intervention.

Eastern Health selected its existing "Hospital Admission Risk Program" (HARP) as its HLCC community-based intervention, due to it being an evidence-based model that staff were also describing as under-utilised.

Theory/Methods: The HLCC algorithm provided Eastern Health with an opportunity to systematically test the size and nature of the true gap in patients suitable for referral to HARP.

- a) The size of the gap was obtained by measuring the percentage of overlap between HARP referrals and the Health-links enrolments list.
- b) The nature of the gap was obtained by profiling enrolees, testing their HARP suitability, and further probing their issues and needs.

Results: 228 patients at high risk of avoidable hospital admissions were identified using the HLCC algorithm were Clinician screened.

- a) Size of the Gap:

Clinicians' perceptions of under-utilisation of the HARP model were confirmed:

For every one patient presently being referred to HARP, ten more who were appropriate could be identified using the algorithm, and half of these (five) were consenting to HARP".

- b) Nature of the Gap:

Yeomanson; Predictive Analytics can help identify true demand for Hospital Admission Risk Program (HARP) Services.

The HLCC analytics derived cohort was found to include a wider range of diagnoses than those Clinician-referred. Observed patterns in the admitting unit and patient needs will also be identified in this presentation.

Discussions: The HLCC admission risk algorithm is a promising tool that can form part of a high admission risk management strategy.

Conclusions:

1- Eastern Health's was previously only using the HARP model at 16% of its potential, when dependent on Clinician referrals alone.

2- The HLCC admission risk algorithm presents an opportunity to greatly better identify and hence better manage chronic disease patients at risk of avoidable hospital presentations.

Lessons learned: HARP structure and staffing needs to be streamlined and adequate to provide effective care to the newly identified cohort of patients.

Limitations: Only patients who have presented at hospital can be detected by the HLCC admission risk algorithm.

Suggestions for future research: There is huge scope for further work optimising technical and clinical application of the algorithm, merging hospital and community datasets to optimise predictive value, and to streamline subsequent individual enrollee case triage and models of care to optimise cost effectiveness.