

Imagine, for example, that Mrs Smith checks into the hospital for hip-replacement surgery. Her doctors will be able to call up the electronic records of her personal physician, her physical therapist, her pharmacist and everyone else who provides her with health care. But this scenario poses some knotty questions. Even leaving aside the technical challenge of securing all those far-flung databases against attacks by hackers, who has the right to access any given database? And how much are they allowed to see there — everything, or just those portions of the data they need for their jobs, keeping the rest private? And who decides? Patients? Doctors? Hospitals? Anonymization and pseudonymization, in which identities are masked but all data can still be ascribed to respective individuals, protect individuals while enabling research, but how should such measures best be implemented?

These questions have been contentious even in the United Kingdom, which has deployed an electronic records system through its unified National Health Service. They will be even more contentious in the United States, where the health system is anything but unified, and where privacy concerns run deep.

The scientific questions are just as knotty. For example, will each patient have to give permission each time a researcher wants to access his or her records? That sounds reasonable — and indeed, this is the

spirit of the strict data privacy and security provisions of the federal Health Insurance Portability and Accountability Act. But that would make using the records for, say, routine epidemiology prohibitively cumbersome. There needs to be a clear policy allowing for such uses, as long as the researchers have no access to any aspect of the data that reveal a person's identity. But at the same time, the health-records system should provide individuals with an audit trail that shows them who has been looking at their records, and what they have seen there.

Or consider another scenario: a research group that wants to do a study aggregating EHR data over a large area. Will they have to get approval from every Institutional Review Board (IRB) — which oversee all research on human subjects in the United States — in every hospital and university involved? Common sense suggests that one IRB process is enough — and then only if the research uses personally identifiable data. But mechanisms to coordinate the oversight will have to be created.

The national coordinator and his advisory committees will have their hands full with these and many other issues. But the good news is that a management framework is in now place to address them, and to build an EHR system that will have the confidence of professionals and public alike. ■

## Filling the void

As science journalism declines, scientists must rise up and reach out.

Scientists at CERN, Europe's particle-physics laboratory near Geneva, Switzerland, opened the wine last week to celebrate the twentieth anniversary of the laboratory's invention of the World Wide Web. The scientists were also joined by around 60 members of the media, who may have been in a less festive mood. Even before the current economic crisis, the web was inflicting much pain on the mass media. Circulations have dropped, advertising has dried up and newspapers have been forced to lay off reporters and scale back coverage. A similar slump has hit the broadcast market, with no end in sight.

Science journalism is one of the numerous casualties in this media meltdown. Many science journalists are losing their jobs, and those who remain are being asked to provide content for blogs, podcasts, online videos and other new media (see page 274). Although it is difficult to know what effect these cutbacks have had on the public's understanding of science, the general feeling is that the quality of science coverage in the conventional media is declining — as is the media's ability to play a watchdog role in science, ferreting out fraud or other misconduct.

True, there is no shortage of scientific information on the web. Witness the way that research funding agencies use the web to inform the public about everything from planetary missions to public health. In principle, anyone with an Internet connection now has access to more, and better, scientific coverage than ever before.

In practice, however, this sort of information reaches only those

who seek it out. An average citizen is unlikely to search the web for the Higgs boson or the proteasome if he or she doesn't hear about it first on, say, a cable news channel. And as mass media sheds its scientific expertise, science's mass-market presence will become harder to maintain.

Harder, but not impossible. For example, scientists are blogging in ever increasing numbers, and the most popular blogs draw hundreds of thousands of readers each month. These blogging scientists not only offer expertise for free, but have emerged as an important resource for reporters. A *Nature* survey of nearly 500 science journalists shows that most have used a scientist's blog in developing story ideas. And a handful of universities, meanwhile, have started environmental publications that are run jointly by scientists and journalists. These publications seek to provide their journalistically valid, scientifically accurate content free of charge to the mainstream press.

Sadly, these activities live on the fringe of the scientific enterprise. Blogging will not help, and could even hurt, a young researcher's chances of tenure. Many of their elders still look down on colleagues who blog, believing that research should be communicated only through conventional channels such as peer-review and publication. Indeed, many researchers are hesitant even to speak to the popular press, for fear of having their carefully chosen words twisted beyond recognition.

But in today's overstressed media market, scientists must change these attitudes if they want to stay in the public eye. They must recognize the contributions of bloggers and others, and they should encourage any and all experiments that could help science better penetrate the news cycle. Even if they are reluctant to talk to the press themselves, they should encourage colleagues who do so responsibly. Scientists are poised to reach more people than ever, but only if they can embrace the very technology that they have developed. ■