

TITLE: Medical coding error: How will it affect the budgeting of the hospital?

Introduction

Medical coding error happens when the codes assigned by the coders are different from the actual diagnosis and procedures conducted on the patients. These error leads to wrong case-mix codes and finally caused negative implications to the estimations of the hospital's workload, budget and income. This study aimed to estimate the magnitude of error in medical coding in the largest teaching hospital in Malaysia.

Methods

40,839 hospital admission data at University Malaya Medical Centre (UMMC) in 2020 were obtained from the electronic medical record (EMR). The data consists of various medical disciplines in the center. Before the implementation of the case-mix at UMMC in 2021, only data on ICD-10 was available in the EMR. Those ICD-10 data were coded by the treating clinicians. Quality checks on the ICD-10 codes were done by the experts to ensure that the diagnosis codes were correct. On the other hand, the clinical procedures were all not coded and in a form of free text. Therefore, several trained coders had to do the ICD9-CM coding. After both the ICD-10 and ICD9-CM codes for every admission were documented, the data were imported into a case-mix grouper. The grouper then generated the Diagnosis Related Group (DRG) codes for all the treatment episodes at UMMC. The magnitude of errors was determined and presented in the form of frequencies and percentages. Subsequently, factors influencing the coding errors were investigated through observations and explorative study.

Results

The initial ICD-10 quality check found that 60% of the codes were correct. The remaining 40% error in ICD-10 codes was mainly about the secondary diagnoses, either they were un-coded or wrongly coded. Regarding the DRG codes, 5236 (13%) errors were found after DRG data were generated from the grouper. There are divided into three main categories of error. 3084 (7.7%) errors of 'no DRG' assigned. This happened when the combination of socio-demographics of the patients, diagnosis and procedures did not correspond. 1300 (3.2%) errors were due to the wrong parenteral codes used in the primary diagnosis such as codes with asterisks. The remaining 852 (2.1%) errors were due to invalid birth weight for infant cases, invalid date of admission, wrong gender, particularly in the obstetrics and gynecology cases and incomplete principle diagnosis for deliveries in obstetrics cases. Based on the observations, factors associated with the medical coding error were incomplete discharge summaries specifically on the primary and secondary diagnosis, typo error on the socio-demographic characteristics of patients and lack of experience to choose appropriate codes by the healthcare workers.

Conclusion

The quality of medical coding is important, especially in a healthcare setting that implemented case-mix as the medium of quality assessment and budget allocations. The medical coding errors will lead to inaccurate hospital tariffs and could result in inefficient allocation of healthcare resources and significant potential loss of revenue to

the hospital, which will resonate in the poor healthcare service deliveries. The implication of medical coding error to the budgeting of the hospital should never be underestimated. Close monitoring of the quality of discharge summaries and proper training on coding for healthcare workers is crucial to minimize the error.