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ABSTRACT

Where are the data? Accuracy of automated EHR reporting

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Objective
Comparison of automated EHR-derived data with manually abstracted patient information on smoking status and cessation intervention.

Introduction
Over 300 independent practices transmit monthly quality reports to a data warehouse using an automated process to summarize patient information into quality measures. All practices have implemented an EHR that captures clinical information to be aggregated for population reporting, and is designed to assist providers by generating point-of-care reminders and simplify ordering and documentation.

Methods
A total of 82 small practices received training on documenting in the EHR to maximize performance on quality measures as part of participation in a pilot pay-for quality program. Retrospective clinical chart reviews were completed for 3278 patients at 46 practices. Chart reviewers collected visit-based information on patients' diagnoses, vitals, laboratory results, smoking status and if they were a smoker, whether the patient received cessation intervention. Chart reviewers also recorded whether the information was documented in the smart form, social history or other locations of the EHR. For the automated calculation of the cessation intervention measure, smokers are identified through a smart form and an intervention is recorded whether a patient receives either a referral to the New York State Fax-to-Quit program (http://www.nysmokefree.com/Pageview.aspx?p=ftq), a prescription for tobacco cessation medication, or counseling within the past year (Table 1).

Results
Providers recorded a smoking status for 85% of 3278 patients, 57% (of 2785) of which were documented in the smart form and captured for automated reporting. For the 1,197 patients not captured for reporting, a majority of the smoking status was recorded in the social history (89%).

Table 1 Location of Documentation for Current Smokers

		Smoking status location		
		Smart form	*Other*	*Total*
Cessation	Yes	72	31	103
Intervention	No	129	102	231
Received	Total	201	133	334

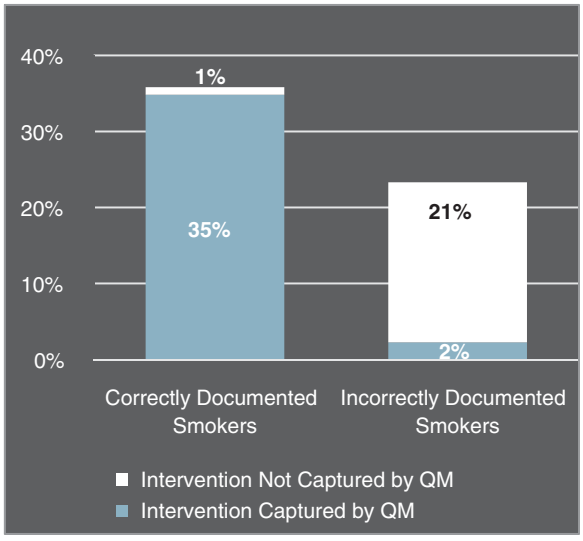

Figure 1 Smokers receiving a cessation intervention.

The automated quality measure captured 201 (60%) of the 304 current smokers (Figure 1).

Conclusions
Because a limited number of structured fields are used for measure queries, the smoking status and cessation quality measures generally undercount performance. Despite training, providers do not consistently document smoking status as intended by the EHR interface design. As a consequence, smokers not captured by the quality measure are less likely to

receive a cessation intervention because EHR-based alerts and reminders are not triggered.

When smoking status was not documented in the smart form, providers consistently used the social history structured field, which is not captured in the current measure query. The social history may be an equally valid place to record the information, and its use may indicate EHR usability and design issues for capturing and reporting on smoking status/cessation.

EHR vendors need to carefully consider provider workflows when designing user interfaces and choosing the structured fields used to generate quality measures. Updates to the EHR software to accurately report on provider delivery of services can be time consuming and disruptive to the practice. Because quality measure specifications are frequently revised, it is also important for vendors to design systems that have the flexibility to incorporate changes with greater ease or be able to update specifications recommended by evidence-based practice guidelines.

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