Stories vs. Data: Friends, Enemies, or Frenemies? Using Narratives to Disseminate, Translate, and Implement Clinical Evidence

Population Health Sciences

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The Case of the Twisted Ankle (*or* Good Science Undermined by an Unscientific Story)

Not long ago, I saw a patient in the emergency department with a swollen ankle. Although he was a scientist at our university, a story – not science, unfortunately guided his decision to insist on receiving an x-ray he didn't need.

My patient had twisted his foot while playing Ultimate Frisbee during an annual workplace picnic. Walking into the ER room with a slight limp, he immediately requested an x-ray. For me, as the teaching physician for the day, this was a prime opportunity to engage in an *evidence-based educational moment.* I gathered the students and other trainees who were working with me, and we downloaded the original Ottawa Ankle Rules. This validated and highly sensitive clinical decision rule allows the clinician to determine—by way of a good physical exam that can rule out a fracture with near 100% certainty – who can skip getting the x-ray. The policy ramifications of using this rule are immense – the U.S. spends $500 million every year on ankle x-rays for patients, many with no risk for fracture. But when faced with an individual patient in the ER with a lot of pain and a big swollen ankle, the cost savings and population-based arguments are hard to make.

We examined his ankle thoroughly and it was clear: he didn't need the x-ray. But our patient was a scientist. Surely he could be convinced to eschew an unnecessary test by strong evidence. Our plan was to print out the Ottawa Ankle Rules papers – particularly the large, robust, and scientifically "air-tight" ones and show them to our patient-colleague. So we did. And sure enough he read the papers, liked them, and agreed with their findings.

It looked to be a victory for the students (who accomplished some learning), the patient (who could leave without an unnecessary testing), and society (who would be spared the excess cost of an unnecessary test).

Well, actually, that's not what happened.

"I want the x-ray," our scientist patient said.

"Why?"

"Well, my brother hurt his ankle last year and I am pretty sure it was like this and he ended up needing surgery."

And that was the end of it. The scientist who understood the research was persuaded by a single, but powerful, story to choose a test that was without any evidence-based merit.

Persuasive Stories, and Science

What makes for a persuasive story? Think back to your middle-school creative writing exercises: a good story has compelling characters and a narrative arc, it must have a beginning, middle, and end, and it should have conflict or questions that are resolved or answered.

We know that a powerful story will stick. We also know that a good story can undermine strong evidence. Beyond my patient with the ankle injury, we have many examples when people use stories to challenge, often successfully, meticulous and scientifically sound recommendations. When former NYC mayor Rudy Giuliani announced that the PSA prostate screening test saved his life, his story —unprovable and statistically unlikely – instantly undermined the years of scientific work that went into producing the U.S. Preventive Services Task Force report on prostate screening.

The problem is not that stories are bad. Sure, we all once learned that anecdote is the enemy of good science. This is true only if anecdotes are used (instead of science) to make assumptions about the world. If the science comes first, then a good story can be linked to science in a way that makes the evidence stick.

Scientific Stories for Patients, Policymakers and Providers

We know that stories can help patients – there are some excellent studies showing that stories which maximize concepts such as homophily (where the audience identifies with the storyteller) can move patients to take engage in healthier behavior including controlling their blood pressure and get cancer screening.

We also know that stories can help researchers and clinicians translate evidence to policy makers in salient and coherent ways. Watch here as Dr. Arthur Kellermann, Dean of the Uniformed Sciences School of Medicine, explain how a tragic story, told at the right time, changed the trajectory of evidence-based policy making for motorcycle helmet laws in one state.

Last, we are learning that even physicians, notoriously stuck in our ways *and* trained to be skeptical of single anecdotes, may be equally susceptible to narratives, especially when grounded in evidence. Last year, my group conducted a study where we randomized emergency doctors to receive an excerpt of a national guideline on opioid prescriptions for ER patients or a story about a patient who seeks pain relief for low back pain in the ER. After reading the guideline or the story (which contained the recommendations of the guideline embedded within the narrative text), the doctors were asked a few hours later to recall everything they had read. Remarkably, the group that received the story was more likely to recall the details of the guideline compared to the group that received the actual guideline.

Our next steps are to see if stories can help close the gaps between evidence and adoption for different stakeholders. One important question, can stories help reduce overuse of certain types of medications? Along with faculty at CHOP's PolicyLab, we are exploring if stories (using real patient and provider voices) might help clinicians adopt more evidence based practice patterns regarding psychoactive prescriptions for vulnerable children in Pennsylvania.

We also want to figure out what types of narratives might be best applied to situations when the types and strengths of evidence vary. For example, if behavior change is absolute goal (say for smoking cessation) then a scientific narrative might contain persuasive elements that focus on behavior. However, if the goal is demonstrate scientific nuance, then a less persuasive and more informational story could be employed.

Stories are powerful communication tools. Clearly not every research study needs to be (or even should be) framed in a narrative context for mass, persuasive dissemination. However, without the use of stories, good science will be lost in translation to practitioners, policymakers, and the public.

It may not feel “scientific” to use stories to translate research. But it should.

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