Every patient with suspected or confirmed cancer requires accurate diagnosis and staging to guide treatment planning and to make informed patient care decisions. Physicians and surgeons have traditionally used narrative writing to report findings from investigative tests, surgical procedures and examination of tumour specimens. However, research has demonstrated that narrative reporting does not consistently provide the information required to make optimal treatment decisions. One response to the suboptimal content of the narrative report has been the development of a synoptic template that captures data items in a structured, standardized manner; it contains only those elements deemed meaningful to understanding the biology of the disease and subsequent implications for patient care. This article uses the example of colorectal cancer to examine the role of synoptic reporting in improving the quality of care provided to cancer patients, and discusses current and future Canadian initiatives in this area.

Abstract

Every patient with suspected or confirmed cancer requires accurate diagnosis and staging to guide treatment planning and to make informed patient care decisions. Physicians and surgeons have traditionally used narrative writing to report findings from investigative tests, surgical procedures and examination of tumour specimens. However, research has demonstrated that narrative reporting does not consistently provide the information required to make optimal treatment decisions. One response to the suboptimal content of the narrative report has been the development of a synoptic template that captures data items in a structured, standardized manner; it contains only those elements deemed meaningful to understanding the biology of the disease and subsequent implications for patient care. This article uses the example of colorectal cancer to examine the role of synoptic reporting in improving the quality of care provided to cancer patients, and discusses current and future Canadian initiatives in this area.

THE NEED FOR ACCURATE REPORTS IN CRC

Quality of care is often defined as the extent to which healthcare services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.1 Quality of cancer care goes beyond issues of access and timeliness2 to encompass services that are consistent with current evidence of best practices, thereby increasing the likelihood of optimal health outcomes.3 Accordingly, initiatives for quality health services in cancer care must strive to ensure that all individuals within a particular population have access to appropriate and evidence-based cancer services.4

Certainly, every patient with suspected or confirmed cancer requires accurate diagnosis and staging to guide treatment planning and make informed patient care decisions. The objective of this paper is to examine the role of synoptic (structured) reporting in improving the quality of care provided to cancer patients, using the example of colorectal cancer (CRC). In CRC, the accuracy of diagnosis and staging depends on 3 critical elements: the colonoscopy, surgery and pathology examinations. If details are missing, inaccurate or unclear from the reporting of any of these elements, the accuracy of staging, estimates of prognosis and selection of treatment plans will be compromised. Accordingly, oncologists and other cancer care providers must work together with endoscopists, pathologists and surgeons to ensure the highest quality of care for their CRC patients.

THE POTENTIAL OF SYNOPTIC REPORTING

Traditionally, physicians and surgeons have recorded findings from investigative tests, surgical procedures and examination of tumour specimens in narrative reports. These reports are typically dictated by the physician or surgeon and characterized by a free-text, descriptive account of the patient, procedure, suspected or confirmed findings, and proposed treatment. However, research has demonstrated that narrative reporting does not consistently provide the information required to make optimal decisions regarding further treatment. For example, in pathology reporting for rectal cancer, narrative records have been weak at reporting circumferential resection margin status, with completeness
of information ranging between 31%5 and 51.5%6 — despite the critical nature of this information for effective patient management. In surgical reporting, the narrative report captured between one-third and one-half of the data elements related to laparotomy findings and tumour resection, and less than a quarter of the elements related to preoperative staging and treatment. Hence, while incomplete reporting certainly does not reflect on the quality of a particular pathologist’s or surgeon’s clinical judgment or technical skill, it does weaken the capacity of the cancer care team to carry out informed decision making.

One response to the suboptimal content of the narrative report has been the development of a “synoptic” template to concisely and comprehensively record the critical patient, tumour and technical elements related to the procedure. This format involves capturing data items in a structured, standardized manner with a prespecified choice of responses. Accordingly, synoptic templates are essentially checklists of essential data elements, often based upon minimum dataset guidelines and/or a consensus process undertaken by local physicians and/or surgeons that contain all data elements considered important to understand the biology of the disease and subsequent implications for patient care. It has been shown that the implementation of synoptic checklists in pathology has substantially improved the completeness of pathology reporting with research showing an almost 100% inclusion rate of important clinical information such as completeness of mesorectal specimens and circumferential resection margin. Other details of the CRC pathology report that have substantially improved following the introduction of a synoptic format include involvement of the apical node (improvement from 40% to 99%), extramural vascular invasion (from 68% to 100%) and relationship to the peritoneal reflection (from 1% to 75%). An Alberta-based evaluation following the introduction of a web-based operative synoptic template for rectal cancer surgery (see below) showed that the synoptic report captured 99% of the specified data elements compared to 45.9% captured via the narrative report. The benefits of synoptic reporting extend beyond ensuring that reports contain all the relevant and necessary clinical information needed to make informed decisions. The synoptic template represents a potentially effective educational tool, as it continually reminds the clinician of the essential steps and details of the event (colonoscopy, surgery or specimen analysis) for optimal quality control, particularly for “nonspecialist” pathologists and surgeons who do not routinely report or resect CRC specimens. Research has demonstrated that the surgeon’s knowledge and skill have considerable influence on patient outcomes. For example, education or training in oncology resection principles can promote a therapeutic approach (e.g. total mesorectal excision and appropriate use of neoadjuvant therapy), decreasing local recurrence rates and morbidity in rectal cancer. Further, the synoptic report represents a potential tool for the dissemination of established guidelines, as these can be integrated into the synoptic reporting instrument.

Theoretically, synoptic reporting can enhance our ability to measure and monitor the processes of care and assess the impact on outcomes. For example, present quality indicators in surgery do not measure the conduct of the actual procedure. The implementation of synoptic reporting is expected to eventually change that, as the surgical report reflects key aspects of the surgeon’s judgment and skills, as well as the biology of the disease. Indeed, the monitoring and assessment of real-time surgical outcomes has been valued by surgeons participating in synoptic reporting in Alberta while Ontario CRC surgeons have stated that they would welcome surgical outcome studies and information surrounding variations in practice and outcomes.

INTEGRATION INTO CLINICAL PRACTICE

Ideally, optimal clinical care relies on evidence from rigorous, well-designed clinical trials. However, such evidence does not always exist to guide treatment decisions for individuals diagnosed with cancer (e.g. radiotherapy for upper rectal cancers located from 10 to 15 cm from the anal verge). In view of uncertain evidence, cases must be reviewed individually based on information from the diagnostic, surgical and pathology reports. In these situations, a synoptic reporting mechanism, whereby particular data elements are completed and presented in a structured manner, would facilitate treatment planning and help ensure that adjuvant therapies are appropriately provided to those patients most likely to benefit.

Synoptic reporting has received much more attention in tumour pathology than in any other field, with template formats varying from a paper proforma appended to the request form of carcinoma resection specimens to computerized templates that allow the user to enter relevant data by selecting drop-down items and to directly transfer the report into laboratory information systems. While electronic systems may represent the ideal format, many challenges exist when implementing electronic reporting mechanisms into the practice environment. The evaluation of an online pathology reporting system in the UK exemplifies a common problem: the practical difficulty associated with hospitals being unable to accept the reporting software because of incompatible or older computing systems. Other information technology challenges include difficulty...
accessing computer facilities (i.e. lack of appropriate technology located near operating rooms, laboratories and endoscopic services) and Internet access. In contrast, the simpler paper-based methods do not have the same logistic barriers and have provided significant results in terms of improving the completeness of reporting: paper proformas appended to tissue specimens increased inclusion rates of all data elements to nearly 100% in a study on resected colorectal carcinomas.

While narrative reporting remains the predominant mechanism by which Canadian physicians and surgeons report their procedural details and findings, several initiatives have brought synoptic reporting to the forefront. Beginning in 1999, Cancer Surgery Alberta (formerly the Cancer Surgery Working Group) developed a web-based synoptic reporting system known as the Web Surgical Medical Record (WebSMR) to replace the existing narrative operative record. The synoptic templates included details on the surgery, as well as elements related to decision-making and outcomes. Following findings that the WebSMR substantially improved reporting of rectal cancer surgery, the group has continued to implement the system throughout Alberta and is currently collaborating with other provincial groups to integrate the WebSMR into the provincial electronic health record. Tumour templates are available for various disease sites, including breast, colon, rectal, ovarian, liver and thyroid cancers. These templates can report real-time data and are directly transferable to all appropriate health care providers.

Cancer Care Ontario and the Ontario Association of Pathologists have adopted the College of American Pathologists’ cancer checklists, which contain lists of evidence-based critical elements that pathologists may use when completing a surgical pathology report on a cancer specimen. Not only do such reports provide oncologists and patients with the detailed information they need for appropriate treatment planning, but the data is also used to monitor the quality of reporting in Ontario and to support service planning and research. The introduction of standardized reporting checklists has tremendously improved the quality of pathology reporting in cancer care: a 2005–2006 audit found that completeness of pathology reporting increased 2- to 3-fold for all disease sites when synoptic reporting mechanisms were employed. In the same audit, 78% of synoptic reports for CRC contained all the elements required to meet the provincial standard, while only 28% of narrative reports contained all the elements.

Despite the documented inadequacies of narrative reporting, the use of synoptic reporting represents a radical change in practice for specialists and surgeons working in cancer care — it requires fundamental shifts in practice culture and physician behaviour. Narrative reporting dates back to the Pyramid Age of Egypt (3000–2500 BC), with breast cancer described in the first surgical record. Changing millennia of behaviour is undoubtedly complicated, even when logistic, structural and organizational barriers are addressed. Research demonstrates that it will not occur by simple, passive dissemination of evidence on the benefits of synoptic reporting. While singular interventions (including reminder systems, audit and feedback, and dissemination of education materials) show modest to moderate effects on physician behaviour, multifaceted approaches appear best able to influence practice culture and behaviour. Further, any real change in practice will likely require comprehensive approaches at different levels, including the physician, hospital and wider environment, tailored to specific settings and groups. It is notable that despite high user satisfaction among those surgeons using the WebSMR in Alberta, the adoption rate was 13.8% as of March 2007 (provincial deployment commenced in 2006). Reluctance to use synoptic reporting was also reported among pathologists during the planning and piloting of a nationwide electronic template for CRC in Norway, although feedback from initial users suggested that the template was time-saving and user-friendly. Such reluctance demonstrates that the widespread implementation of synoptic reporting requires particular attention to the user. Specific concerns may include lack of flexibility in describing the tumour or for reporting more complex surgical details, the prospect of being individually monitored and the concurrent use of 2 reporting systems.

MOVING FORWARD IN CANADA

Using the Alberta WebSMR and the Ontario Pathology Reporting System as templates, the Canadian Partnership Against Cancer is taking the lead in refining and implementing synoptic reporting mechanisms across Canada via its Cancer Guidelines Action Group’s Synoptic Reporting Tools Project. The objective of this project, now in its early stages, is to pilot-test synoptic reporting tools and encourage the complete reporting of surgical data for patients with breast, colorectal, ovarian, and head and neck cancers. Nova Scotia is leading the implementation of the breast cancer template, with participating provinces including British Columbia, Alberta, Manitoba, and Quebec; Ontario is leading the ovarian template, with Alberta also participating; and Manitoba is leading the head and neck template, with participating provinces including Ontario and Nova Scotia. While the lead has not been determined for the colon and rectal templates, participating provinces include Alberta, Manitoba, Ontario and Nova Scotia, with Quebec also implementing templates for these cancers.

In these initiatives, each participating province is expected to implement the surgical template while also collaborating on another component of cancer care (e.g. pathology, internal medicine) to develop and implement corresponding synoptic reporting templates in that discipline. The idea is that uniform reporting templates will facilitate the incorporation of evidence into everyday practice: oncologists will be able to integrate the complete preoperative and operative information with practice guidelines to formulate effective treatment plans for their patients. At the same time, synoptic reporting should enable the collection of surgical, clinical, pathology and outcomes data for quality monitoring and improvement.

Our own research, building upon the work of both the Alberta WebSMR and the Canadian Partnership Against Cancer initiatives, is studying the implementation of synoptic
reporting templates in Nova Scotia, as well as knowledge translation methods to enhance their use by gastroenterologists, surgeons and pathologists. The province’s Colorectal Cancer Prevention Program, now being developed, will employ synoptic reporting in colonoscopy – an area that lacks standardized reporting and data systems. From the oncologist’s perspective, synoptic reporting represents a significant advance toward ensuring higher quality medical treatment. Simply put, new therapies and new approaches to therapy – for example, neoadjuvant therapy for rectal cancer – cannot be effective if the information needed for appropriate use is not available to the required decision makers. Much work remains, including addressing the technical, legal and privacy issues of electronic web-based reporting as well as the education of physicians, surgeons and medical staff. However, by instituting changes in the way healthcare is delivered, this approach could have a significant positive impact on patient care and health outcomes.

Disclosure

The authors report having no potential conflicts of interest pertaining to this article.

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