SCRIPTDOCTOR: MEDICINE IN THE MEDIA

"Accuracy, Shmaccuracy"

By Andrew Holtz, MPH

Andrew Holtz, MPH, is a former CNN Medical Correspondent and the author of "The Medical Science of House, M.D." This column examines mass media programs, particularly entertainment TV, for insight into popular perceptions, so that rather than merely wincing at distortions or oversimplifications in the portrayals of medicine on these shows, health care professionals can learn something from media professionals about the way that medical and health topics are presented.

Send questions to him about how the media treat medical topics or suggestions for future columns about a particular show or topic to discuss to OT@lwwny.com

As any fiction writer will tell you, the story comes first.

And so it is with TV shows that use medical backdrops for their teleplays. When writers meet to begin sketching out a new plot, the first order of business is determining fundamental mileposts of the story. What is the theme: loss, discovery, attachment? What do the key characters experience: career advancement, a new love, a death? What are the emotional notes of dramatic score: joy, sorrow, anger?

Then, as *ER* writer Lisa Zwerling notes, "We will brainstorm to come up with a good medical story that meets our dramatic needs." Yet she and other writers at medical shows are emphatic that they care about the accuracy of their scripts.

Why? These shows are fiction, not documentaries or news reports. But part of the contract with viewers is that there will be enough realism to make the story believable. Maybe it's extremely unlikely, but perhaps, just maybe, the key events *could* happen.

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"Absolutely. Otherwise you become a fantasy. Sure, we take liberties, but those liberties are still factually based," says *House* writer Lawrence Kaplow.

"This show lives in the world of the weird," he admits. "Our show is about the one-in-a-million. Frequently, when doctors push back and say, 'This would never happen.' I say, 'Well, this would never happen in your clinical practice, because you are dealing with the 99 percent of people. *House* deals with the one percent, the abnormal presentations of abnormal illnesses. And anytime we can take a unique direction we

are going to do that."

Defending himself against cranky clinicians isn't the only reason Kaplow keeps a case report or two in his back pocket to prove that the weird things he writes about do happen. Having to write his way around rocks of reality sharpen the storytelling and distinguish many medical shows from sci-fi or other fantasy genres.

"Yes, we have to be much more rigorous," Kaplow says. "It's easy to cheat and say, 'Oh, yeah, this could happen,' and just make it up."

Of course, characters are often composites, time is compressed, and many medical details are left out. Otherwise, plots would be cluttered and confusing; and their pace would slow to a mind-numbing crawl.

Still, writers see limits to dramatic license. Kaplow recalls one episode that referred to a real side effect of a real drug. He says they were asked whether they could substitute a made-up drug name. After all, who would know the difference? But Kaplow says making up a fake drug would corrode the viewers' trust.

"Then the show's a joke. Then we have no credibility. Forget about the doctors who work on the show, there's the concept of the show: this is a medical show. Might as well be a space travel show, set in outer space where I just take a zap gun and fix your liver. The drama goes away," Kaplow says.

As he notes, doctors not only advise writers of medical shows, they often are the writers. *ER* writer Lisa Zwerling is also pediatrician Lisa Zwerling, MD. In her fourth year with *ER*, she now practices part time. Her clinical work is both a source of inspiration and a reality check for her writing. For example, the choice of words a physician will use to deliver bad news to a patient.

"We try to be real when we think about how doctors really talk about this to patients, which is: you don't try to

sugar-coat reality. That's one reason the show has real doctors on the writing staff," Dr. Zwerling says. "Sometimes the non-doctor writers will say, 'Gosh, would you really say that to a patient? Would you really say, 'If this isn't treated, you will die?'' And the answer is yes.

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Physician-writers naturally want to be true to the craft they worked so hard to master—and they have to face the critiques of their colleagues. In addition, all the writers see letters from viewers who are personally affected by what they wrote.

"There are a lot of people who have these actual illnesses. When they watch the show and they hear about these illnesses, they are grateful, because they understand and they can identify with the symptoms. They say, 'That happened to me,'" says *House*'s Kaplow.

"When I wrote a [childhood] cancer episode, I got a number of letters from people who had buried grandchildren, just horrible, horrible stuff; but they were thanking us for portraying it in a realistic way, that what the girl had gone through, not physically, but emotionally, was accurate."

Comedy Shows?

OK, so TV dramas benefit from a measure of realism, but surely this concern about accuracy doesn't extend to comedy shows.

Well, don't tell that to the staff at *Scrubs*. Now in it's sixth season, the show centers on the trials and tribulations of young doctors. *Scrubs* episodes are shot in a real hospital building that once housed the North Hollywood Medical Center. As part of the real-but-not-real world of TV, the hospital inte-

rior was completely re-painted before filming began, but then the crew went through all the rooms and corridors kicking and scuffing, so that the set would have the look of a worn and struggling community hospital.

At least one network executive had a very different vision for the series: a standard sitcom four-camera studio shot in front of a live audience, with a laugh track added in post-production.

"My boss was like, 'No way, I don't want it to be a silly medical show where they are in the OR and something drops on the floor and they pick it up and put it back in.' That's the kind of wacky humor you would have in a sitcom," says *Scrubs* Supervising Producer Janae Bakken.

So although the show is definitely funny, the shooting style is much like that of medical dramas, with a single camera following the actors, allowing for close-ups and editing that let the visual pacing support the emotional trajectory of the story.

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Like her counterparts at medical dramas, Bakken says the comedy writers and producers at *Scrubs* want to be realistic, to an extent, out of respect for their audience, including doctors who provide inspiration for storylines.

"We talk to these doctors and we want to be true to them and the stories they've told us and let us use. And why not be real?" Bakken says. "We're not going to say that someone has liver dis-

Technology to Improve Colonoscopy Recognized by American College of Gastroenterology Award

By Paul Watson

A study that facilitated the creation of new software that can automatically and objectively analyze the efficacy of a colonoscopy was one of five abstracts selected for the American College of Gastroenterology (ACG) Governor's Award for Excellence in Clinical Research.

The principal investigator, Piet C. de Groen, MD, Professor of Medicine at the Mayo Clinic, presented his findings during the President's Plenary Session at the Annual Scientific Meeting.

The software in question enables physicians and technicians to digitally capture, store, and analyze a complete video stream file created during a colonoscopy.

"This software has the potential to provide large-scale, continuous quality control for colonoscopy in the day-to-

> *"We hope to start seriously testing this software in 2007. And we hope that it becomes more broadly available in 2008. We've already built a prototype of the system and are testing it in the Mayo clinic."*

day medical practice setting," said Dr. de Groen. "Our method may also be useful to assess progress during colonoscopy training, or as part of an endoscopic skills assessment evaluation."

The Chairwoman of the ACG Educational Affairs Committee, Carol A. Burke, MD, Director of the Center for Colon Polyp and Cancer Prevention at the Cleveland Clinic Foundation, explained that Dr. de Groen's paper was chosen because it was one of the most highly rated in its organ system—"The committee felt Dr. de Groen's paper had significant merit."

The Educational Affairs Committee reviewed all approximately 1,480 abstracts submitted for presentation at the meeting, and the Governor's Award is given to the one judged to be the best paper.

"We know that the quality of colonoscopy is variable across the nation and that enhancing the quality of colonoscopy, and thus the detection of colorectal neoplasia, will save lives," she said. "In fact, continuous quality improvement of colonoscopy is earmarked as a national initiative for our College and other GI societies."

Dr. de Groen noted that a significant number of large polyps and cancers are not detected during routine colonoscopy screenings, and that furthermore, no technology currently exists that can objectively assess a physician's performance while conducting a colonoscopy.

"I don't think anything exists right now that actually looks over the shoulder of a physician and scores his or her performance during the procedure," Dr. de Groen said. "A lot of the assessments are done retrospectively and depend on notes the physician took down during the colonoscopy."

Currently, it is the physician conducting the colonoscopy who assesses the quality and efficacy of the screening.

"When you get a colonoscopy, the surgeon or endoscopist writes a report," Dr. de Groen continued. "You just have to believe the report. There's no objective data that actually verify what was done."

Thus, Dr. de Groen set out to improve the quality of colonoscopies by creating technology that would aid a physician's performance. To do so, he partnered with three computer scientists: Wallapak Tavanapong, PhD, and Johnny Wong, PhD, from Iowa State University; and JungHwan Oh, PhD, from the University of Texas at Arlington. Their collaboration for the study began in 2002 and was funded in part by a National Science Foundation grant for research into new methods of automated image analysis in endoscopy.

"A lot of credit for the success of this study goes to my three wonderful collaborators," Dr. de Groen said. "They are superb computer scientists."

Cutting-edge Technology

During their research they created a workstation that digitally captures and stores the complete video file generated during a colonoscopy.

"Basically we wrote a whole series of algorithms that look at different aspects of what happens during a colonoscopy," Dr. de Groen said.

More specifically, the software automatically extracts five objective quality-control algorithms, or metrics, from colonoscopy video files. Each metric analyzes a specific part of the colonoscopy procedure:

■ Metric 1 measures the overall duration of the insertion phase, termed the *insertion time*.

■ Metric 2 measures the duration of the withdrawal phase, termed the *withdrawal time*.

■ Metric 3 measures the *clear withdrawal time*, defined as the duration of the withdrawal phase without out-of-focus frames.

■ Metric 4 reflects the number of *back-and-forth movements*.

■ Metric 5 includes fractions of Metric 3 that are spent on close *inspections of the colon wall* (off-axial or wall view) or *global inspections* (axial or lumen view).

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"Basically, what happens is that a physician looks at a screen that shows a live video stream recorded in digital format. A computer examines the same video stream recorded in video format as a series of images, about 30 images per second. At present we can analyze about one image per second. If the procedure takes 20 minutes, we analyze 1200 images. And from those images, we come up with a number of conclusions," Dr. de Groen said.

These images enable a physician to see how far the scope penetrated, whether it was adequately maneuvered around the colon, and whether or not the physician performing the colonoscopy visualized the appendix.

In his abstract, Dr. de Groen stated

> *"There are some people who may be afraid of such a tool. They worry about having somebody continuously watching over their shoulder. For the people who do a poor job this may not be a nice tool to have, because it's going to document just that. However, for people who do a good job, this will be a beneficial tool to have access to; they will be able to document the quality of their work."*

ScriptDoctor

ease and then they are out the next day. We're not going to do that. We'll think of some other disease. That's where our medical adviser comes in."

Of course, they aren't slaves to medical reality.

"If we need [the character of] Dr. Cox to come into the ICU and scream at somebody, have one of his 30-second rants, we'll do it, even though in an ICU you would never do that. Sometimes we'll have that discussion: 'You can't do this, it's an ICU, that's crazy.' And then other times it doesn't matter, if it works for the joke, we're going to have him scream in the ICU."

In one episode, Dr. Cox's character didn't merely shout in the ICU...he brought in a full gospel choir that sang "Payback's a Bitch!" as part of his retaliation against another character.

Now I know of many surgeons who like to play tunes while working in the OR, but a live gospel choir in the ICU? That'd be something to see.

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