

TITLE: MIND THE GAPS: A NOVEL APPROACH TO POPULATION HEALTH PLANNING AND HOSPITAL SERVICE GAP ANALYSIS

Introduction

Health service planning and Diagnosis-Related Groups (DRGs) are closely interconnected in the context of healthcare management, particularly hospital services planning. However, previous studies generally only focused on one specific condition or specialty. There is a lack of a systematic approach that incorporates DRGs in hospital service planning.

Methods

We developed a novel healthcare demand prediction tool, a web-based Health Facility Briefing System (HFBS), paying special attention to the crucial role of DRGs in healthcare planning and resource allocation. This modelling tool automates the projection of healthcare demand for a prescribed area by service modes, specialities and DRGs based on the disease prevalence and the anticipated needs of specific patient groups. We used the Northern Territory of Australia as our study area and conducted a comprehensive assessment of the healthcare needs of the population using demographic data, epidemiological patterns, private health insurance coverage, health risks, and prevalent health issues. These data were incorporated into the HFBS system to derive hospital service gaps by service mode, speciality and DRGs.

Results

Our preliminary results showed that service gaps vary significantly across service modes, specialities and geographical locations. Respiratory Medicine, Gastroenterology and Cardiology rank the top three specialities in the acute overnight beds while Orthopaedics, Gastroenterology and Urology are projected to be the highest in demand for same-day places. A total of 90 adult medical overnight beds and 26 adult medical same-day places are required by 2036. The results facilitated the assessment of the need for new construction or expansion of existing hospitals and other facilities as part of the future Northern Territory health strategic planning.

Discussion

The novel automated health service planning system provides a good framework for health service planning. It assists health providers and planners in optimizing resource allocation and service delivery based on the changing health demands of the local population and urgent health issues. The DRG distribution can also guide the planning of health facilities to meet the needs of patients within different categories. The same methodology can be applied to other countries, regions, cities and local communities, allowing a systematic process of organizing healthcare resources and facilities based on patient diagnoses and treatments to meet the healthcare needs of the local population.