

Original Article

Improvement of Endoscopic Reports with Implementation of a Dictation Template

Natasha Harris, BSc¹, Jennifer Telford, MD, MPH, FRCPC, MD, MPH^{1,2}, Jordan Yonge, BSc¹, Cherry Galorport, MD¹, Jack Amar, MD^{1,2}, Brian Bressler, MD^{1,2}, Carl Brown, MD^{1,3}, Eric Lam, MD^{1,2}, Estello Nap-Hill, BSc^{1,○}, Terry Phang^{1,3}, Alnoor Ramji, MD^{1,2}, Matthew Suzuki, BSc¹, J. Scott Whittaker, MD^{1,2}, Robert Enns, MD^{1,2}

¹St. Paul's Hospital, Vancouver, Canada; ²Department of Medicine, University of British Columbia, Vancouver, Canada;

³Department of Surgery, University of British Columbia, Vancouver, Canada

Correspondence: Jennifer J. Telford, MD, MPH, FRCPC, Department of Medicine, University of British Columbia, Pacific Gastroenterology Associates, 770–1190 Hornby Street, Vancouver, British Columbia, V6Z 2K5, Canada, e-mail: jtelford@telus.net

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Abstract

Aims: Completeness of procedure reports is an important quality indicator in endoscopy. A dictation template was developed to ensure key elements were included in colonoscopy and esophagogastroduodenoscopy (EGD) reports. Endoscopy reports were reviewed prior to and following implementation of the dictation templates to determine whether report completeness improved.

Methods: Key elements in an endoscopic report were identified from published guidelines and posted at dictation stations. Colonoscopy and EGD reports were reviewed for the nine physicians performing endoscopy at St. Paul's Hospital prior to and following implementation of dictation templates. Dictation completeness was defined as inclusion of all key elements. Dictation completeness and inclusion of individual key elements at the two time points were compared using the *t*-test and Chi-square test.

Results: Reports for 4648 procedures undertaken by nine endoscopists were reviewed for completeness at each time point (2008 and 2014). Colonoscopy report completeness increased from 65.8% to 83.2% ($P < 0.001$). Items that improved included documentation of consent, endoscope used, complications, withdrawal time and rectal retroflexion. EGD report completeness increased from 72.7% to 77.3% ($P < 0.001$) with improvement in documentation of consent and complications. Items consistently underreported for colonoscopy and EGD at both time points included: patient age, comorbidities, current medications and patient comfort.

Conclusion: There was an association between the use of a posted dictation template at dictation stations and the improved completeness of endoscopic reports.

Keywords: *Dictation; Endoscopy; Quality improvement*

Background

Complete procedure reports are considered quality indicators of endoscopy (1,2) for a number of reasons. They allow adequate documentation to reference past findings relevant to

patient care, transparent communication between physicians and documentation of quality indicators of endoscopy.

The American Society for Gastrointestinal Endoscopy (ASGE) published consensus guidelines for endoscopy reporting (3) recommending documentation of 19 elements in the procedure

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report and set a benchmark for creation of a complete procedure report of > 98% (2). Subsequently, the Canadian Association of Gastroenterology (CAG) Consensus Guidelines on Safety and Quality Indicators in Endoscopy recommended reporting on 23 elements with 97.2% consensus (4).

Studies assessing report completeness at sites using computerized endoscopic report generators have identified that even in the presence of an electronic system, certain key elements are underreported (5,6). These include appropriateness of surveillance interval, withdrawal time and quality of the bowel preparation (5,6). Although many sites have yet to transition to electronic endoscopy reports, there is a lack of data examining the completeness of dictated endoscopy reports.

To promote standardization of endoscopy reporting and inclusion of key elements, dictation templates were created and posted in the procedure rooms at dictation stations (Supplementary Appendices 1 and 2). These templates were drawn from the 2009 ASGE guidelines (7) with revision by St. Paul's endoscopists. The templates were implemented in 2010 and 2013 for colonoscopy and esophagogastroduodenoscopy (EGD), respectively.

The objective of this study is to evaluate endoscopy report completeness prior to and following implementation of the dictation templates.

Methods

CAG and ASGE guidelines on endoscopy report completion were reviewed. Key elements for a detailed procedure report were identified and agreed upon by endoscopists at St. Paul's Hospital (Table 1). This was undertaken as a quality assurance initiative and this study was conducted retrospectively and the physicians were not aware that the report completeness would be assessed.

Dictation reports for colonoscopy and EGD were reviewed for each physician at two time points, 2008 and 2014. All endoscopists performing either endoscopies at both time points were included. Colonoscopies and EGDs performed by the seven gastroenterologists and colonoscopies performed by the two colorectal surgeons were reviewed. At our center, colorectal surgeons do not perform EGDs. Endoscopists who were not working at St. Paul's Hospital during both of the selected time points were excluded. The presence or absence of the key elements listed in Table 1 was documented. The chart review was completed by four research assistants. The research assistants were not blinded to the time point of the procedure. To ensure consistency, completeness criteria was discussed and standardized between those conducting the chart review. If elements were unclear or incomplete in the dictation, they were noted as incomplete by the reviewers.

Statistical Calculations

One hundred fifty reports for each procedure, physician and time point were reviewed as part of a larger quality assurance project to

Table 1. Key elements for an endoscopic report identified by St. Paul's Hospital staff

Key elements for colonoscopy reports	Key elements for EGD reports
Age*	Age*
Gender*	Gender*
Preoperative diagnosis	Preoperative diagnosis
Postoperative diagnosis	Postoperative diagnosis
Procedure report	Procedure report
Procedure performed	Procedure performed
Clinical preamble/indication(s) for procedure	Clinical preamble/indication(s) for procedure
Consent	Consent
Comorbidities*	Comorbidities*
Endoscope used	Endoscope used
Quality of bowel preparation	Sedation (type and dose)
Sedation (type and dose)	Medications
Medications	Extent of examination
Digital rectal exam	Complications (if any)
Extent of examination	Patient comfort*
Complications (if any)	Findings
Patient comfort	Pathology specimen taken
Withdrawal time	Location of sample (if applicable)
Rectal retroflexion	Recommendations for subsequent care
Findings	
Pathology specimen taken	
Location of sample (if applicable)	
Recommendations for subsequent care	

EGD, esophagogastroduodenoscopy.

*Key reporting elements identified for this study, which are not included in the St. Paul's Hospital dictation template that was introduced in 2012 for colonoscopy and 2013 for EGD.

audit several quality indicators including report completeness. We hypothesized that report completeness would improve following implementation of a dictation template. An increase in completeness of at least 10% would be clinically relevant. With the sample size available, the power to detect a 10% difference was over 90%.

Completeness was calculated based on the number of items included in the report. For the purpose of this study, items were weighted equally and completeness was defined as all items being included. Ideally, we believe all these items should be included in a complete endoscopy report.

Comparisons between both time points were completed for overall report completeness, and completeness for each key element identified. Two-sided *P*-values are calculated using the Fisher's exact test, chi-square test or *t*-test, as appropriate for the calculation. A *P*-value less than 0.05 was considered significant. The University of British Columbia Ethics Board approved the study.

Results

One hundred fifty consecutive reports were reviewed per physician. Six physicians performed fewer than 150 procedures over the year and the total number of procedures completed was reviewed (Table 2). In total, 2,686 colonoscopy reports and 1,962 EGD reports were included in the analysis. Patient characteristics are shown in Table 3.

An average of the completeness of the combined reporting elements was calculated to reflect overall report completeness. Colonoscopy dictation report completeness improved from 65.8% to 83.2% ($P < 0.001$) and EGD dictation report completeness improved from 72.7% to 77.3% ($P < 0.001$) between 2008 and 2014. Differences in reporting of individual elements are shown in Figures 1 and 2.

Discussion

Endoscopic reports allow capture of quality indicators and communication amongst care providers. In sites without electronic endoscopy reporting, dictation is the usual means to document the endoscopic record but the included items are at an individual physician's discretion. Report completeness is likely important to physicians as it improves provider communication, facilitates patient follow-up, allows the clinician to review their thought process, and acts as important medical-legal documentation. Adhering to a template facilitates this process further as it allows a consistent format in which the information can be delivered.

Implementation of a dictation template for colonoscopy and EGD was associated with improvement of overall completeness of reports but still achieving less than the ASGE benchmark of 98% (2). An additional benefit of a dictation template is standardization of report formatting which facilitates report audit.

Elements demonstrating the largest increase in reporting after the introduction of the colonoscopy dictation template were documentation of patient consent, type of colonoscope used, findings on digital rectal examination, quality of the bowel preparation, and colonoscope withdrawal time. Similarly, EGD reports demonstrated improvement in documentation of patient consent and complications. These improvements seem to be associated with the introduction of the dictation template, as all of these elements were included.

Report elements underreported in the present study included those not present in the dictation templates such as patient age, comorbid medical conditions, current medications and patient comfort. The first three items are included elsewhere in the consultation letter, which is in the patient chart; however, the endoscopy report should be a comprehensive document. Patient comfort was not present on the dictation template for EGD. Furthermore, patient comfort is routinely documented in the nursing note, and it is possible that over time, physicians stopped routinely recording this as they were aware the nurses would complete it. However, we do believe patient comfort is an important quality indicator for report completeness and that the clinician should be responsible for noting this in their dictation. Unlike the other elements, the importance of patient comfort is a more recent addition to the recommended report elements (1) and our site has initiated studies in this area to further improve documentation.

Several reporting elements did show mild decrease between the two time points. For colonoscopy, procedure indication reporting declined by 4.7%. For EGD, preoperative diagnosis and postoperative diagnosis reporting declined by 1.2% and 2.4%, respectively. Although no clear cause for this decrease can be identified, it could be hypothesized that physicians may rely primarily on office consultations to review these elements, and thus they may neglect to include this in their procedure reports over time. However, it

Table 2. Procedures per physician for each time point

Physician		1	2	3	4	5	6	7	8	9	Total
Esophagogastroduodenoscopy	2008	85	NA	NA	150	150	150	150	150	150	985
	2014	148	NA	NA	125	150	150	117	137	150	977
Colonoscopy	2008	150	136	150	150	150	150	150	150	150	1336
	2014	150	150	150	150	150	150	150	150	150	1350

Table 3. Patient characteristics

	Colonoscopy		EGD	
	2008 ($n = 1336$)	2014 ($n = 1350$)	2008 ($n = 985$)	2014 ($n = 977$)
Mean patient age (SD)	56.5 (13.0)	58.8 (12.9)	55.6(15.0)	58.7(14.8)
% Female	50.2%	48.4%	49.8%	53.4%
% Male	49.8%	51.5%	50.2%	46.6%
% Other	0.1%	0%	0%	0%

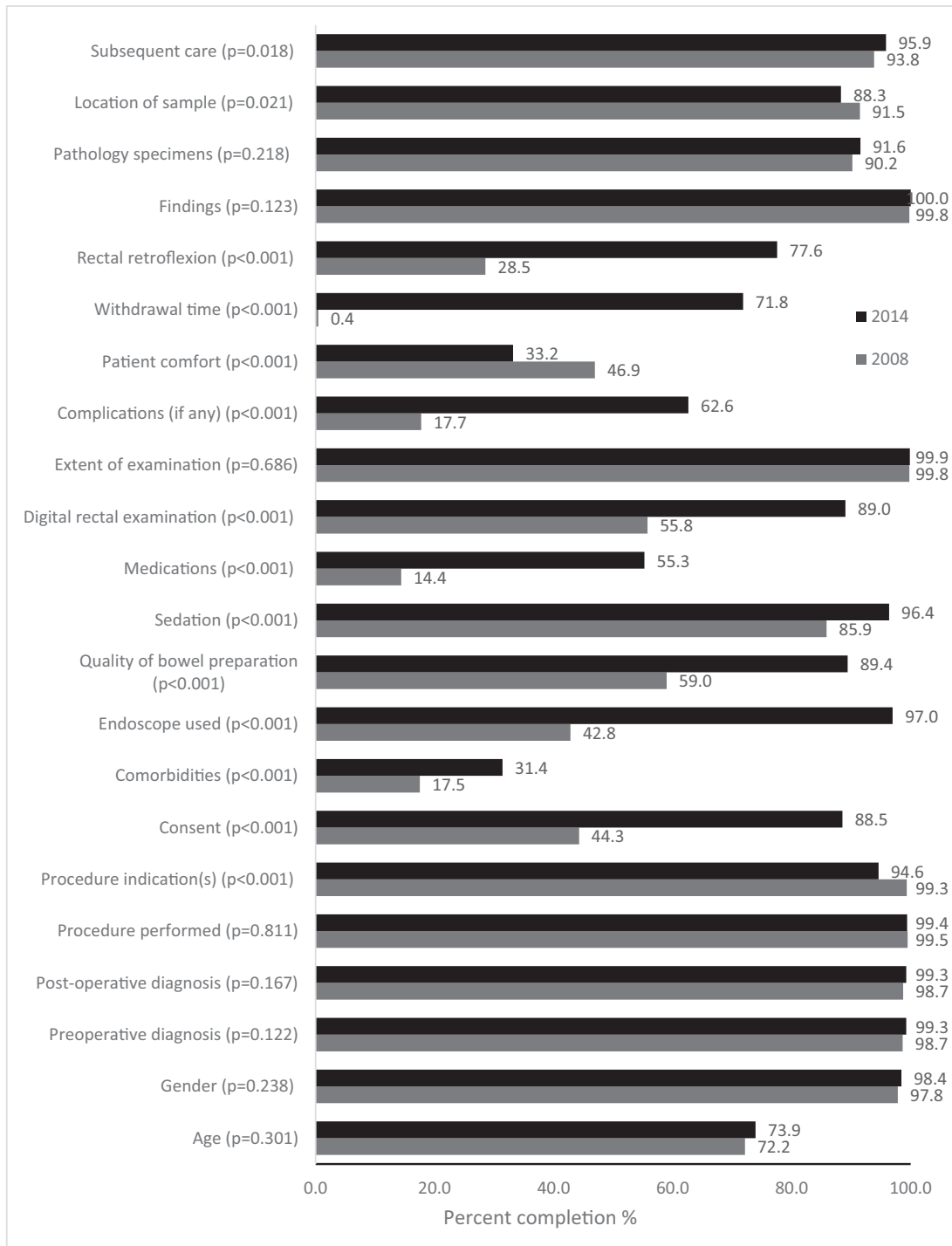


Figure 1. Colonoscopy dictation report key element completeness in 2008 and 2014.

is believed that clear procedure indications and diagnosis should be included in the procedure note as it facilitates communication between providers.

Interestingly, both age and gender, which were not included in the implemented templates as they are included automatically in all hospital documents, had reporting rates around 73% and 98%, respectively. This demonstrates that physicians continued reporting elements they thought were important, even though they were not included in the template.

A large multicenter study examining quality of colonoscopy reports at centers using computerized report generators found that even with an electronic system, certain key fields were not consistently reported (6). For example, similar to our findings, bowel preparation quality was absent in 13.9% of cases.

Limitations to this study include the retrospective study design and, due to insufficient procedure volume, fewer procedures than anticipated for select physicians. In addition, other factors may have influenced the improvement in

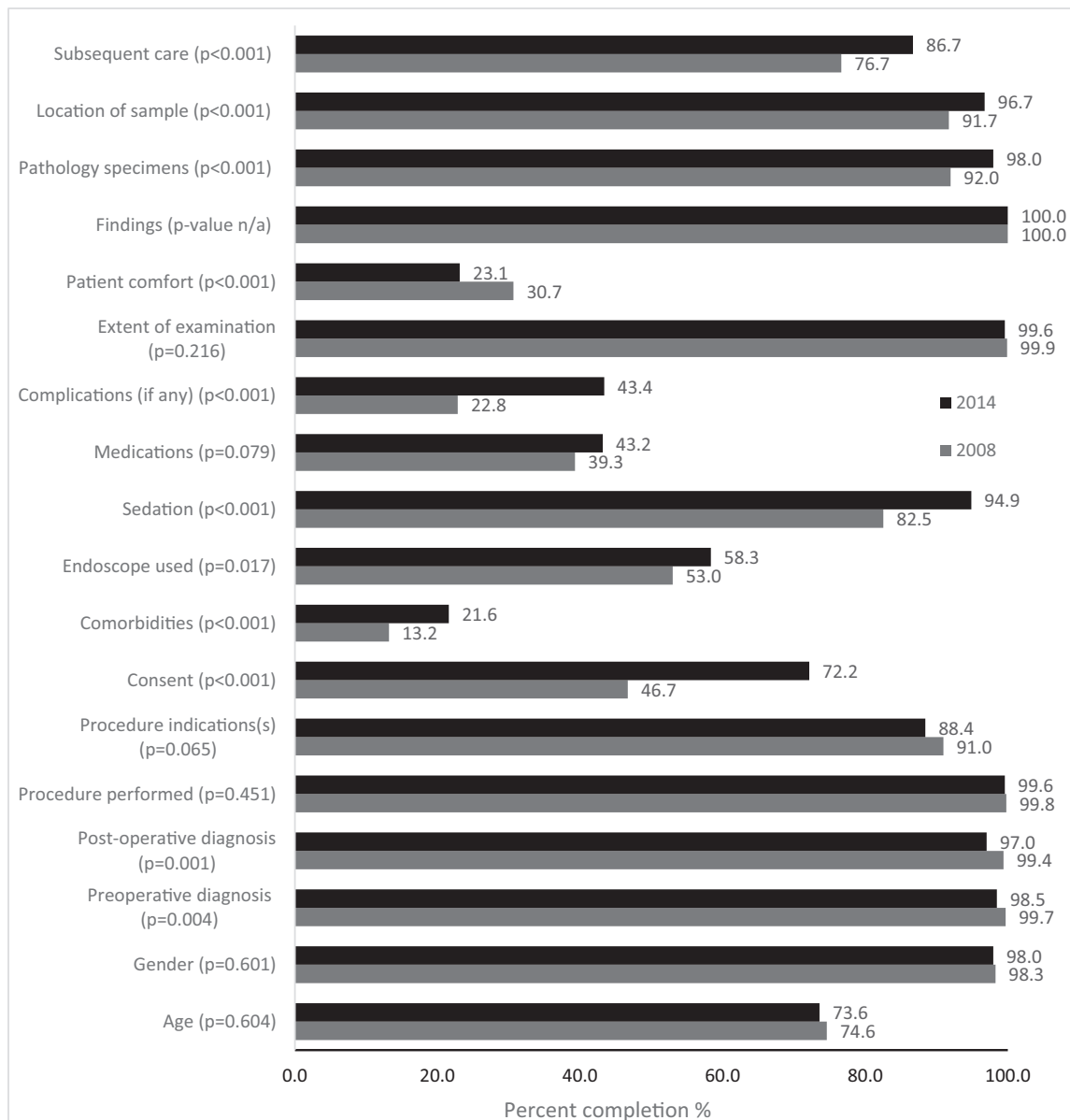


Figure 2. EGD dictation report key element completeness in 2008 and 2014.

procedure report completeness aside from implementation of the dictation template.

Dictation of endoscopic reports does not meet modern quality standards as outlined in the Global Rating Scale – Canada (8). Unlike electronic reporting, there is no ability to ensure required elements are included nor to reasonably audit other quality indicators such as cecal intubation rate, bowel preparation quality or adenoma detection rate. However, until electronic endoscopic reporting is available at all sites, a dictation template may improve the quality of the report and ease of report audit.

In conclusion, implementation of endoscopy dictation templates was associated with increased overall procedure report completeness. Additionally, underreported elements have been identified as targets for quality improvement. For those sites

dependent on dictation as the primary method of documentation in the endoscopy unit, a dictation template is a simple, inexpensive method of improving the quality of procedure reporting.

Conflicts of Interest

The authors disclose no conflict of interest.

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