

► databases such as Web of Science and Scopus, as well as more than 5,000 publications recommended by universities. But researchers quickly pointed out that it also included predatory journals.

Virander Singh Chauhan, who chairs the UGC committee that assesses and accredits higher-education institutions and who oversaw the list, says that the predatory journals had been recommended by some universities, and that the UGC had learnt of this only later. Unless universities stop doing this, “nothing can get rid of fake journals in India”, says Chauhan. Currently, he says, universities can simply recommend journals, and make minimal effort to check a publication’s quality.

In May, the UGC removed 4,305 journals from the list on the grounds of poor quality, or because incorrect or insufficient information about the journal had been provided. (The group will update the list with universities’ revised recommendations.) Chauhan says that introducing stricter criteria for registering journals on the UGC list would reduce the number of predatory publications.

Ajit Kembhavi, an astrophysicist at the Inter-University Centre for Astronomy and Astrophysics in Pune, says the government’s plan to crack down on university-proposed journals is a good first step, but that the bigger problem is how universities are evaluated and funded.

A more permanent solution would be to decouple academic assessments from a researcher’s number of publications, says Kembhavi. He adds that more also needs to be done to promote greater awareness of predatory journals among academics in India and to educate them about research ethics.

In China, where some universities reward academics on the basis of the number of publications, the government is working on a blacklist of journals it deems to be of poor quality, or set up only for profit. Research published in these journals will not count towards promotion or grant applications, and the authors will also receive a warning.

Bhushan Patwardhan, a biologist at Savitribai Phule Pune University and a vocal critic of dubious publishing practices, says the Indian government should also show zero tolerance towards academics who publish in these journals. There are currently no repercussions for those who do this. He says the government should introduce rules similar to regulations introduced to detect and punish plagiarism at universities, which came into effect in July. “If faculty members are allowed to get away with such practices, what would stop them from doing this again?” says Patwardhan. ■

1. Xia, J. *et al.* *J. Assoc. Inform. Sci. Technol.* **66**, 1406–1417 (2015).
2. Shamseer, L. *et al.* *BMC Med.* **15**, 28 (2017).



BETTMANN/GETTY

A nuclear blast can cause mass death and damage across a wide area.

PUBLIC HEALTH

US unprepared for nuclear attack

Growing threat from North Korea rattles scientists who study disasters and public health.

BY SARA REARDON

The United States is not prepared to deal with the aftermath of a major nuclear attack, despite North Korea’s efforts to develop nuclear weapons and the increasing tensions between nations overall. That was the blunt assessment of public-health experts who participated in a meeting last week on nuclear preparedness, organized by the National Academies of Sciences, Engineering, and Medicine.

The gathering is “an acknowledgement that the threat picture has changed, and that the risk of this happening has gone up”, says Tener Veenema, who studies disaster nursing at Johns Hopkins University in Baltimore, Maryland, and who co-chaired the conference in Washington DC.

Since the fall of the Soviet Union in 1991, the United States’s research and preparedness efforts for a nuclear strike have focused largely on the possibility of a terrorist

attack with a relatively small, improvised 1-kilotonne weapon or a ‘dirty bomb’ that sprays radioactive material.

But North Korea is thought to possess advanced thermonuclear weapons — each more than 180 kilotonnes in size — that would cause many more casualties than would a dirty bomb (see ‘Damage estimate’).

“We’re back to people saying, ‘We can’t deal with this.’”

“Now that thermonuclear is back on the table, we’re back to people saying, ‘We can’t deal with this,’” says Cham Dallas, a

public-health researcher at the University of Georgia in Athens.

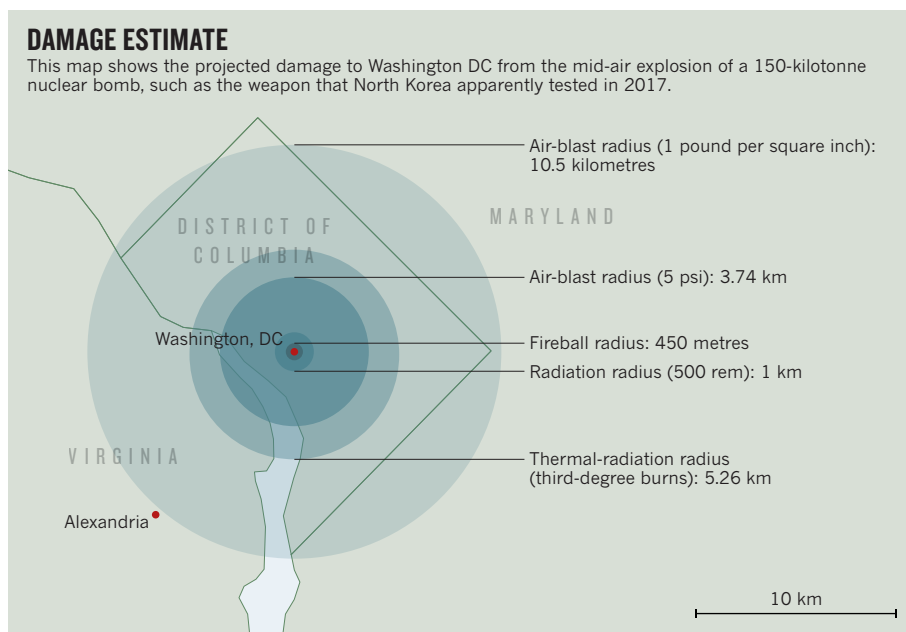
Veenema says that the science academies decided to do a study in November 2017, three months after North Korean leader Kim Jong-un threatened to launch a nuclear weapon at the US territory of Guam. The academies wanted to bring together the different government, academic and private sectors that would be

involved in the medical response to a nuclear attack. The academies' committee plans to release a report in December that lays out how the United States could plug the gaps in its response capabilities.

The US government's spending on nuclear-weapons research and response has dropped drastically over the past few decades — as has the number of health workers with training in radiation medicine and management. According to a 2017 study by Dallas, more than half of emergency medical workers in the United States and Japan have no training in treating radiation victims (C. E. Dallas *et al. Front. Public Health* 5, 202; 2017).

The same study suggests that even trained medical professionals might be too frightened to enter a nuclear-fallout zone or to treat radiation victims at the scene — Dallas's group found that 33% of medical professionals said they would not be willing to respond in such a scenario.

Compounding these concerns, treatments for radiation exposure and burns might not be available in sufficient quantities in the aftermath of a nuclear attack. James Jeng, a burns surgeon at Mount Sinai Health System in New York City, says that the detonation of a nuclear bomb can leave behind hundreds of thousands of burn victims. The best treatment for such injuries is skin grafting, he says, but



SOURCE: NUCLEARSECURITY.COM/NUKEMAP

there are only about 300 burn surgeons in the United States who know how to perform the procedure. It might also be difficult to quickly transport enough donor skin to treatment sites, Jeng adds.

North Korea's threat to Guam last year made clear to public-health officials there

how limited their response capabilities are, says Patrick Lujan, emergency-preparedness manager for the Guam Department of Public Health and Social Services. Guam, an island of 163,000 people, has only three hospitals and no burns units. "We realized there's just so much you can do, being on an island," Lujan says. ■

PHYSICS

Social-media storm dissects superconductivity claim

Thrill over potential high-temperature superconductor reached fever pitch, then died away.

BY DAVIDE CASTELVECCHI

It was an explosive claim: the discovery of a superconducting material that can carry electricity with almost no resistance in normal conditions. The purported finding — announced by two physicists¹ last month — sparked a rush of replication efforts. But independent researchers have grown sceptical as they have dissected the claim, in a process that played out mostly on social media.

"All these researchers who normally do not discuss on a single platform have come together and discussed this," says Pratap Raychaudhuri, who studies low-temperature physics at the Tata Institute of Fundamental Research in Mumbai, India. He led a discussion of the results on Facebook. "I think the self-correcting mechanism of science — the ruthless scrutiny of the community — has

worked extremely well," he says.

Most superconducting materials identified so far work only at much lower temperatures, often close to absolute zero. The highest seen yet is -70°C , reported² in 2015 — and that compound is superconducting only at extremely high pressures. (Just last week, the same laboratory posted³ a preprint on the arXiv server describing a new record, -58°C , for superconductivity at high pressure, but that result has not yet been confirmed.) In a preprint posted¹ on 23 July, Dev Kumar Thapa and Anshu Pandey of the Indian Institute of Science in Bangalore (IISc) described a material made from gold and silver that became superconducting at a balmy -37°C , and at normal ambient pressure.

"It was a remarkable claim, so there was lots of interest," says Raychaudhuri. Several laboratories quickly leapt into action to try to

replicate the results. But their efforts were frustrated, because the preprint did not provide the details needed to manufacture the gold-silver material, and because Thapa and Pandey declined requests to share their samples.

Thapa and Pandey told *Nature's* news team that they would not comment on their research while their paper is under review at a journal. Pandey said that they are having their results validated by independent experts, and that they will announce the results of the validation in the appropriate forum as soon as possible.

TWITTER CHATTER

Brian Skinner, a theoretical physicist at the Massachusetts Institute of Technology (MIT) in Cambridge, began studying the preprint soon after it came out — and eventually chronicled his findings in a widely shared Twitter thread. Although superconductors are not ▶