Value of ICD-10 at the Point of Care

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The ICD-10-CM/PCS code set offers substantial clinical value to healthcare which includes new diagnoses and treatments. There has been a fair amount of emphasis on ICD-10's value in clinical research and population health, but less on its value at the point of care—while a physician is caring for a patient during a face-to-face encounter. As opposed to ICD-9, ICD-10 enables the capture of detailed information about diagnoses and procedures that can have a significant benefit to patient care.[1] This article will discuss and provide examples of how ICD-10 benefits clinical medicine by providing clinicians with accurate information during physician-patient interactions, when it most needed.

Problem Lists

Problem lists are an essential component of managing patients. They serve as a quick reference that informs healthcare providers of the patient's active medical conditions. The problem list is a central feature of electronic health records (EHRs) and may be populated with diagnoses based on ICD-9/ICD-10 display terms and codes. It is often the first clinical information displayed when the provider opens a patient record in an EHR. Many EHRs also make the problem list readily available to the provider as they navigate to other areas in the record and/or create an encounter note. Problem lists are used by clinicians when they make diagnostic and treatment decisions. It is important that the information in problem lists be as accurate and complete as possible to prevent potential medical errors.

ICD-9 is fairly limited in its ability to represent a number of common medical conditions. For example, one of the more common conditions that affect women of all ages is chronic pelvic pain.[2] ICD-9 does not have a specific code for pelvic pain, forcing clinicians to choose a similar but clearly not identical code, such as "Unspecified symptom associated with female genital organs" (625.9) or "Abdominal pain, other specified site," (789.09), for clinical purposes. If the pelvic pain is more prominent on one side the best clinical choice available might be the ICD-9-CM codes "Abdominal pain, left lower quadrant" (789.04) or "Abdominal pain, right lower quadrant" (789.03). Regardless of which code is chosen, the accurate diagnosis cannot be placed in the problem list for clinical use, and this could lead to errors in the diagnosis and management of the patient; even if the ICD-9 code is sufficient for reimbursement. ICD-10 has a code specific for pelvic pain (R10.2 "Pelvic and perineal pain"), enabling the problem list to reflect the patient's specific clinical condition. This information allows the practitioner to make diagnostic and treatment decisions based on complete and accurate information.

Another example that illustrates the clinical value of ICD-10-CM at the point of care is in the management of a patient with burns. For example, if the patient presented with a burn involving their left arm, ICD-9 only allows for identification of a burn involving the arm, but not laterality. ICD-10 allows for the left arm to be specified. Missing or incorrect laterality is a leading cause of medical misadventures that may result in procedures being performed on the wrong extremity.[3] One of the areas of greatest expansion in ICD-10-CM is the addition of left, right, and bilateral terms.

ICD-10 also contains codes and terms that can be used to associate a condition or procedure with associated complications. ICD-10 has a code that represents "Septic pulmonary embolism with acute core pulmonale." Representing this in ICD-9 would require the use of two codes, one for "Acute core pulmonale" and another for "Septic pulmonary embolism." In ICD-9 there is no way to represent the relationship between the two clinical conditions, which in ICD-10 is clearly stated.[4] This has the potential to impact treatment decisions, in particular in an acute care setting. ICD-10 will significantly improve the level of integrity of information in the problem list, which has grown in importance with the increased adoptions of EHRs.

Electronic Prescribing Tools

E-prescribing applications have the ability to provide warnings to clinicians during the process of writing a prescription that may prevent medical errors. The Institute of Medicine, the majority of medical associations, and the Joint Commission have

strongly endorsed the use of e-prescribing tools as a means of reducing medical errors.[5,6,7] E-prescribing tools have a range of software functions designed to protect patients.[8] They provide alerts to the clinician that the drug(s) they are about to prescribe may have an adverse impact on the patient's health due to a drug allergy, drug-to-drug interactions or the patient's lab values, age, weight, or medical conditions. Physicians in the US must now use electronic prescribing (e-prescribing) tools during patient care or face Medicare penalties.

These applications depend on accurate clinical information. The clinical terminology used by these applications varies between EHR vendor applications, with some using ICD-9-CM, ICD-10-CM, SNOMED CT, or interface terminologies, and in some instances local derivatives of these code sets. Some EHR products capture codes in the form of ICD-9/ICD-10 that are secondarily mapped to other terminologies. Applications that depend on ICD codes to represent accurate clinical information for clinical decision support applications tied to e-prescribing will benefit substantially from ICD-10. ICD-10-CM provides a richer set of diagnoses that can improve the accuracy and value of the warnings and guidance that are presented to providers during patient care.

For example, ICD-9-CM has two relative unspecific codes for "Diabetes mellitus type 2 with neurologic complications," distinguished only by whether or not the complication is controlled or uncontrolled (250.60 and 250.62). ICD-10-CM has additional codes that represent common conditions associated with diabetes mellitus:

- 41: Type 2 diabetes mellitus with diabetic mononeuropathy (a disorder involving a single nerve caused by diabetes). This is a relatively frequent complication of diabetes mellitus (i.e., diabetic third nerve palsy)
- 42:Type 2 diabetes mellitus with diabetic polyneuropathy. Polyneuropathy, often painful, is a common manifestation of diabetes mellitus.
- 43: Type 2 diabetes mellitus with diabetic autonomic (poly) neuropathy. This code includes patients with generalized autonomic neuropathy secondary diabetes mellitus and patients with diabetic gastroparesis.
- 44: Type 2 diabetes mellitus with diabetic amyotrophy. This conditions is manifested by the loss of proximal muscle mass associated with diabetes.

One of the more difficult to manage complications of an autonomic neuropathy is postural hypotension. This results from a loss of control mechanisms that help to adjust blood pressure when an individual changes their position (i.e., rising from sitting to standing). This can lead to black-outs and falls that put the patient at risk for significant injuries. Medications known as tricyclic antidepressants are commonly prescribed to diabetic patients who experience nerve pain caused by diabetic damage to the peripheral nerves, primarily in the lower extremities. These medications may be contraindicated in patients with autonomic neuropathy as it may aggravate postural hypotension. An ideal clinical decision support system would warn the provider that this medication may be contraindicated, but it would need to be "informed" that the patient has this complication of diabetes before it would know to trigger a warning before the medication is prescribed. This would be difficult to achieve with ICD-9-CM. ICD-10-CM provides a number of specific codes that can be used by clinical decision support systems to identify patient safety issues.

Data Integrity and Interoperability

Information exchange in the form of complete and accurate data has been difficult to achieve in our society. One of the challenges has been the lack of a common clinical "language" that would allow systems to communicate. ICD-9-CM has been the primary code set for communicating between systems, but its lack of content and specificity have limited healthcare organizations from exchanging clinical data that can be relied upon for patient care. The integrity of information that is transmitted from one setting to another is often compromised. In some acute settings this may be the only information available to the clinician, creating a situation where the provider is forced to act upon information that may not be accurate.

The example below demonstrates the value of ICD-10 in the acute management of a patient in coma:

Example: A critically ill patient with a recent head trauma is transferred via helicopter from the scene of an accident to a trauma center. The emergency medical technicians (EMTs) document the severity of coma in the field using specific ICD-10-CM codes to record the patient's Glasgow Coma Score:

- Eye opening
    - Eye opening to verbal stimuli (in the field as per EMT) = 3 points (R40.2131)
- Verbal response
    - Incomprehensible speech (in the field as per EMT) = 2 points R40.2221)
- Motor response
    - Withdraws in response to pain (in the field as per EMT) = 4 points (R40.2341)

The patient arrives at the trauma center 30 minutes later and the patient's Glasgow Coma in the field at the scene of the accident is available to the trauma center via health information exchange using ICD-10-CM codes. The trauma team needs to assess whether or not the patient's status is stable or deteriorating. On arrival the patient is found to have the following levels of responsiveness using the Glasgow Coma Scale:

- Eye opening
    - Eye opening to pain only (at arrival to emergency department) = 2 points (R40.2122)
- Verbal response
    - No verbal response (at arrival to emergency department) = 1 points (R40.2212)
- Motor response
    - Extensor response to pain (at arrival to emergency department) = 2 points (R40.2322)

This information allows the trauma team to recognize there has been rapid deterioration in the patient's condition, strongly suggesting that an emergent intervention (i.e., craniotomy for an epidural hematoma) may be needed.[9] This is not currently possible in systems that use ICD-9.

The ability for systems to transfer accurate and complete clinical information between EMTs, ambulances, hospitals, clinics, and other settings of care has been compromised by ICD-9 for many years. ICD-10-CM will allow critical health information to be transmitted in a manner that more accurately reflects the patient's medical condition.

Additional Examples

The following table provides additional examples of ICD-10-CM codes that do not have clinical equivalents in ICD-9-CM. Each of these examples could impact medical decision making at the point of care.

Examples of ICD-10-CM Codes Without ICD-9-CM Equivalents

Summary

One of the most significant benefits of ICD-10 is its ability to provide accurate and complete information to clinicians at the point of care and during transitions of care. ICD-10-CM provides clinicians and software developers with a substantial increase in clinical content that can be used at the point of care. ICD-10 can provide more accurate information to providers at the point of care and can improve the accuracy of clinical decision support systems that clinicians rely on at the point of care.

Notes

1. American Medical Association. "The Differences Between ICD-9 and ICD-10." https://www.unitypoint.org/waterloo/filesimages/For%20Providers/ICD9-ICD10-Differences.pdf. September 25, 2012.

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Original source:
Stearns, Michael. "Value of ICD-10 at the Point of Care" (Journal of AHIMA website), September 2015.
