



Structured Reporting of IR Procedures: Effect on Report Compliance, Accuracy, and Satisfaction

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ABSTRACT

Purpose: To compare effect of free-text versus structured reporting of IR procedures on report quality and report coding and value.

Materials and Methods: In this retrospective study, 432 common consecutive free-text IR reports created during 4 months (from September 2013 to December 2013) before implementation of structured reporting (February 2014) and 415 structured IR reports created after implementation (from September 2014 to December 2014) were reviewed to assess ease of use and compliance with reporting requirements for regulatory requirements and coding. IR staff and trainees and referring physicians to IR were surveyed on procedure report attributes, such as detail, quality, and clarity.

Results: Structured reporting increased compliance with reporting fluoroscopy time, radiation dose, and contrast administration compared with free-text reports (402/432 [93.1%] vs 251/415 [60.5%], $P < .001$; 402/432 [93.1%] vs 242/415 [58.3%], $P < .001$; and 395/432 [91.4%] vs 257/415 [61.9%], $P < .001$). Structured reporting decreased addendum requests for insufficient documentation from 43% (121/435 [28%] to 50/415 [12%], $P = .01$). Most IR physicians found structured reports to require less time to complete (21/26 [81%]), to be easier to complete (23/26 [89%]), and to have a similar or higher level of detail (19/26 [73%]) compared with free-text reports. Referring physicians were more satisfied with structured reports compared with free-text reports (6.9/10 vs 5.6/10, $P = .03$).

Conclusions: Structured IR reporting compared with free-text reporting improves compliance with radiation dose and contrast reporting, reporting and coding efficiency, and satisfaction among IR and referring physicians.

ABBREVIATIONS

ACR = American College of Radiology, CPT = Current Procedural Terminology, RVU = relative value unit

Numerous studies have demonstrated that both radiologists and ordering physicians prefer structured diagnostic radiology reports (1–4). Advantages of diagnostic radiology structured reports include fewer report errors and reduced report turnaround time (5). Similar to its added value in diagnostic radiology, structured reporting has been proposed

to be beneficial in interventional radiology (IR) for quality improvement and research purposes (6). Structured reporting has been proposed to facilitate research by a means of entering, storing, and retrieving large amounts of easily mined data on how image-guided procedures are performed (6). Given the current environment of increasing government mandates for accountability and quality benchmarks, these data can be used for comparing provider quality (6).

A multi-institutional study demonstrated that there is a discrepancy in physician preference for IR structured reporting, as referring physicians preferred structured reports, but IR physicians preferred free-text reports (7). Structured reports in IR have been proposed to improve reporting compliance and productivity (6,7). Lastly, IR structured reports may allow physicians to more easily participate in national registries, such as the American College of Radiology (ACR) and Society of Interventional Radiology (SIR) National Radiology Data Registry, as these reports may contain the necessary data elements for easy extraction, workflow integration, and registry participation

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Percutaneous Transhepatic Cholangiogram Sample Structured report

1. Transabdominal ultrasound.
2. guided percutaneous transhepatic bile duct access.
3. cholangiogram
4. biliary drain.

PROCEDURE DETAILS:

Following the discussion of the risks, benefits, and alternatives to the procedure, written informed consent was obtained . The patient was then brought to the angiography suite and placed supine on the exam table. A pre-procedure time-out was performed per institution protocol. The abdomen was prepped and draped in the usual sterile fashion.

Under guidance, a 21G Cook needle was advanced into biliary system. Images of the access were stored on PACS. Once return of bilious fluid was identified, a wire was advanced under fluoroscopic guidance into the common bile duct. A skin nick was made over the needle and the needle was removed over the wire. An Accustick set was advanced over the wire and the inner stiffener was withdrawn. A contrast injection was performed to confirm biliary anatomy. The headliner wire was exchanged for a [Glidewire] which was placed into the common bile duct using a Kumpe catheter. The glidewire was exchanged for a wire. A [6F] sheath was advanced over the wire into the biliary system.

[Details of the procedure performed.]

The catheters and sheath were removed. A F internal external biliary catheter was advanced, the wire and inner stiffener were removed and the was formed. Contrast injection confirmed appropriate position. The catheter was flushed with saline, secured with to the skin and sterile dressings were applied. The catheter was .

The patient tolerated the procedure well. There were no immediate complications.

Figure 1. Sample structured IR procedural report for percutaneous transhepatic cholangiogram procedure.

(6). Many IR practices vary their reporting process and compliance with reporting guidelines (6), and further evaluation of structured report quality and impact on clinical workflow and billing process may help promote use of structured reporting. The purpose of this study was to compare structured reports and free-text reports for common IR procedures in regard to reporting and Current Procedural Terminology (CPT) coding compliance and efficiency. A secondary objective was to evaluate report detail, quality, and clarity from the perspectives of both referring physicians and IR staff and trainees.

MATERIALS AND METHODS

Institutional review board approval was obtained for this Health Insurance Portability and Accountability Act–compliant, single large tertiary academic institution retrospective study. Informed consent was waived by the institutional review board. Implementation of structured reporting occurred within the IR department in February 2014. Structured IR reports were designed around a structure

that provided an executive procedural summary followed by a detailed procedural technical narrative (Fig 1). In this retrospective analysis, consecutive adult patients (age > 18 y) who underwent common IR procedures and their associated procedure reports in a similar time period, season of the year before (from September to December 2013) and after (from September to December 2014) implementation of structured reporting, were included. Patients were identified using an IR procedure database maintained in the Department of Radiology. The reviewed common IR procedures consisted of percutaneous transhepatic cholangiogram and biliary drainage catheter placement, dialysis circuit thrombectomy and other interventions, venous access procedures including tunneled central venous line and port catheter placement, diagnostic angiograms of the abdomen and pelvis, interventional angiograms of abdomen and pelvis, and bronchial angiograms and interventions. A total of 432 free-text nonstructured and 415 structured reports created for the selected IR procedures during the study period were included and reviewed. In the reviewed free-text nonstructured reporting period, 47 biliary

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