

attack using anthrax spores as a weapon originated at a DOD lab.

Oversight systems seem to have been watching everything except the most likely source of a threat.

When this year's failure came to light, the DOD immediately began a 30-day investigation of itself. Its 38-page conclusion, released to the public last week, blamed no one in particular (see go.nature.com/ltn6f). The military determined that the radiation procedure being used at the lab — Dugway Proving Ground in Utah — to kill the spores was ineffective. It emphasizes that no one was harmed, and that there is no proven method to kill the notoriously resilient spores. Both these things are true.

What is still unclear, however, is why the procedure was not better tested. The US Centers for Disease Control and Prevention (CDC) does not have particular standards for inactivation protocols. But if it did, Dugway's protocol surely would not meet them: the lab had never optimized the procedure, and the base's own records showed that the process failed once in every five attempts. Furthermore, neither the sending nor the receiving labs had done enough to verify that the samples were dead. Dugway, for instance, tested only 5% of each sample for viability, which would not have detected a low concentration of live spores. In a twist of irony, DOD scientist Bruce Ivins, who was allegedly responsible for the 2001 anthrax attacks, had suggested that half of a sample should be screened to rule out viability.

Dugway has been in hot water before. An investigation by the news outlet *USA Today* found that the CDC had reprimanded the facility eight years ago for using a different experimental protocol to inactivate anthrax spores and then shipping them even when tests showed that they were still alive. According to *USA Today*, Dugway was let off with

a warning, and the incident was not included in the DOD's annual report to Congress.

Academic labs could be justifiably rankled at the amount of money and time they have to spend complying with regulations on less dangerous pathogens and harmless amounts of radiation. A university that flouts CDC regulations would probably be subject to harsh penalties. But US law allows government labs to maintain secrecy around their

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procedures and the results of investigations into their biosafety mishaps, of which there seem to be many.

That could soon change. On 28 July, both the DOD and the CDC were hauled before a congressional committee that is demanding answers and a new probe into the latest incident. The committee has also called for the agencies to produce a list of the labs that are authorized to work with anthrax and other bioterror agents, and for details of biosafety violations. Earlier this month, the CDC announced that it is beginning a 90-day review of its biosafety procedures for federal research labs that work with dangerous pathogens.

It should not be left up to the media to discover serious accidents at the agencies charged with protecting people from bioterrorism. To be clear, the research they perform on anthrax and other pathogens is essential for biosecurity. Incompetent oversight combined with a culture of secrecy could threaten that work. And, given the overabundance of caution applied elsewhere, there should be some spare to deploy at the government labs at which it is most needed. ■

Realistic risks

The communication of risk in disease outbreaks is too often neglected; that must change.

The outbreak of Middle East respiratory syndrome (MERS) in South Korean hospitals is effectively over, with no new cases since 2 July. Since it began on 11 May, a total of just 186 people were infected by the coronavirus, 36 of whom have died. The episode was tragic, but its economic and social impact was disproportionate. If the world is to respond effectively to infectious-disease outbreaks, then the authorities, the media and communities must pay more attention to risk communication.

The only people at real risk of infection in South Korea were those who had shared a hospital area with someone who had MERS. Yet at the outbreak's peak in early June, thousands of schools were needlessly closed and public events were cancelled. Tourist numbers dropped by 41% compared with the same month last year: a US\$10-billion loss that is expected to knock 0.1% off the country's gross domestic product growth this year. The only winners were those selling the ubiquitous and superfluous face masks.

One important question — and lesson to learn — is how the authorities failed both to convey the limited threat posed by MERS, and to persuade the media and public that they had the outbreak under control.

Public trust in Korean officials was already low after a perceived bungled response to the sinking of the ferry *MV Sewol* last year, which killed more than 300 people, many of them secondary-school pupils. When MERS struck, the authorities foolishly declined to identify the affected hospitals publicly, allowing rumours — amplified by social media — to fill the space. This faltering start was unfortunate because the government did get its act together soon after. Its transparency in reporting new cases became exemplary, as did its public-health response — including the massive task of tracing and isolating the more than 16,500 people who had been in contact with infected

patients. The last contact was released from isolation this week.

Disease outbreaks are frightening, and overreaction to a virus that can kill is an understandable human response. It is one that needs to be understood and managed, not dismissed as irrational.

This puts great responsibility on the shoulders of the press and politicians, and often we see that some are not up to the job. When a handful of Ebola cases occurred on US soil last year, it sparked what President Barack Obama has described as "hysteria". Many media reports were balanced and excellent, but too much of the reporting was excessive and sensationalist. Complicating matters further, right-wing political opportunists and pundits used the Ebola cases to take partisan shots at the Obama administration. Combined with the 24/7 news cycle, and again amplified by social media, coverage of what was a legitimate news story became a shambolic and sorry mess, utterly detached from the reality — that the United States faced no threat of an Ebola epidemic.

This had real consequences. Several politicians, including Chris Christie, the governor of New Jersey, implemented unnecessary and counterproductive measures, such as forced quarantine of US health-care workers returning from West Africa. Republican presidential hopeful Donald Trump showed a troubling grasp of the issue, and called for US borders to be sealed to those arriving from the region, including health-care workers. If this was the US response to a non-existent disease threat, what would its reaction be to a serious epidemic threat? Some outbreak-response officials think that the trend towards instantaneous news, compounded by social media, could interfere with effective public-health interventions and result in societal chaos.

Overreactions to outbreaks that pose no large threat can distract from those that do, and the priority is to eliminate the threats at source. Ebola must be stamped out in West Africa, and MERS must not be allowed to fester in the Middle East, where it is endemic in camels. Researchers need to identify and close the routes by which the MERS virus spreads to people. Social-science researchers can help to unravel complex factors

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affecting public reactions to outbreaks, and how authorities can build trust, so that risks can be better communicated. They might also ask how European countries managed to respond coolly to the arrival of both MERS and Ebola cases. ■