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Coding Patient Information, Reimbursement for Care, and the ICD Transition

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Classifying Patient Data

Clinical information which, simplistically, consists of both structured data (e.g., laboratory test values) and unstructured information (notes, reports, dictations, discharge summaries), is intrinsically complex. The organization of clinical records has historically—and appropriately—focused on interpretability by people. After all, the major use of patient records has been to remind practitioners about where they left off in a patient care episode and to inform other caregivers about the case and patient course. Now many secondary uses of the record have evolved, including quality assurance, best practice discovery, translational research, and, of course, reimbursement. Coding for reimbursement purposes, however, creates incentives that may interfere with these other uses. Recognition of the record as a legal document is largely a twentieth-century innovation that may have been inevitable, though the legal status of a patient record should not be confused with its primary purposes. Nevertheless, it is in the context of a patient record as a legal document that it serves as the basis for reimbursement justification.

So how is the record organized to make these various uses possible? Like a book's table of contents, a problem list facilitates many uses of the record. The problem list enumerates key diagnoses, symptoms, surgical events, and associated metadata such as the onset of the problem and its present status (active, resolved, intermittent, and so on). A second dimension of this metadata is whether these problem list entries are maintained only as short textual strings or have, either in addition or as an alternative, coded values drawn from some formal classification scheme such as the Systematized Nomenclature Of Medicine Clinical Terms (SNOMED) [1] or the International Classification of Disease (ICD) [2].

Coded data arbitrarily restricts what can be entered into the record, while free text does not lend itself to most secondary uses of patient data, which are becoming increasingly important in the delivery of efficient and high-quality medical care (e.g., in developing clinical decision support systems). Obviously, a hybrid of free-text descriptions and the best available coding schema would be ideal. The costs of coding data can vary by method, however, with coding done by human specialists being the most expensive and fully machine-coded data being virtually free but not currently as reliable. The importance of accuracy in the use-case ultimately determines whether the added precision from human coding outweighs the extra costs.

Finally, the choice of coding systems comes to the fore. Reimbursement policies of the Centers for Medicare and Medicaid Services and major insurance companies,

together with legislation related to the Health Insurance Portability and Accountability Act, have mandated the use of ICD9-CM in the United States. However, the 2014 “meaningful use” requirements (for clinicians to receive financial rewards for the meaningful use of electronic medical record technology) specify that SNOMED-CT be used for problem lists in order to support a wider range of secondary uses. This begs the distinction between a statistical classification such as the ICDs and a detailed clinical terminology such as SNOMED. Statistical classifications, by definition, are mutually exclusive (meaning a diagnosis can be assigned to one and only one code) and exhaustive (meaning there is a code for every condition—though typically this is satisfied by including residual categories such as “not elsewhere classified”). Clinical terminologies, on the other hand, do not have these restrictions, and tend to be much larger. ICD-9CM has approximately 12,000 categories, while SNOMED-CT contains more than 300,000 discrete meanings and more than 1 million terms.

Secondary Uses of Patient Data

If problem lists, and for that matter other aspects of the patient record, are to be coded at significant cost, the next question is why. The simplest explanation is that modern medical care has become profoundly information intensive, and the management of large amounts of information ultimately requires the layering of comparable and consistent categories so that people and machines can make sense of it. More specifically, there are medical and scientific benefits that cannot be obtained without standardizing and coding medical record data.

Knowledge discovery. Among the questions we all have when we seek medical care, are: (1) what’s wrong? (2) what can be done to treat or cure this? and (3) what is the natural course of this problem with and without treatment? To answer these, we must consider how physicians and the larger clinical care community know what they know and where they learned it. The knowledge from which medical professionals draw consists of both a base of personal experience and medical science’s accumulated knowledge. Shared knowledge about what helps and what hurts is increasingly enhanced through analyses of existing patient data (e.g., outcomes research, retrospective epidemiology) or protocol-driven discovery (e.g., clinical trials, comparative effectiveness research). Drawing inferences from both types of sources ultimately requires that categories of patients be established so comparisons can be made. Obviously, knowledge discovery can be more efficient and faster if clinical data are already classified.

Quality improvement. The first step to improving the quality of health care is to measure it. Measuring the quality of health care processes and episodes entails identifying cohorts of similar patients (denominators) and consistently counting certain kinds of outcomes (numerators) such as specific kinds of adverse events. Not infrequently, health care management applies “carrots” and “sticks” by increasing or withholding salary or bonuses for clinicians who deliver high-quality care—as measured by a suite of metrics.

The major resource typically invoked to assign patients to the numerators and denominators of quality metrics is patient classification data, typically coded in ICD.

Absent such coded data, the cost and error rate of the quality-measuring process would likely exceed the capacity of health systems to generate, and therefore benefit from, clinical quality initiatives.

Clinical decision support. The ultimate goal of computer-based assistance of clinical practice is to develop and deploy algorithms that can detect orders or patterns of care for which there are measurably safer or more effective alternatives and advise practitioners about those alternatives. However, to achieve any practical benefit, decision support systems must recognize that a given patient matches the “trigger” conditions specified in the algorithm rule, which ultimately depends on classification. While the ICD may have sufficient resolution to contribute importantly to decision rule pattern detection, in many cases ICD9-CM does not support the detailed descriptions of clinical circumstances required for highly specific clinical decision support rules. This is part of the reason why meaningful use will require SNOMED-CT for clinical problems coding by 2014.

Reimbursement. The International Classification of Diseases (ICD) coding system was created for public health and statistical purposes [3], allowing countries to compare mortality rates—and, more recently, morbidity and disease incidence and prevalence. However, the strongest impetus for shouldering the expense of clinical coding in ICD has been most recently that such codes form the basis for reimbursement computations. For many professionals involved in health care, the ICD is only a coding system used for reimbursement.

Among the challenges of tying clinical coding to reimbursement is the temptation for some clinicians to err on the side of more severe or complex disease descriptions, because such “up-coding” results in higher reimbursement. This practice is correctly characterized as fraud and abuse by payers and is aggressively monitored. The payers’ concerns center appropriately on having to reimburse unethical clinicians more than is fair.

Furthermore, given the spectrum of secondary uses for coded data outlined above, there is a more significant consequence to up-coding—it distorts the data. The ability of society to discover clinical knowledge, determine best practices, improve the quality of care, or conduct valid translational research is severely threatened by the systematic distortions in the underlying clinical data. Importantly, misrepresentations of patients’ conditions may have more immediate consequences for some individual patients, because clinical decision support rules may fire inappropriately and advise interventions that are not optimal or appropriate for a patient’s true circumstances.

ICD Transition

In October of 2014, the United States will formally change from ICD9-CM to the next iteration of the ICDs modified for use in the US, ICD10-CM [4]. Among many questions is whether this will create dramatic changes in reimbursement and the other secondary uses exemplified above. Colleagues and I reviewed many salient aspects of this question in a recent article [5]. Briefly, while there are 68,000 codes in the new diagnostic system as opposed to 12,000 in the old, the majority of these codes pertain to external causes of injury and permutations on their detail. The

number of diseases accommodated by ICD10-CM is not significantly greater than that in ICD9-CM; thus SNOMED-CT will remain an obvious choice for secondary use-cases that require significant detail.

The cost of the ICD10-CM transition is estimated to run into the hundreds of billions of dollars, and the obvious question is whether anybody will realize a corresponding benefit for that investment. While the jury is officially out since the transition has not occurred, estimates suggest that the incremental value may not match the transition cost. On the other hand, the 40-year old ICD9-CM system is palpably out of date and literally does not have any room to accommodate the expanding understanding of disease and its characteristics. The country ultimately has little choice but to embrace this next generation of classification.

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