

Elucidating Challenges and Opportunities in the Transition to ICD-10-CM

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KEY WORDS

ICD-10, informatics, diagnostic codes, medical billing, electronic health records

ABBREVIATIONS

EHR—electronic health record

ICD-9-CM—International Classification of Disease, Ninth Revision Clinical Modification

ICD-10—International Classification of Disease, Tenth Revision

International Classification of Disease—Tenth Revision

ICD-10-CM—International Classification of Disease

Tenth Revision, Clinical Modification

QI—quality improvement

Drs Fiks and Grundmeier conceptualized the manuscript, drafted the initial manuscript, and approved the final manuscript as submitted.

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Throughout the history of medicine, clinicians have worked to classify disease. As early as 1662, John Graunt studied the London Bills of Mortality to report death rates by condition.¹ Originally created for epidemiologic purposes, systems of disease terminology became useful for other purposes, including billing. Since 1979, the *International Classification of Diseases, Ninth Revision with Clinical Modifications* (ICD-9-CM) has been used for third-party payment in the United States. Worldwide, the 10th revision of the ICD (ICD-10) has been used with local modifications in numerous countries for a decade or more. Now, all US entities covered by the Health Insurance Portability Accountability Act will be required to use ICD-10-CM on or after October 1, 2015. ICD-10-CM has about 5 times as many codes as ICD-9-CM. It is hoped the new codes will be better aligned with current medical terminology, characterize health information that could not be described with ICD-9-CM (eg, Glasgow coma score, blood type), and provide greater detail about health conditions (eg, severity of disease, laterality of anatomic location). The transition to ICD-10-CM should also facilitate comparisons of health outcomes between the United States and other nations.²

The transition to ICD-10-CM occurs in the context of an accelerating transformation in how electronic health data, including diagnostic codes, are used. Driven by the investment of \$19 billion to promote the adoption of electronic health records (EHRs) by the American Recovery and Reinvestment Act of 2009,^{3,4} nearly 80% of office-based physicians are currently using EHRs.⁵ These systems may facilitate an increasing number of large-scale research studies and quality improvement (QI) projects in addition to their traditional role in patient care and billing. In the research arena, the Patient-Centered Outcomes Research Institute has funded 11 electronic health record–driven Clinical Data Research Networks, including 1 focused exclusively on pediatrics. Similarly, the American Academy of Pediatrics Pediatric Research in Office Settings Network is working with collaborating networks from across the United States to study through EHR data the safety and efficacy of medication for children. Increasingly positioning pediatricians as active users of EHR data, American Board of Pediatrics Maintenance of Certification Part IV now requires pediatricians to participate in data-driven QI projects. In this setting, pediatricians, their practices and health systems, and researchers and QI experts must recognize the implications of changing from ICD-9-CM to ICD-10-CM.

The study by Caskey and colleagues in the current issue of *Pediatrics*, through a detailed analysis of Illinois Medicaid billing codes, carefully characterizes the many ways that the transition from ICD-9-CM to ICD-10-CM may change the meaning, what clinical informaticians call the semantics, of commonly used codes.⁶ The good news is that the authors found that 74% of codes were readily transitioned. However, they found 26% of diagnostic codes, representing 16% of reimbursements,

to be convoluted, indicating that the transition from ICD-9-CM to ICD-10-CM is complex and likely to be challenging. Among the convoluted mappings, they found that codes suffer from information loss, with the transition obscuring a clinically important distinction, overlapping categories, where the choice of the correct ICD-10-CM code from multiple options may not be intuitive, or inconsistency, when the ICD-9-CM codes map to ICD-10-CM codes with a clinically different meaning. Although it is not surprising that meaning may be lost in this translation, both the extent of the difficulties in translation and the financial implications warrant careful attention.

Caskey has made an important contribution to ICD-10-CM transition efforts by categorizing the different mapping errors that can occur and providing lists of error-prone diagnoses. As mentioned

by the authors, appropriate ICD-10-CM training should be provided to billers, staff, clinicians, and others using the data. In addition, we recommend that all health systems generate reports of their most frequent diagnoses to determine which may be subject to errors, based on this analysis by Caskey and their own review. In addition to billing personnel, research and QI teams that make secondary use of coded diagnoses should review these lists. Before the transition to ICD-10-CM, members of the institutional review boards should also search for protocols extending beyond October 1, 2015 that make secondary use of coded diagnoses. Existing reports that support QI or research should be examined for references to ICD-9-CM codes and updated to include suitable ICD-10-CM codes. In addition, research and QI teams should plan a period

of careful observation after the ICD-10-CM transition to monitor for unanticipated shifts in cohort size or outcomes that may be spurious.

Although this transition presents immediate challenges and costs, the more granular coding supported by ICD-10-CM promises to improve the specificity of billing and payment as well as process and outcome measurement for QI and research. As Caskey demonstrates, active planning and vigilance are needed now and through the implementation of ICD-10-CM to best realize these goals.

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