Hospital contracting and casemix linkage: early impact in a middle-income country

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Introduction
Lebanon has a population of 4.5 million residents, and an estimated 1.5 million refugees, with total health expenditures at 7.3% of GDP. One of the major roles of the Lebanese Ministry of Public Health (MoPH) is as an 'insurer of last resort', covering hospitalization for the 52% of citizens who otherwise lack any health insurance. For this purpose the ministry contracts public and private hospitals, servicing about 240,000 patients annually.

In November 2014 the MoPH changed its hospital contracting design from one based solely on a tri-annual accreditation process (in place since 2001) to an annual mixed-model design that additionally includes hospital case-mix, patient satisfaction and policy indicators. This study evaluates the impact of the new model on the casemix of medical cases at seven months post-implementation. We were primarily interested in impact on casemix of medical (non-surgical) cases, as they have previously been identified as more subject to miss-use/abuse, due to their fee-for-service structure (as opposed to surgical flat-rate).

Methods
Using data extracted from the ministry hospitalization database, we calculated the hospital casemix index (CMI) following a previously developed ICD-based approach, as has been suggested in countries lacking national DRGs (Yang and Reinke, 2006). Our dataset included all patients hospitalized under MoPH coverage between December 2014 and June 2015, and with a length of stay of 2-15 days (regular stay). This represented about 77% of all medical admissions. STATA version 11 was used for data preparation and analysis, with significance level set at 0.05 for all tests. Summary statistics of hospital casemix indices were calculated and the distribution investigated. Paired t-test was used to compare hospital CMI in pre-versus post-implementation, and then repeated among private and public hospitals separately.

Results
A total of 124 hospitals were included in the final analysis model, excluding 5 chronic-care facilities and 3 recently contracted hospitals. Mean CMI for medical cases increased post-implementation from 1.12 to 1.16 (p=0.0019; 1.13-1.19, 95% CI). Among private hospitals (n=100), mean CMI increased from 1.14 to 1.18 (p=0.006; 1.15-1.22, 95% CI), while among public hospitals (n=24) CMI change approached but did not reach significance (p=0.075).

Conclusions
The hospital medical casemix index increased following implementation of the new contracting model, primarily in private versus public hospitals. Such linkage of casemix and reimbursement rate provides an incentive for hospitals to increase their casemix index. Due to the nature of the MoPH hospitalization pre-approval system and auditing processes, we expect this change to be mainly due to decreased unnecessary hospitalizations and improved ICD coding practices; however this requires further investigation. The results of this study will be used along with those of other ongoing investigations to inform model developments for future contracting cycles.