INFOGRAPHIC //

An Imperfect 10

BY TIMOTHY GOWER // INFOGRAPHIC BY MATT CHASE

What's so scary about ICD-10? That's shorthand for the International Classification of Diseases, tenth edition, an updated coding system that hospitals and doctors' offices were supposed to start using to submit medical bills to health insurers on Oct. 1, 2014. However, amid concerns that adopting the new codes would lead to chaos and lost revenue, President Obama in April signed into law a bill delaying implementation until at least Oct. 1, 2015. While the United States has been using ICD-9 for more than 30 years, most other countries long ago upgraded to ICD-10 (though outside this country the updated codes are used primarily for administrative purposes, not billing). The U.S. Department of Health and Human Services' decision to adopt the new standard has both fans and critics.

WHY THE SWITCH?

ICD-9 contains obsolete terminology. For example, few practitioners today use the term "intrinsic asthma" (code 493.10 in ICD-9), which in ICD-10 changes to "mild intermittent asthma, uncomplicated" (J45.20).

Many medical procedures that are commonplace today weren't performed when ICD-9 was developed, such as robotic, laser and laparoscopic surgeries.

ICD-9 is running out of numbers. Most code numbers in the majority of disease categories in ICD-9 have been assigned, so there's no room to accept new diagnoses or procedures.

HOW IS ICD-10 DIFFERENT?

More codes. There are about 14,000 ICD-9 diagnostic codes, while ICD-10 has more than 69,000. Procedure codes will jump from close to 4,000 in ICD-9 to nearly 72,000 in ICD-10.

Longer codes. ICD-9 codes are made up of three to five digits, mostly numbers. ICD-10 codes contain three to seven digits and include letters as well as numbers.

More specificity. More codes and more digits mean doctors can provide greater detail about patient care to meet the demands of payers and regulators. Take a wrist fracture, for instance. Unlike ICD-9, the new codes allow doctors to indicate laterality (right or left wrist?) and the episode of care (initial encounter or follow-up visit?). ICD-9 had one code (39.50); ICD-10 has 1,196. The ICD-10 for "Dilation of Right Femoral Artery with Intraluminal Device, Percutaneous Approach" is code 047K3DZ, which breaks down to:
0: Medical and Surgical
4: Lower Arteries
7: Dilation
K: Femoral Artery, Right
3: Percutaneous
D: Intraluminal Device
Z: No qualifier (the seventh character is reserved for "qualifiers," or additional information about a procedure)

YES, THERE'S A CODE FOR THAT

Journalists and bloggers reporting on the ICD-10 conversion have poked fun at the new codes for including a number of highly specific, to say nothing of exotic, patient circumstances (though ICD-9 had its share, too). A few of the more noteworthy include:

W61.11: Bitten by macaw

V91.07: Burn due to waterskis on fire

V97.33: Sucked into jet engine

Z63.1: Problems in relationship with in-laws

Z62.891: Sibling rivalry

W22.02: Walked into lamppost

THE FINANCIAL HIT

The American Medical Association and other groups have opposed ICD-10 because of high implementation costs.

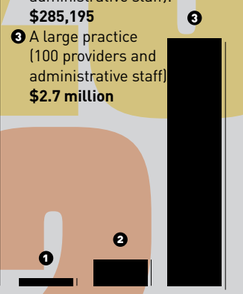
Practice management and other software will have to be upgraded, and vendors won't necessarily cover those costs, which could average $11,500 per full-time employee.

Coders will need retraining. It will take experienced coders two to four days of classroom and hands-on experience to learn how to use ICD-10.

Productivity will likely suffer. After Canada began implementing ICD-10 in 2001, the number of charts that coders completed per hour dropped by 50% at one Ontario hospital. A year later, productivity was at about 80%. Rejected claims could cut revenue by 6% to 10% as coders adjust, according to one estimate.

Typical conversion costs, according to a 2008 estimate by Nachimson Advisors, a consulting firm:

1. A small practice (three physicians and administrative staff): **$83,290**
2. A medium practice (10 providers and administrative staff): **$285,195**
3. A large practice (100 providers and administrative staff) **$2.7 million**



LONG-TERM GAIN

Initial confusion about the new codes should give way as coders adjust, and because the new codes are less ambiguous and better organized than ICD-9, rejected claims should eventually drop below current levels. According to the Rand Corporation, ICD-10 "has the potential to generate more benefits than costs."

BENEFITS FOR PUBLIC HEALTH

Epidemiologists around the world mine ICD codes from doctors and hospitals to help them understand trends in disease and death. The United States has already made the transition to the much more specific ICD-10 in recording causes of death, but it has been the only industrialized nation still using ICD-9 for diagnoses. This limits the ability to compare the rates of cancer or other diseases in the United States with the rates in other countries, a problem that will be remedied by adopting ICD-10. Moreover, the finer details in ICD-10's diagnostic codes will make medical billing data a better proxy for clinical outcomes than its predecessor, which should also improve the overall accuracy of U.S. disease statistics. The Centers for Disease Control and Prevention has lauded the transition to ICD-10 as an important step for improving public health.

THE NEXT GENERATION

By 2017, the World Health Organization plans to introduce ICD-11, which—among other changes—is being designed to work better with electronic health records and will feature plain-language definitions of diseases, which for the first time will include genetic data. As an example of the latter addition, doctors will be able to note whether a patient with breast cancer has tested positive for the BRCA1 or BRCA2 gene mutations. The inclusion of such information "is a modest step forward" that's destined to become more important with the increase in knowledge of the genetic origins of disease, says Christopher Chute, chair of the World Health Organization panel overseeing the development of ICD-11. But given the current controversy over the transition to ICD-10, says Chute, "it will be a long time before we see ICD-11 in the United States."

MILESTONE //

The Electric Brain

On a spring morning in 1892, 19-year-old Hans Berger was hauling artillery during a military exercise in Würzburg, Germany when his horse stumbled, throwing him to the ground. Berger was nearly crushed by the artillery battery, a brush with death that would lead him to invent the electroencephalogram 80 years ago, in 1924.

That night, Berger received a telegram from his father after Berger's sister had been overwhelmed by a sense that something grave had befallen her brother. "This is a case of spontaneous telepathy in which... as I contemplated certain death, I transmitted my thoughts, while my sister who was particularly close to me, acted as the receiver," he wrote in his diary.

Obsessed by the coincidence, Berger devoted his life to exploring the link between physiological processes and psychic phenomena. In 1897, he earned a medical degree at the University of Jena, where he became a clinician and later director of the University Neurology and Psychiatry Clinic. He began an attempt to measure "psychic energy," which Berger hoped might explain telepathy.

Berger decided that electrical activity was the most likely source. One day in 1924, Berger attached electrodes near the head scars of a teenage boy with a hole in his skull from having a tumor removed, thinking the gap would allow for clearer signals. He connected the electrodes to an Edelmann string galvanometer, a device that measures electricity. This technique triggered oscillations in the device's quartz string; Berger captured the wavy lines on moving photographic paper.

Berger then measured the brain waves of people with epilepsy, dementia and other disorders, as well as healthy subjects. Plagued by doubts, he waited until 1929 to publish his findings, which were met with skepticism. Interest in EEGs flourished only after the noted British physiologist Lord Edgar Adrian replicated Berger's work in 1934. Berger's legacy, however, was marred by his willing collaboration with the Nazis, which included reviewing appeals for the sterilization of psychiatric patients.

Today, EEGs are used to monitor head injuries, tumors and Alzheimer's disease, and are the gold standard for detecting seizures and evaluating brain malfunction in newborns. Last summer, the U.S. Food and Drug Administration approved the first EEG-based test to help diagnose attention deficit hyperactivity disorder in children and teens. ■

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