Orthopaedic Oncology Administrative Coding Data Submitted to the U.S. News & World Report: Accuracy and Implications

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INTRODUCTION: The use of administrative data to assess hospital quality metrics is well-recognized. Organizations, such as the U.S. News & World Report (USNWR), utilize this data and results are increasingly implicated in hospital reward and recognition. Though accurate in some situations, it has been shown administrative data abstraction can be prone to discrepancies in coding and service line designation leading to a misrepresentation of the patient cohort or treatment received. A risk further amplified in the medically complex patient. Due to the multidisciplinary care often seen in orthopedic oncology patients, we hypothesized increased challenges in coding data abstraction compared to that in a non-oncologic cohort of orthopedic patients. The purpose of this study was to elucidate the accuracy of the administrative coding data in an orthopaedic oncology cohort undergoing endoprosthesis reconstruction submitted to the USNWR.

METHODS: At a single tertiary academic medical center between 2019-2021, administrative coding data of patients greater than 65 years of age and eligible for Centers for Medicare & Medicaid Services (CMS) was obtained. We performed two analyses. In our first analysis, 3712 patients were identified by 11 DRG codes chosen to identify a like-cohort of orthopedic patients undergoing arthroplasty of the hip, knee, or shoulder (DRG 461-2, 466-470, 483, 542-4). 824 of 3712 were further identified as included in the orthopaedic specialty cohort submitted to the USNWR when matched with Vizient data. To distinguish an orthopedic oncology cohort, the 824 were filtered using oncologic ICD-10 codes C40, C49 and M84.4. 30 patients were identified, and a manual audit via chart review was performed to determine the accuracy of their associated DRG designation and procedures performed during their admission. For comparison, a parallel audit was then performed on a random cohort of 30 patients selected from the 824 who were not previously screened by oncologic ICD. In our second analysis, patients who underwent a known extremity endoprosthesis from 2019-2021 were obtained from our orthopaedic oncology divisional database. Using Vizient data, 83 patients were identified and found in the orthopedic specialty cohort submitted to the USNWR. A manual audit of this data was performed to analyze the accuracy of the DRG codes assigned at time of discharge.

RESULTS: In the first analysis, despite being designated in the orthopaedic specialty cohort, only 33% (10/30) of orthopaedic oncology patients were admitted to the orthopedic service. 48% (12/30) had an orthopaedic procedure; 17% (5/30) were never evaluated by an orthopaedic provider. Service line designation was more accurate in the non-oncology orthopaedic cohort with 90% (27/30) having an orthopaedic procedure, and only 7% (2/30) never being evaluated by an orthopaedic provider. In the audit of 83 known endoprosthesis patients, 35% (29/83) had incorrectly identified DRG codes at the time of discharge. The most common error was DRG 522 - hip fracture treated with total joint arthroplasty (13/83, 16%).

DISCUSSION AND CONCLUSION: Orthopedic oncology manages a complex patient population where the potential for inaccurate mortality attribution is amplified. In our first analysis, a cohort built by DRG abstraction, we found significant inaccuracies in team designation, reason for admission, and procedures performed. Additionally, our second analysis, using an internal registry as the standard of accuracy, we found DRG designation to be inaccurate in 35% of patients undergoing endoprosthesis reconstruction. These inaccuracies were decreased when orthopedic oncologic codes were not utilized. The results aim to highlight a need in improving the coding abstraction process and propose departments with a higher proportion of orthopedic oncology cases relative to general reconstructive cases may be negatively impacted in publicly reported registries.