

## Censoring science

Even before 9/11 and the anthrax scare that followed, editors of microbiology and genomics journals recognized that some of the papers they were publishing might be of use to terrorists. For example, the editors of the *Journal of Virology* considered bioterrorist risks before they published a study showing that with recombinant genetic techniques a benign virus in mice could be changed into a lethal one.<sup>1</sup> Similarly, *Nature Medicine*'s editors hesitated before publishing a study that described how H5N1 influenza virus could be altered with recombinant genetic techniques to yield a virus significantly more virulent, in animal experiments, than the unmodified virus.<sup>2</sup>

As a whole, journal editors hold deeply the principle that research findings must be disseminated as widely as possible and that one of the pillars of science is the reproducibility of results. Thus, among the conditions of publication with *Nature Medicine* is that "authors ... make materials and methods used freely available to academic researchers" and that genetic sequences be registered in accessible databases.<sup>3</sup> But, after 9/11, there has been a growing concern that the public's interest in the open pursuit of science might be trumped by its interest in security.<sup>4</sup>

On Jan. 9, 2003, the US National Academy of Sciences and the US Center for Strategic and International Studies cosponsored a meeting of editors and security experts to discuss the censorship of science. Following from this, a "Journal Editors and Authors Group" (32 participants, including 16 journal editors) concluded that "there is information that ... presents enough risk of use by terrorists that it should not be published."<sup>5</sup> They issued 4 guiding statements.<sup>5,6</sup>

These statements recommend that journals establish editorial procedures to help them identify manuscripts that raise "legitimate concerns about potential abuse." Beatrice Renaud, editor of *Nature Medicine*, and Samuel Kaplan, Chair of the American Society for Microbiology (ASM) Publications Committee (both of whom attended the Jan. 9 meeting), recently reported on changes in process at their journals.<sup>7</sup> Authors, peer reviewers and editors are asked to red-flag papers that report on any substances included in the US Centers for Disease Control and Prevention list of agents of bioterrorism.<sup>8</sup> Since the January meeting, the ASM has flagged 600 papers. Of these, only 2 were considered as serious potential risks. Both were eventually published.

But how exactly can we weigh the benefits and risks of publishing a scientific paper? As the statement authors acknowledge, potentially dangerous information is something "we cannot now capture ... with lists or definitions."<sup>5</sup> Similarly unknowable are the long-term and indirect effects on scientific and technological progress of suppressing information: the history of science is full of examples of chance

findings and unanticipated applications. Also risky is the potential for "chill" within the research community, which could affect our ability to counter bioterrorism. We must also consider whether we want our governments to determine, to an even greater degree than now, the agendas of research. The social responsibilities of the scientific community and of freely elected governments are interconnected, and the tensions between these two groups as guardians of the common interest are complex. Fortunately, although many people speak of a "new normal" imposed by the terrible events of 9/11, current discussions of the censorship of science still invoke the Corson report,<sup>9</sup> which during the Reagan administration "concluded that greater security would be achieved by the open pursuit of scientific knowledge than by attempts to curtail the free exchange of scientific information."<sup>10</sup>

Clearly, any well-funded terrorist group or hostile government could recruit competent scientists and equip them to manipulate "innocent" science into bioterrorist weaponry. To accurately assess the risk-benefit ratio of new scientific findings would require a prescience that none of us has. And so, like the open and close door buttons in an elevator — which never appear to have any immediate effect and are put there perhaps just to give us the illusion of control — perhaps the greatest utility of the 4 statements is to demonstrate to the US Office of Homeland Security that "something" is being done. But no one should attempt to lull the public into a belief that science can be prevented absolutely from falling into dangerous hands. — *CMAJ*

## References

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