Impact Of Coding Errors In Assignment Of Malaysian-DRG (MY-DRG) In University Kebangsaan Malaysia Medical Centre.

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Introduction
Coding of Diagnosis and Procedures are among the basic requirements for implementation of casemix system. UKMMC is the first hospital in Malaysia to use casemix system for enhancement of service quality and efficiency since 2002. The hospital used Malaysian-DRG casemix grouper, which is customised from UNU-CBG casemix system. In the casemix system, coding of Diagnosis and Procedures are essential during the process of determining the MY-DRG code. Poor coding quality will relate to the wrong assignment of MY-DRG code and this may have negative impact on hospital income in countries that used casemix system as provider payment tool in health financing programme. Appropriate cost of care incurred by hospital providers based on casemix, can only be calculated with an accurate diagnosis and procedure codes. The aim of this study is to analyze the impact of diagnosis and procedure coding errors in the assignment of MY-DRG code University Kebangsaan Malaysia Medical Centre (UKMMC).

Methods
This study was conducted in UKMMC from January to December 2014. 415 cases were randomly selected from 35,090 of Patient Medical Records (PMR) in UKMMC in the year 2013. These cases have been coded by UKMMC Clinical Coders. An independent expert coder with more than 20 years experience in coding but is not working in UKMMC was appointed to review the PMR and re-code the diagnosis and procedures of the selected discharges. ICD-10 and ICD-9CM were used to code for diagnoses and procedures, respectively. Researchers compared the both the original codes and the re-coded diagnoses and procedures. If the codes differed, the codes by independent expert coder are considered to be the correct ones. The new codes were then used and the discharges were grouped using the MY-DRG grouper. Lastly this new MY-DRG codes were compared with the original MY-DRG code in order to identify the impact of coding error in assignment of MY-DRG code.

Results
Overall it was found that in 87.4% (395/415) of the discharges contained at least one coding error. Errors in secondary diagnosis were the highest, which occurred in percentage of 33.4%(357/395) of the cases followed by secondary procedures with 24.6% (263/395), principal procedure with 21.5% (230/395) and primary diagnosis with 20.6 % (220/395). In the primary diagnosis, the errors were mainly found at the 4th digit level (29.5%, 65/220) of ICD-10. However for secondary diagnosis, and secondary procedure, the discharges were mainly being under-coded (75.6%, 270/357 and 55.1%, 145/263). For the principal procedure, the errors were mainly found at the 1st digit level (36.5%, 84/230). From the coding error cases, 66.6%(257/395) has resulted changes in their DRG codes. Out of this 257 cases, 45.5 % (117/257) resulted in changes in the DRG assignment, 33.1%(85/257) resulted in changes in the assignment of severity level and 21.4% (55/257) resulted in changes in the Casemix Group (CMG). In total, changes to MY-DRG codes after the recoding process resulted in a total loss of RM625, 812.00 to UKMMC.

Conclusions
Coding error is high in UKMMC, especially for the secondary diagnoses and secondary procedures. Some of these coding errors have resulted changes in their DRG codes with more than half of the cases resulted in lower hospital tariff. In order to prevent the hospital from facing any further loss in income, the hospital should embark on intensive training of the current coders. The hospital should also institute continuous monitoring of coding quality.

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