Structured Data and The Future of Medical Reporting

by
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Tomorrow's advances in medicine arrive on the back of today's medical research - by comparing the outcomes of alternative treatments, we're able to discern the best course of action for our patients. This is one of the most basic tenets of medical research. Pulling vital information from various tests and individual cases allows physicians to better understand the various maladies afflicting their patients and therefore enables more informed decisions when choosing the best course of treatment. In surgery, the main focus of modern medical research has been looking at surgical outcomes – measuring desired operative objectives with how those objectives are met following the procedure.

As Dr. Véd Tandan of St. Joseph's defines the field, outcomes research is "a paradigm which groups existing methodologies, providing a structured approach to evaluating the outcomes which are most important to patients, society and those who pay for health care."[1]

Surgeons and researchers are mostly deriving their data from test results, vitals and other pre- and postoperative sources. But is this the best source for this information? Are physicians leaving out crucial parts of the story when they aren't able to extract and examine data from all elements of the surgical process? As Dr. Richard Moser, Chief of Neurosurgery at UMass Memorial, said, physicians

> *want to be able to do great surgical outcomes research and yet the most important information that we collect, as surgeons, is in the operating room. In its current format, that information is simply not recordable in an efficient, contemporaneous manner; and when it is recorded, it takes an enormous team and significant resources to manually extract the data from transcribed dictations.*

Make no mistake - data can still be taken from transcribed postoperative reports. But data abstraction is not an easy process. It necessitates many hours of manpower, or money for phrase/word recognition software or both. It's labor and cost prohibitive. Dictation made sense – it still does an adequate job of capturing the procedure. However, in the information age where data is the basis for incredibly important decisions, an "adequate job" is no longer acceptable.

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1 Int Surg. 2000 Oct-Dec;85(4):313-6. Tandan, VR

Surgeons need to enter their postoperative reports in a format that promotes "structured data" – by which I mean information entered into specific, discrete fields with a range of acceptable responses. Currently, most dictated postoperative reports are in an unstructured data format – there's important information in the report, but it's buried in narrative. In the era of cost-effectiveness and a contracting economy, it is simply not feasible for most institutions to have the resources for extracting data from operative reports. There's a wealth of knowledge being collected on a daily basis in operating rooms and, unless there are specific research protocols in place to collect that data, it is often lost to medical records in very eloquent, and sometimes verbose, prose.

The current process of dictation and transcription is really personal – I know many surgeons love it. They want to articulate their case in a way that is understandable and complete for them. Five years after a surgery and a quick perusal over the note should allow for complete comprehension. In truth, that is a positive.

The problem is what happens with the dictated report. First, it's transcribed, usually off site; usually the job is pretty good, sometimes there are mistakes; there's a delay, they have to get back to you, you have to look over the final product and sign off on it. The report is then available to physicians in a format – depending on the system at a particular institution – that is viewable and printable. With respect to data extraction and outcomes reporting, there is nothing substantive to be accomplished. I don't think dictation is a bad concept. It made a lot of sense because surgeons are great narrators: we're trained to present and report cases in coherent, logical and eloquent ways.

There seems to be one answer to access the research potential contained in the surgical reports to power medical innovation – and that is for surgeons to start using electronic postoperative reporting solutions. In contrast with synoptic reports that are entered electronically, transcribed operative reports require several more steps, more approval time, is processed and re-processed and exported into unusable formats. The propensity for error is always greater when more steps are involved.

The Division of Neurosurgery at UMass Memorial Medical Center (my former place of business), under the guidance of Dr. Moser, embarked on an outcomes project using mTuitive OpNote to record specific operative details to trace patient outcomes for comparison against stated surgical objectives. Variations in procedure types, operative techniques and surgical implants will be followed to measure effectiveness.

mTuitive OpNote offers surgeons a "one-stop-shop" report where we could:

1. collect data which would satisfy medical-legal reporting requirements; and could
2. serve as an operative note in the patient's record; but also could be in a
3. format that was easily exportable, searchable and readily manipulated for any number of outcome parameters and measures

And that is why facilities need to put the full force of their surgery departments behind this endeavor– it just makes sense.

To clarify, there are other electronic postoperative reporting products out there – but unless the solutions adhere to using structured data, as opposed to just "canned" text, then the problems inherent in narrative data submission will remain. Synoptic reporting (the type of reports mTuitive OpNote generates) makes surgical information readily usable for sophisticated database applications. This means that physicians and researchers now have searchable fields and sections that can be gathered and studied for quality reporting measures, disease registries and research repositories – like the surgical outcomes project at UMass Memorial.

As government funding increases for institutions to adopt EHRs, and as more companies emerge to offer various products for healthcare, it's important that health facilities make sure the solution they select meets the needs of those using it. Hospital administration and physicians both need to be on board in order for this project to work. It needs to make sense from a financial standpoint, but it cannot penalize the surgeon's time. It needs to require a minimum amount of adjustment for physicians. The electronic reporting process has to be integrated into surgeons' pre-existing workflow without the need for acquiring (expensive) specially designated hardware or without having to spend

hours being trained on using the new solution – hours that would be better spent treating patients.

For example, since OpNote is priced less than the cost of transcription, it eliminates the cost associated with transcription while accelerating the revenue cycle for the surgery center, hospital and surgeon all without requiring any initial investment or special hardware. This should please the administration and those concerned with budgetary issues.

Because it is web-based, reporting delays that plague medical records departments are eliminated since the report is submitted and signed-out immediately upon completion, easily integrating with our current Meditech™ system. Thereby appeasing those in medical records by making their jobs faster and easier – especially for those in billing and coding who won't have to hunt for substantive information in long paragraphs of text.

Lastly, OpNote is optimized for use on tablets and touch screen devices – including the iPhone™ and iPad™ - which allows for greater mobility and flexibility for physicians to generate and complete their postoperative reports. Electronic medical reporting offers a lot of benefits to many people – not the least of which is the patient. By improving how the data is captured, we are improving how data can be looked at and ultimately improving how that data can be used.

The current system of dictation and transcription does a fine job – it captures what happened during the surgery in great detail for posterity and the patient's record. Unfortunately, we have arrived at a moment in time where "fine job" can no longer cut it for any of us. The labyrinthine narrative that is produced in transcription impedes any real progress in medical research and hinders physicians from being able to learn the best way to treat their patients. Structured data allows physicians to examine and formulate best practices with greater accuracy – tracking the minute changes between methods of doing the same procedure opens up worlds of possibilities for creating standardized ways of ensuring the best possible outcomes for all of our patients. By making reporting more

efficient, we make research easier and faster which, in turn, makes us all better physicians that can offer our patients the best care.

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