

TITLE: Implementation of AR-DRG reimbursement for public providers contracting in Saudi Arabia's mandatory private health insurance scheme

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ABSTRACT

Introduction: The Council of Health Insurance (CHI) in its efforts for more transparency and standardization of the Saudi private health insurance scheme, in 2021 mandated for the first time AR-DRG as a billing mechanism for public hospitals treating private health insurance beneficiaries. This was the first ever usage of AR-DRG in the country to reimburse for rendered services and as part of the overall CHI strategy to implement this system in the private sector as well.

As there were no readily available cost data to design a price list, CHI had to revert to existing claims data to devise relative weights, base rate, average length of stay, and funding rules. This required collection of claims data, cleaning, processing, manual mapping and credibility checks to produce the minimum requirements for an AR-DRG based price list.

This paper explains the approach, methodology and lessons learned in devising a price list based on AR-DRG patient classification for purchasing services from public providers in a context of unavailability of readily available cost data.

Methods: Claims data on admitted encounters covering January 1 2018 to December 31 2020 period were acquired. An initial assessment of claims data was conducted to determine which claims are credible for manual mapping at A-DRG and AR-DRG level where possible using AR-DRG v9.0 grouping logic. Further refinement of assigned A-DRGs was done where a high potential of overlap between procedural and medical admissions was identified, and surgical and medical flag was assigned. Further validation of appropriateness was done by looking at the cost distribution within these DRGs. The final step of clinical mapping review entailed reviewing of assigned A-DRGs in terms of completeness, consistency, and accuracy.

Once the final dataset completed, billed amounts within the 95% confidence interval were applied for each A-DRG to eliminate outliers, resulting in A-DRGs having number of encounters assigned, mean billed amount, and percentile distribution of billed amounts. This enabled the calculation of the base rate and relative rates, which were further assessed for credibility and manual overrides. Finally, we conducted reasonability check of relative weights and prices with different publicly available sources of comparison. Length of stay analysis was conducted to inform funding rules for the price list.

Results: The final cleaned claims dataset used for this exercise included 895,150 admitted encounters with claimed value of USD 2.3 billion. The trended base rate for 2023 was USD 3,662 (1,278-7,849 5th and 95th percentile).

Correlation analysis was conducted with Australian AR-DRG v9.0 2019/20, Abu Dhabi IR-DRG 3.01 and Johns Hopkins Aramco AR-DRG v9.0 2017/18 resulting in high correlation (0.96, 0.92 and 0.96 respectively) in addition to national costing study outputs.

A set of funding rules addressing, trimming points, outlier reimbursement, same-day admissions and add-on payments were established based on data analysis.

Sensitivity analysis was conducted to assess the extent of manual intervention on the financial impact entailing different scenarios and model assumptions.

Throughout the entire process, all stakeholders were involved through workshops and change management sessions for a successful implementation of activity-based funding in the public sector.

Conclusions:

AR-DRG payment mechanism is a feasible and not complicated system to apply for reimbursement of health care services even in situations when costing data are not available. The evidence and experience from IR-DRG introduction in United Arab Emirates demonstrated the value of using claims data as an initial approach in devising DRG based fee schedule. The evidence and experience with this project confirm the practicality of using claims data for AR-DRG based fee-schedule for activity based funding as a stepping stone for future improvements and refinements.

PRESENTATION TYPE: Oral