

## **Inconsistency and Ambiguity within the ICD-10 Procedure Coding System for Hip Fractures**

Joshua T Anderson<sup>1</sup>, Levent Aytekin Ozdemir, Benjamin M Stronach<sup>1</sup>, C Lowry Barnes<sup>2</sup>, Simon Mears, Jeffrey Benjamin Stambough<sup>1</sup>

<sup>1</sup>University of Arkansas For Medical Sciences, <sup>2</sup>University of Arkansas for Medical Sciences

### **INTRODUCTION:**

The International Statistical Classification of Diseases, 10th Revision Procedure Coding System (ICD-10-PCS) was created to increase granularity of procedures and standardize disease tracking. PCS codes are entered by hospital coders using the medical record. Concern exists that this increase in complexity could lead to inaccurate data.

### **METHODS:**

Medical records and ICD-10 PCS codes for operatively treated femoral neck and pertrochanteric fractures from 2016-2019 at a tertiary-referral medical center were reviewed. Each figure of the 7-unit ICD-10-PCS code was recorded. Definitions for each figure from the 2022 American Medical Association's ICD-10 PCS Official Codebook were compared to the medical record, operative report, and implant record for each surgery.

### **RESULTS:**

56.0% (135/241) of PCS codes had ambiguous, partially correct, or incorrect figures within the code. 72.0% (72/100) of fractures treated with arthroplasty compared to 44.7% (63/141) treated with fixation had one or more inaccurate figures ( $p < 0.01$ ). 9.5% (23/241) of codes contained at least one frankly incorrect figure. Approach was coded ambiguously for 24.8% (29/117) of pertrochanteric fractures. Device/implant codes were partially correct in 34.9% (84/241) of PCS codes and in 78.4% (58/74) and 30.8% (8/26) of hemi (HA) and total hip arthroplasties (THA). 69.4% (86/124) of femoral neck fractures and 41.9% (49/117) of pertrochanteric fractures had one or more incorrect or partially correct figures ( $p < 0.01$ ). 13.6% (3/22) of dynamic hip screws, 78.4% (58/74) HAs, 49.0% (47/96) of intramedullary nails (IMN), 63.6% (14/22) of percutaneous cannulated screws, and 46.2% (12/26) of THAs had at least one inaccurate figure within the PCS code.

### **DISCUSSION AND CONCLUSION:**

Despite the increased granularity of ICD-10 PCS codes, this system is inconsistent and often incorrect. The definitions of the PCS system are difficult to understand and utilize by coders. The poor validity of this system may impact clinical and research conclusions obtained from these codes.