Overview of inpatient coding

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Abstract: The main classification-based and nomenclature-based coding systems used in the United States, as well as the process and importance of documenting in the patient record, are discussed.

Hospital pharmacists usually have limited knowledge of and exposure to coding and reimbursement in the inpatient system. Coding allows for reporting of mortality data to the World Health Organization (WHO), reporting morbidity data in the U.S., and providing data for reimbursement from third-party payers to hospitals for services provided. Coded information is also the primary source for administrative management of medical services and a source of epidemiologic and statistical data from inpatient stays. In order to better understand inpatient coding and reimbursement, this article will discuss the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) coding system; the Healthcare Common Procedure Coding System (HCPCS); the process and importance of appropriate chart documentation; and the development of the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) coding system.

Coding in the inpatient setting enables hospital billing and provides statistical data for epidemiology and financial planning. The ICD-9-CM is a clinically modified version of the international ICD-9 system used for coding both diagnoses and procedures in the United States. Coding is derived from documentation found in the patient's chart. Appropriate documentation is key for quality and continuity of care and compensation for resources utilized. In the future the ICD-9-CM will be replaced by the 10th revision, ICD-10, which is already in use in many countries in Europe.

Index terms: Billing; Codes; Documentation; Hospitals; Patients; Reimbursement
Am J Health-Syst Pharm. 2003; 60(Suppl 6):11-14

In the United States, coding in the inpatient setting enables payment of charges submitted for reimbursement and provides statistical data for epidemiological study and financial planning in health care.[1] Codes are the primary information for administrative management of medical services. The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) is the major coding system utilized for coding of inpatient diagnoses and procedures.

Classification and nomenclature systems

ICD-9. The ICD-9 system is a classification-based system that groups data into broad categories. The World Health Organization (WHO) requires the use of the ICD-9-system for reporting mortality data for comparisons across countries.[2] In the United States, the ICD-9-CM (Clinical Modification) is a modification of the ICD-9 international system used to code and classify morbidity data and has been in use since 1979.[3] This expanded version of the ICD-9 includes changes for clinical purposes for use in the United States and can be collapsed back into ICD-9 format to report data to the WHO. The ICD-9-CM system translates information taken from the patient's chart and groups diseases and injuries or tests and procedures into numerical codes. ICD-9-CM codes summarize clinical services that lead to reimbursement for the hospital from third-party payers.

The ICD-9-CM system contains both diagnosis and procedure codes. The National Center for Health Statistics (NCHS) has the primary responsibility for updating diagnostic codes. The Center for Medicare and Medicaid Services (CMS) has the primary responsibility for the procedural codes. Joint meetings of the NCHS and CMS are held twice a year in the spring and fall to discuss additions to, deletions from, and issues with the coding system. Any interested party can submit requests for changes to be addressed during the meeting. ICD-9-CM is then updated yearly and changes go into effect on October 1.[3]

Coding Structure. Diagnostic codes are used to report the primary

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This article was supported by an unrestricted educational grant from Eli Lilly and Company.

and secondary diagnoses during the inpatient stay. Diagnostic codes have three, four, or five numeric or alphanumeric characters. There are 17 main divisions or chapters of codes that are further broken down into code sections, code categories, code subcategories, and code subclassifications (Figure 1). Three character codes make up the category header (e.g., *427: cardiac dysrhythmias*). If a diagnostic code is greater than three characters, a decimal point follows the third character. Each additional character further specifies the diagnosis (e.g., *427.4: ventricular fibrillation and flutter* which is a subcategory code and *427.41: ventricular fibrillation only* which is a subclassification code).[4] In addition, there are supplementary classification codes that are alphanumeric and start with E or V. E Codes (E800-E999) represent the "Classification of External Causes of Injury and Poisoning" (e.g., *E960: unarmed fight or brawl*) and V codes (V01-V82) represent "Factors Influencing Health Status Contact with Health Service." V codes can be used to indicate a principal diagnosis (e.g., *V71.89: observation for a suspected mental condition*) or as an additional diagnosis to indicate a patient history or health status (e.g., *V10: personal history of malignant neoplasm*).[5]

Unlike diagnostic codes, procedural codes contain three to four numeric characters with a decimal point following the second character. The first two numbers represent the category of procedure grouped by body system (e.g., *41: operations on the bone marrow and spleen*). The third and fourth numbers provide additional breakdown (e.g., *41.3: diagnostic procedures of the bone marrow and spleen* and *41.31: biopsy of the bone marrow*).[4] For reimbursement, the diagnostic and procedural codes group the patient into a Major Diagnostic Category (MDC) which is further evaluated for Diagnosis-Related Group (DRG) assignment leading to reimbursement.[1]

The ICD-9-CM coding system is contained in three volumes with the first two volumes containing diagnosis codes and the last containing procedure codes. The three volumes include *Volume I Tabular List: Diagnosis Classification, Volume II Alphabetic Index: Diagnosis Classification,* and *Volume III Tabular List and Alphabetic Index: Procedure Classification.*[4] The official coding rules and guidelines for the ICD-9-CM system are contained in the *Coding Clinic* that is published quarterly by the American Hospital Association (AHA). The *Coding Clinic* also provides guidance for coding.[1]

HCPCS. To report services, supplies, and materials for Medicare and Medicaid beneficiaries in the ambulatory care setting, the Healthcare Common Procedure Coding System (HCPCS) is utilized. The services, supplies and materials coded should correspond to an appropriate ICD-9-CM code for diagnosis and replace the ICD-9-CM Volume III for outpatient visits. Unlike the ICD-9-CM classification-based system that groups data into broad categories, HCPCS is a nomenclature-based system in which data have a one-to-one relationship with the code.

There are three levels of HCPCS codes:

1. Level I: Current Procedural Terminology (CPT) codes were developed and are updated annually by the American Medical Association (AMA). These codes describe medical services and procedures performed by health care providers. Each code is a five-digit numeric or alphanumeric code. Some examples of outpatient services coded using CPT codes include surgery, pathology, clinic visits, and radiology.
2. Level II: Codes developed by CMS to classify services or supplies not found in the CPT system. These are also called national codes. The five-digit codes are structured alphanumerically and range from A0000 to V9999.
3. Level III: Local codes that are developed for a geographic region by a Medicare fiscal intermediary when the CPT or national code does not cover a service or supply. Codes range from W0000 to Z9999.

To map the ICD-9-CM system to the HCPCS, a crosswalking system exists. Due to the difference in nomenclature-based and classification-based systems, it may take several HCPCS codes to express the data in an ICD-9-CM Volume III code. For this reason, it is difficult to directly compare data from the two systems.[1]

Coding from the patient record

To assign an ICD-9 code, the coder must review all source documents for information that will contribute to correct assignment. Inpatients usually have multiple diagnoses, so once codes are assigned, the coder must then place them in the proper order. Primary and secondary diagnoses are determined by certain definitions in the hospital setting. Secondary diagnoses can be further separated into complications or comorbidities in the DRG system, which can affect reimbursement. Therefore, accurate and clear physician documentation in the inpatient record serves multiple purposes. Most importantly, good documentation improves quality and continuity of care, as health care providers are better able to assess the patient's condition and treatment over the course

Figure 1. Example of category header, subcategory, and subclassification [4]

427: Cardiac dysrhythmias (Category header)
  427.4: Ventricular fibrillation and flutter (Subcategory)
    427.41: Ventricular fibrillation only (Subclassification)
    427.42: Ventricular flutter only (Subclassification)

of hospitalization. However, documentation is the principal and only source of data for hospital billing since coders must assign a code based on what is documented in the chart. If a key medical detail is missing, then coding can be inaccurate. Inaccurate coding may lead to inappropriate compensation for utilized resources to the healthcare system. For example, if a patient presents with pneumonia, then chart documentation should include the type of pneumonia, e.g., viral or aspiration. If the documentation is limited to pneumonia only, the coder must choose a lower-level principal diagnosis. This lower-level diagnosis might be appropriate for viral or community-acquired pneumonia, but if the pneumonia was due to aspiration, or if the patient had gram-negative bacterial pneumonia, more resources could have been used to treat the condition than would be reflected in the coding and may lead to inadequate reimbursement.[6]

Several sepsis-related studies have identified errors in the process of coding and billing, principally due to ambiguity surrounding the terms septicemia, bacteremia, and urosepsis. According to the AHA *Coding Clinic* for ICD-9-CM, "Sepsis involves clinical evidence of infection and evidence of systemic response to infection." Several clinical signs and symptoms that may be subtle or difficult to diagnose usually manifest systemic response. The AHA states, "Coders should never assign a code for septicemia based on clinical signs alone." While septicemia is an acute illness, the term bacteremia refers to bacteria in the blood and can be a laboratory finding. Bacteremia may lead to septicemia, but the terms are not interchangeable. If a diagnosis is not differentiated in the patient's record, the coder should consult the physician for clarification. The imprecise reference to a site or organ-specific sepsis, such as urosepsis, may require further clarification for coding purposes.[7] While in the clinical setting, urosepsis can mean either a systemic infection originating in the urinary tract or a urinary tract infection (UTI); in coding terms, urosepsis only means a UTI. Thus, a physician may need to distinguish between generalized sepsis (septicemia) and a urinary tract infection (i.e., urine contaminated by bacteria or other toxic material but without systemic findings).[8]

Further clarification is also needed for the different presentations of sepsis. In 2002, several new codes were developed by the NCHS to further specify septicemia. These include new subcategory *995.9: Systemic inflammatory response syndrome* (SIRS); *995.90: Systemic inflammatory response syndrome, unspecified SIRS not otherwise specified* (NOS); *995.91: Systemic inflammatory response syndrome due to infectious process without organ dysfunction; 995.92: Systemic inflammatory response due to infectious process with organ dysfunction* (for patients with documented severe sepsis); *995.93: Systemic inflammatory response syndrome due to noninfectious process without organ dysfunction* (for patients with a principal diagnosis of trauma); and *995.94: Systemic inflammatory response syndrome due to noninfectious process with organ dysfunction* (for trauma so severe that organ dysfunction is present).[9]

Several studies have highlighted the difficulty in classifying sepsis patients. In 1999, the Office of Inspector General (OIG) released a report of a sample of 1996 Medicare data ($n = 2{,}622$) that revealed that about 20% of patients had incorrectly been coded as DRG 416 for septicemia. Inappropriate coding could have a significant negative financial impact, and the OIG recommended that steps be taken to analyze discharge patterns and eliminate erroneous billing.[10] Another study by the Texas Medical Foundation (TMF) analyzed 1999 Medicare claims data and identified the need to implement coding guidelines for DRG 416 (septicemia) because of multiple inaccuracies. The TMF study found that payment errors resulting in inappropriate assignment of DRG 416 occurred because of a "lack of understanding of *Coding Clinic* guidelines related to coding septicemia in the absence of positive blood cultures; incorrect coding of urosepsis; lack of understanding of the differences between what the physician meant when using the diagnosis of urosepsis (i.e., generalized sepsis versus urinary tract infection) and how ICD-9-CM directs the coder to code urosepsis, resulting in the incorrect coding of the principal diagnosis; and lack of or incomplete physician documentation to substantiate a diagnosis of septicemia."[8]

The Texas Medical Foundation has suggested that hospitals can take several steps to prevent coding errors including creating mechanisms for communication between coding and clinical staff when chart documentation is ambiguous or inadequate; providing education to coders regarding identified problems and providing coding guidelines; educating clinical staff regarding identified problems and guidelines to prevent them; and developing a plan to track results of improvement efforts.[11]

General points to consider regarding documentation and coding are (1) the attending physician on the case is the ultimate determining authority of the clinical documentation in the patient's record; (2) the purpose of an improvement program should be to provide complete, clear, and specific clinical documentation in the medical record; (3) physicians should document the rationale behind their treatment decisions (e.g., if a test or drug is ordered, the physician should document the diagnosis s/he is treating or seeking to confirm or rule out); (4) physicians should be educated about the necessity of providing complete documentation in the patient's record and general ex-

amples can be supplied during the education; (5) documentation improvement is a process improvement that has an effect on the quality of care and financial solvency of the health care provider; and (6) multiple health care professionals have a role in ensuring continued documentation improvement, including physicians, case managers, nurse managers, pharmacists, and coding professionals.

Future coding systems

The many advances in medicine since the 1970's have been difficult to capture with the ICD-9-CM system and many of the basic categories are outdated. Given the limited number of codes in the ICD-9-CM system, incorporating changes in medical practice and new technology has been challenging. The revision of ICD-9 system, ICD-10, will be available in the United States in a few years. WHO has developed the ICD-10, which was renamed *WHO's International Statistical Classification of Diseases and Related Health Problems*. Many countries in Europe are already using the ICD-10 system.[1] The implementation of the system in the United States has been slow due to the complexity associated with the ICD-9-CM system's current use for reimbursement.

The NCHS is converting the ICD-10 system into an ICD-10-CM for diagnosis codes for use in the United States. The number of categories in the ICD-10 system has doubled from the ICD-9 and the ICD-10 uses alphanumeric rather than numeric codes and has expanded details for many conditions. At this time, the ICD-10-CM is still being developed and has not been widely evaluated.[3] The ICD-10-PCS (Procedure Coding System) is being developed by CMS as a replacement for the ICD-9-CM procedure codes in Volume III. The ICD-10-PCS is an expandable code system allowing for incorporation of new technology and procedures. The current ICD-9-CM procedure coding system is limited to 10,000 codes. Within the ICD-10-PCS, there are currently 197,769 procedure codes and there is the ability for expansion. The AHA has field-tested the ICD-10-PCS system and reported that results were positive. Although the ICD-10-PCS system has been completed, the ICD-10-CM system is still in development, and no decision will be made on implementation of these two systems until development of both systems is complete. Utilization of the systems may be further delayed given that the adoption process can be lengthy.[3]

Conclusion

Currently, ICD-9-CM is the system in the United States for coding diagnoses and procedures in the inpatient setting. Coding allows for reimbursement by third-party payers and data for health care statistics and financial planning on national and international levels. These coding systems can only function as intended with accurate documentation in the hospital chart. Although complete and concise physician documentation is paramount, all health care professionals can play a role in accurate documentation for appropriate coding and reimbursement.

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