

Casemix Index in Saudi Arabia MOH Hospitals

Alshehri, Abdulrahman S.¹, Al-Atassi, Ehab A.¹, Taha Gleeson, G.¹

Introduction: In Saudi Arabia, 60% of the population receive their healthcare through the public hospitals, mainly ministry of health (MOH) hospitals. These hospitals are grouped into 21 clusters distributed throughout the country. As the level and complexity of care delivered varies across these hospitals, it raises a need for adopting a methodology that optimizes funding for these hospitals. CMI could potentially be used as one of the factors to adjust the payments for healthcare providers to account varying levels of care complexity. The CMI of a facility reflects the diversity and clinical complexity of the patients and the associated resources utilized in the care of those patients. Furthermore, it allows measurement of how well a hospital is carrying out clinical procedures that are common across all specialties. It is commonly used as an indicator of the cost of treating a particular patient. CMI is based on a classification system that uses AR-DRG as a unit of classification. It is also used for benchmarking activities to compare hospitals' performance using efficiency KPIs. The main objective of this study was to measure the CMI of Ministry of Health hospitals in Saudi Arabia.

Method: This study was based on cross-sectional data of 67 MOH hospitals. CMI is calculated by dividing the sum of all episodes' DRG-relative weights by the total number of discharges during the same reporting period. Hospitals included in the analysis were categorized into 3 groups: general hospitals, specialized hospitals, and medical cities. Data for different variables including patients' demographics, episode details, DRG, MDC, DRG-weight, and procedures were collected.

Results: We found that CMI varies across hospitals depending on hospital size and type. The average CMI for all 67 hospitals was 1.26 (95% CI: 0.64 to 2.55). At cluster level² the highest CMI was observed in "Cluster19" with CMI of 1.67, while the lowest clusters were "Cluster14" & "Cluster17" with CMI 1.02. Amongst providers, medical cities had the highest average CMI of 1.47 compared to specialized hospitals and general hospitals at 1.32 and 1.21 respectively. High CMI for medical cities is consistent with the complexity and type of services utilized at these facilities, which may involve utilizing more resources especially advanced technologies. One medical city "MC1" with more than 92,000 encounters had an unexpectedly low CMI of 0.92, not representative of the expected case mix given the facility type. On the other hand, "MC2", and "MC3" had much higher CMI of 1.65 and 1.83 respectively. CMI also varied by the size of hospitals across clusters. Large hospitals had an average of CMI of 1.42, while small hospitals had an average of CMI of 0.97.

Conclusion: CMI varies across hospitals depending on the type and size of the facility. Several MOH hospital have low CMI values, which indicates the potential to improve productivity and eventually efficiency. These findings will have implications on policies related to hospitals operation and resources utilization.

¹ National Casemix Center of Excellence, MOH, Kingdom of Saudi Arabia.

² Cluster numbers are arbitrarily assigned and do not correspond to actual cluster numbers.