International Classification of Diseases-10 (ICD-10) for inflammatory arthritides : not taking advantage of added granularity

Justin R. Zhu, BA[1], Michael J. Gouzoulis, BS[1], Stephen Gillinov, BS[1], Anoop Galivanche, MD[2], Peter Joo, MD[1], Jonathan N. Grauer, MD[1]
[1]Department of Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, CT
[2]Department of Orthopaedics, University of California, San Francisco School of Medicine, San Francisco, CA
Email: jonathan.grauer@yale.edu

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INTRODUCTION: The International Classification of Diseases (ICD) was revised in 2015 from ICD-9 to ICD-10, expanding the number of codes by fivefold.

Specifically, inflammatory arthritis codes increased from 14 to 425 with the introduction of ICD-10. This allows for better characterization of such conditions for over 1.3 million affected Americans with clinical, billing, and research implications. On the other hand, the greater granularity is only of utility if the breadth of codes is utilized.

The purpose of the current study was to use a large national, multi-insurance, administrative database to investigate usage patterns of inflammatory arthritis codes under ICD-10 relative to ICD-9.

METHODS: The PearlDiver M151 Ortho administrative dataset was utilized to identify patients with inflammatory arthritis with ICD-9 (Q1 2011-Q2 2015) and ICD-10 codes (Q3 2015-Q2 2021). The distribution of code utilization was analyzed by year and by provider specialty code. Higher usage codes (>1% of total code utilization) were identified. Statistical analysis was performed using chi-square and Kolmogorov-Smirnov tests.

RESULTS SECTION: A total of 5,152,250 patients coded for inflammatory arthritides were identified, of which 2,626,584 (51.0%) were coded in ICD-9 and 2,525,666 (49 .0%) in ICD-10.

For ICD-9 codes, 4 of 14 inflammatory arthritis codes (28.6% of available codes) were used >1% of the time. For ICD-10 codes, 9 of 438 inflammatory arthritis codes (2.1% of codes) were used >1% of the time ($p<0.001$). The most used ICD-9 code was ICD-9-D-7140 “Rheumatoid arthritis,” an unspecific code (76.1% of total ICD-9 coding usage). The most used ICD-10 code was ICD00-D-M069 “Rheumatoid arthritis unspecified” (53.1% of total ICD-10 usage).

To assess for a learning curve in ICD-10 usage, year-by-year ICD-10 subgroups were tabulated for the number and percentage of higher-usage codes (>1% of total usage), with no significant difference in found in year-to-year coding usage (Fig 1, $p=0.993$).
To assess for potential differential usage of ICD-10 across specialties, provider-by-provider ICD-10 subgroups were assessed with the number and percentage of higher-usage codes. Orthopaedists performed significantly poorer in code usage compared to other specialties (Fig 2, $p=0.018$).

DISCUSSION: With the transition from ICD-9 to ICD-10 in 2015 has come increased granularity of diagnosis codes for inflammatory arthritis in clinical care and research. However, despite a thirty-fold increase in available inflammatory arthritis codes, the present study finds that adoption of ICD-10’s coding richness has been poor, with no more than 2.1% of available codes being commonly used. Usage trends toward selecting the most non-specific codes, with no significant year-to-year improvement in adoption. Furthermore, orthopaedists used a significantly narrower distribution of ICD-10 codes compared to other specialties.

The findings suggest that it may be worthwhile to encourage training and adoption of ICD-10 in areas such as inflammatory arthritides to improve clinical care, research, and billing.

SIGNIFICANCE/CLINICAL RELEVANCE: (1-2 sentences): This project is the first to use a large national database to examine the adoption of ICD-10 coding in the context of inflammatory arthritides. This project allows for the analysis of whether or not ICD-10 is being utilized to its full potential, pointing the way for further endeavors to encourage training and adoption of the revised system.

IMAGES AND TABLES:

Figure 1:

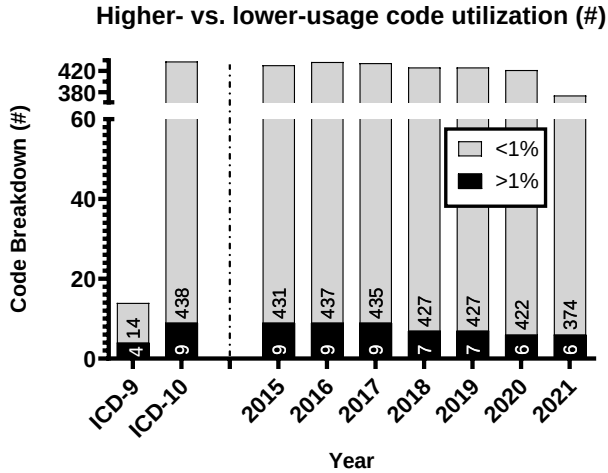

Figure 2: