Clearing the air for electronic cancer checklists

Valerie Neff Newitt

May 2018—Length, cost, variability in vendor support, and lack of consistency have cast a cloud for pathologist users over the CAP's cancer protocols and the electronic version of those protocols, the electronic cancer checklists. Work is underway to improve the user experience (Nakhleh RE, et al. *Arch Pathol Lab Med.* 2017;141[9]:1153–1154). Behind that effort is the undeniable: "Structured discrete data, using a controlled vocabulary, can be captured, stored, and reviewed much more readily than data in other formats," says Mary Edgerton, MD, PhD, vice chair of the CAP's Pathology Electronic Reporting (PERT) Committee and associate professor of pathology, University of Texas MD Anderson Cancer Center. A controlled vocabulary, she says, is the "most valuable, truest form of data because it maintains its own integrity."

Dr. Berman

With the electronic cancer checklists, or eCC, users can create, within the anatomic pathology laboratory information system workflow, complete and concise reports that withstand the scrutiny of inspectors and meet requirements for accreditation. "Use of the eCCs standardizes terminology, improves completeness of reports, ensures reporting of up-to-date parameters, and makes data interoperable and data mining easier, all of which drives better patient care," says Michael A. Berman, MD, chair of the PERT Committee and vice chair of pathology at Jefferson Hospital, Allegheny Health Network, Jefferson Hills, Pa.

"Pathologists are gifted in their descriptive abilities," he says. "Two pathologists could describe the same thing using different terminology, and both could be correct. But by using standard data sets we are all speaking the same language."

More than 60 cancer specimen reporting protocols are available free on the CAP's website. While the cancer protocols can be copied and pasted to create pathology report documents, the eCC makes it possible to integrate discrete data into the LIS database. The synoptically formatted checklists are compliant with CAP accreditation requirements and have been revised to align with changes in the eighth edition of the American Joint Committee on *Cancer Cancer Staging Manual*. "There were a lot of changes to make," Dr. Berman says. "It was a lot of hard work, but the eCCs are completely updated."

The American College of Surgeons Commission on Cancer at one time offered a commendation rating for synoptic reporting, says Samantha Spencer, MD, director of the CAP Structured Reporting Team. "It was an 'extra credit' kind of thing. Now it's not. As of Jan. 1, 2017, it became necessary for compliance and is a core part of their survey," she explains.

To surveyors, how the report is created is not important. "They just care that all required elements are present in the report and are in a synoptic format that includes element-value pairs. Instead of having a narrative paragraph describing a tumor, information must be synoptic. Each data element must be formatted with an 'element,' such as 'Procedure,' followed by a 'value,' such as 'Open biopsy.'" The CAP's Laboratory Accreditation Program has a similar standard.

These element-value pairs give rise to the use of a controlled vocabulary that provides a great deal of utility. "Structured reporting is where the magic happens," says Melanie Shedd, product manager at Voicebrook, one of the vendors that provides a software pathway into reporting using the eCC. "Yet there is a feeling among some pathologists that 'structured data' is a bad word. There may be a fear they will be unable to 'own' their report. We'd like to bring awareness of the efficiency gains that structured data across their entire report can provide

while still allowing the flexibility needed."

The eCC allow for the storage of discrete data in an LIS or other database, and, as a result, searches can locate specific vocabulary saved in specific data "buckets," Dr. Berman says. "When data is stored discretely, it is much easier to pull cases based on specific data parameters. For example, I can easily find all my cases of breast cancer where the histologic type is ductal, the grade is grade two, the margins are negative, and the axillary lymph nodes are positive."

If all of that information were entered as narrative text, Dr. Berman says, finding those data would be not impossible but difficult. "With discrete data, we can data mine very easily. Finding cases for teaching, research, or any type of conference where we want to find certain tumor parameters is much easier with the improved searchability."

When pathologists adopt the same language for data, it becomes highly interoperable. "When pathologists across town, at national cancer centers, or anywhere else put data into the same database storage buckets, they can all access the patient data across sites," Dr. Berman says. The interoperability and transfer of data also help in the tumor registry world. "Classically, when pathologists entered a narrative report, a registrar painstakingly had to go through the text to find certain data points needed for the registry, and then manually enter them into the registry system. But discrete data containing all those data points can go directly and timely into the registry electronically. That allows registries to maintain data that is up to date." Doctors, patients, tumor registries, researchers, and epidemiologists all benefit from structured language, he says.

Data captured using the eCC also offer benefits to pathologists in practice who wrestle with changing reimbursement models and shifting models in physician care quality measures, Dr. Edgerton says. "Using eCC can help you ensure you meet your cancer-protocol-related MIPS reporting requirements for CMS," she says, referring to the Medicare Merit-based Incentive Payment System. "If you have to go back and manually retrieve data, it can be a huge headache. But if you are collecting it throughout the year, you can quickly run a report."

The ease of running that report makes up for the time spent entering data, she says. "We must adopt an attitude of deferred gratification and recognize that while we may need to enter more information in the beginning, we will reap the benefits and have a much easier, more efficient time on the other end."

Why do some pathologists bristle at the idea of creating synoptic reports? "It represents an extra layer of work in an already overburdened environment," says the CAP's Dr. Spencer. Furthermore, some pathologists may not fully understand what the eCC can do for them, or even how to get it up and running at their sites. "They need greater clarity," she says.

Of the 15,000 to 17,000 pathologists in the U.S. and Canada, the eCC are now licensed to about 4,600 of them, Dr. Spencer says. Laboratory information system and software vendors typically pay a small fee for the rights to have access to the CAP cancer protocols and eCC intellectual property. Users, usually a health care site as opposed to an individual pathologist, can be licensed directly by the CAP to use the contents in their LIS.

Once the eCC (a package of rules-based, computer-readable XML files) are purchased, they can be accessed in various ways. "Some LIS vendors provide eCC as part of their base system because they recognize that it is a critical part of what pathologists do," Dr. Berman says. "Others make it an add-on module to their base system. You may need to pay for the module and for maintenance of it. And still others do not provide eCC directly but instead refer you to companies that provide third-party solutions to integrate it. There is a great deal of variability."

There isn't any major vendor that cannot provide a pathway to eCC, says Dr. Spencer, who notes that some invest more time and effort than others. The users' needs and preferences largely determine the best pathway for any given department or site.

Murphy

One option is the solution the CAP has undertaken with mTuitive, whose eFRM is a full-service solution for maintaining structured reporting needs. “The CAP eFRM solution is inclusive of eCC, but provides more,” says Colin Murphy, mTuitive’s vice president of business development. He likes the analogy of income tax software. “If eCC is the IRS tax form, then eFRM is Turbo Tax. If you subscribe to eCC, you have access to the forms, but if you subscribe to eFRM, you have an easy-to-use, vetted solution that provides automatic updates to maintain compliance.” Murphy says the cost to maintain the checklists has led some AP LIS vendors, such as Sunquest (CoPath) and Meditech, to abandon their own solutions and integrate eFRM.

Voicebrook’s speech recognition solution for pathology reporting turns audio into text instantly, without transcription. “Customers typically want narrative reporting via speech recognition, text templates, and the eCC,” Voicebrook president Joe Desiderio says. “When pathologists encounter a positive finding, while still creating the report, they can say, ‘Insert cancer checklist,’ and it will do that.”

Implementation is simple and straightforward, Shedd says. “If a site already has VoiceOver, we just install a module on their workstation. It comes with eCC content ready to use, and it takes about 15 minutes to train users on the tool and the checklists.” The tool works with speech and with mouse and keyboard, if that’s the preferred workflow.

Voicebrook will release in July its latest eCC product as part of its new VoiceOver PRO Solution, which makes extensive use of structured data. This makes it possible for findings already dictated to be reused in the corresponding sections of the eCC report, Shedd says.

Epic integrates the eCC into its Beaker AP LIS. “Pathologists have access to eCC in line with their workflow, within pathology reports,” explains Melissa Hunter, Epic product manager. “They don’t have to launch another system or pull it up somewhere else. It’s all within their resulting screen. After they finish their report, they click a tab and the current report is placed on one side of the screen and the eCC forms are on the other.” A report can be reviewed while the forms are completed. “When it is pushed out, it is available to clinicians in both oncology and radiology—anyone who would want to see it,” Hunter says.

A significant aspect of the internal integration allows information entered into eCC forms to intersect with clinical cancer staging reports. “It auto-populates the AJCC forms because they are mapped to the eCC forms,” Hunter says. “When a clinician goes to an AJCC form for their clinical staging, they have immediate access to the information the pathologist entered in the CAP form, which not only reduces transcription errors but ensures that what the pathologist entered is what is being reported. This allows pathologists to provide clinicians with decision support to drive quality patient care.”

By comparison, Cerner CoPathPlus has a native synoptic editor built into the program software. “It has a synoptic module inside,” says Dustin Greer, solution leader. “If a department is implementing synoptic reporting, we offer an ‘automated worksheet build tool,’ which allows eCC-licensed users to download CAP’s eCC XML files into their CoPathPlus system.”

The tool will then turn the XML file into worksheets. One advantage of using an automated worksheet build tool, Greer says, is that departments can download new XMLs and generate updated worksheets on the same day the CAP makes them available. There is no need to wait for a vendor to create new updated forms. Pathologists can select appropriate worksheets and associate more than one worksheet to a case. “The synoptic worksheets are easily filled out with point and click to answer questions,” Greer says. “It fills out the worksheet as you go, and at

the end there is an option to validate it to make sure nothing was missed."

Dr. Spencer says all vendor software has "completeness checkers" for use with the eCC, something she views as highly valuable. "There's no more worrying and wondering if you missed required elements."

Some vendors don't support the eCC, or don't support them well, and that has frustrated users, who inform the CAP of the problems. Says Dr. Berman: "Vendors say, 'Our customers aren't telling us this.' So our message to pathologists is, 'If your vendor is doing something you don't like, please tell your vendor.' They listen to their customers. And vendors work on volume, so the more pathologists who speak up, the quicker they get resolution."

Cancer protocols are revised as staging and classification and other standards change. "The protocols are living documents that get updated, and not infrequently," Dr. Spencer says. "People making their own report forms have to keep up to date with changes and have eight months from the time a protocol is released to be in compliance."

In contrast, the eCC are automatically and immediately updated with new checklists, which are customarily provided to vendors and licensed users at the same time as the protocol release. But pathology departments sometimes insist on customizing the CAP-provided eCC report forms.

"Customizations come with a big maintenance burden to an organization and shouldn't be taken lightly," Hunter warns. "If you choose to customize, you will have to figure out who is responsible for making sure new forms that get released are maintained within those customizations."

Desiderio recalls visiting one site in southern California that has a large pathology department. "They had one person who was responsible for making all the updates. He spent about a third of his time just trying to keep everything updated and pushed out to everyone using these reports in the organization. That's a pretty significant resource spent in that manner," he says.

Some vendors have attacked the problem head-on. Murphy says mTuitive has successfully met many pathology departments' requests to build local modifications into eFRM algorithms. "When new updates are introduced from the CAP, mTuitive has a process to bring those modifications forward," he says, "eliminating a massive burden and potential point of failure during a content upgrade for pathology departments."

The worksheet tool in Cerner CoPathPlus also allows customization from site to site. Says Greer: "If users want to add questions or take some questions away that are not required by the CAP, and thus modify the downloaded content, they have the ability to do that. While they can build the worksheets from the ground up, most laboratories start with CAP requirements and go from there."

CAP cancer protocols and eCC continue to evolve, not only to reflect changes in medical understanding but also to address the need for greater ease of use. "There has been pushback by those who feel synoptic reporting has gotten out of hand," Dr. Spencer says. "The reports can get very long, and something important to a particular user could be sunk down in the various element-value pairs. People believe that defeats the whole purpose, to make it easy to find information."

California has passed into law a requirement for electronic reporting of cancer diagnoses by pathologists starting in 2019. This has caused the California Department of Public Health, which must execute the new electronic reporting requirement, to reflect on and react to the length of the checklists and data elements and to vendor variability in checklist implementation.

"California pathologists have basically asked the CAP to minimize the number of required elements in reports," Dr. Spencer says. "They said, 'Is there something you can do about this?' Of note, the CAP has already been doing something about it for quite a while but we haven't been successful in getting this message out to people."

This too-much-of-a-good-thing problem dates back to when CAP content experts first assembled lists of parameters they felt should be reported in any given case, Dr. Berman says. “The original protocol authors were not asked to restrict the parameters they were discussing to meet a certain level of evidence.”

In addition to the core elements in the eCC, which are required for accreditation, optional parameters add to the heft of the templates. “If you remove the optional elements, they are not particularly long,” Dr. Berman says. The optional parameters should not be indiscriminately stripped away, in his view, because they may be of clinical value. “It is important for each site to assess the need to report the optional elements,” he says.

Still, a streamlining of changes is afoot. “CAP recognizes it is critical to assess all of our protocols and make sure we give core element status to only those parameters that meet a specific level of evidence,” Dr. Berman says.

The Cancer Protocol Oversight Project Team, a group working to help coordinate efforts between the Cancer and PERT committees, is making title page improvements and standardizing templates across all tumor types, “so we can get into the habit of expressing things in similar ways,” Dr. Edgerton says. “It won’t require as much intense concentration.”

The order of data input will be standardized, as will the terminology and even the fonts used. “PERT and the CAP’s Cancer Committee work collegially,” Dr. Berman says, “which is wonderful. We have worked in a symbiotic way—one specializing in creating content, the other in modeling how best to get that content into use.”

Dr. Spencer’s team is providing vendors with guidance on outputting a report that pathologists will find professionally and aesthetically pleasing—concise, clear, aligned, and readable. Improved output makes it possible for reports to be more easily consumed. “It also encourages pathologists to take greater ownership of the process because the reports will meet their own high standards,” Dr. Berman says.

Dr. Edgerton

Dr. Edgerton hopes vendors, who implement eCC in different ways, will follow the lead toward standardization and work with the CAP to identify the best ways to release new eCC versions for easier assimilation. This will result in the least amount of effort needed for pathologists to keep up with the latest version, she says.

Users do want greater ease of use as electronic reporting moves to the forefront, as seen in California. The California law is “really pretty simple,” Dr. Edgerton says. “It says that data that is transmitted to the California Cancer Registry must be done electronically. They do not go into detail as to what the format of that data must be; however, it cannot be sent by fax, telephone, or mail.” The law, she adds, provides for a first step forward in committing to electronic data. “It may be a baby step, but California is leading the way. The word ‘electronic’ is finally being used.”

While barriers remain to eCC adoption, the most basic of which may be its cost, Dr. Berman urges pathologists to keep the focus on patient outcomes.

“Some pathologists likely think changes in reporting are making their lives harder,” he says. “But they must recognize that these efforts are better for clinicians, for registrars, for researchers, for patients, and for the field of pathology. When pathologists fully understand the big picture, they will be willing to put more data into this format, and it will get faster and easier for them to do so.”

Data are invaluable, he adds. “And the better we are at providing appropriate, actionable data to clinicians, patient

registrars, and many other end users, the better the patient outcomes.”
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