A comprehensive approach to convert a radiology department from ICD-9-based coding to ICD-10-based coding
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Problem
• The International Classification of Diseases ninth revision code set (ICD-9) will be replaced by the tenth revision (ICD-10) code set in the United States on October 1, 2015 [1]
• ICD-10 increases the specificity of coding and expands the total number of codes from ~13,000 to ~60,000 [2]
• The transition to ICD-10 will affect every medical practice in the US [3], and will cost between $435 and $1150 million [4]
• Radiology practices have unique challenges that must be overcome in order to code their studies accurately

Specific Aim
• The goal of this project was to improve radiology reports to ease the transition from ICD-9 to ICD-10 and to improve coding for ICD-10

Methods
Improving Technologist History (Who-What-When-Where)
• Many of the components required for proper coding in radiology come from the clinical history provided by the ordering provider
• Often incomplete
• Does not always include all the necessary entities for the increased specificity of ICD-10 [2, 5, 6]
• In order to improve histories, we asked all of our technologists to obtain information directly from the patients and families. This work expanded upon an earlier project focused in radiography [7]
• Technologists were educated on the four components of a complete clinical history.
  • Who is providing the history?
  • What happened?
  • Where does it hurt?
  • When did it happen?

Results
Risk Assessment
• A total of 12,077 reports were analyzed
  • 43% (5151/12077) of reports were coded with an unspecified code
  • 62% (3197/5151) of deficient reports were extremity radiographs
  • The automated coding software algorithm was found to be insufficient
  • Studies deemed to be deficient often had complete information
  • Vendor only coded “Clinical History” and “Impression”
  • Vendor delay in providing an updated ICD-10 algorithms prevented further modification and evaluation of reports

Modifying Structured Reports
• A subgroup of clinical section and informatics leaders was created to evaluate and modify the structured reports [8] for extremity radiographs
  • Does not always include all the necessary entities for the increased specificity of ICD-10 [2, 5, 6]

Conclusions
• Quality improvement techniques can be used to ease the transition to ICD-10 in a radiology department
• Technologists can supplement the provided clinical history in a radiology department obtaining a complete Who-What-When-Where
• The use of standardized, structured reports allowed us to identify deficiencies in an automated coding system

References

Figure 1: The technologist’s view their history as an end exam question

Figure 2: Screen capture from voice dictation system shows the technologist history automatically populated within the radiology report (upper arrow). The history is also in the exam notes section (lower arrow)

Figure 3: Bar chart shows the overall percentage of studies in which the technologist have obtained a complete history has improved from a baseline of 57.8% to a current median of 88.7%.

Figure 4: Bar chart shows the percentage of studies with a documented complete history per modality per month, the line shows the overall performance of the entire department

Figure 5: Figures shows sample structured reports for a radiograph of the ankle. The reports change with increasing structure from a) through d)