

# Preventing chemical weapons as sciences converge

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Alarming examples of the dangers from chemical weapons have been seen recently in the use of industrial chemicals and the nerve agent sarin against civilians in Syria, and in the targeted assassination operations

using VX nerve agent in Malaysia and novichok nerve agent in the UK.

The threat of future [chemical](#) attacks is exacerbated by the current unstable international system and also by the potential misuse of developments in science and technology. The States Parties to the Chemical Weapons Convention gathering in the Hague on 21st November for their 4th Review Conference must ensure the prohibition regime is fit to meet these challenges.

This argument is set out by three academics from the University of Bradford in a Policy Forum article titled 'Preventing [chemical weapons](#) as sciences converge' in the present issue of the internationally recognised journal *Science* Volume 362, Issue 6416. In the article Dr. Michael Crowley, Dr. Lijun Shang and Professor Malcolm Dando address key scientific aspects of the issues that the Conference will have to address to prevent the re-emergence of chemical weapons during this period of very rapid scientific change.

Dr. Michael Crowley said: "The unstable international security environment and the changing nature of armed conflict could fuel a desire by certain States to retain and use existing chemical weapons, as well as increase interest in creating new weapons. Tomorrow's weaponeers may well seek to harness the revolutionary advances in the chemical and life sciences and associated disciplines such as nanoscience and neuroscience for their malign ends. The international governmental and scientific communities must collectively review, update and strengthen the global measures in place to protect us all from chemical attack."

Professor Malcolm Dando said: "One area of growing concern has been State interest in the aerosolised application of a range of toxic chemical agents potentially including pharmaceutical chemicals, bioregulators, and toxins that attack the central nervous system of those targeted.

Ostensibly promoted for use in extreme law enforcement scenarios, such as large scale hostage situations, to incapacitate an individual or a group rapidly and completely without causing permanent disability or fatality, their use in practice poses grave dangers to health and well-being of all those affected. Furthermore, research and development in this area potentially opens up the door to new forms of chemical [weapon](#) and warfare."

Dr. Lijun Shang said "It is important to emphasise that scientists' work on the detection, protection and treatment of chemical weapons is important in the overall effort to prevent the misuse of toxic chemicals, but scientists also need to be more aware of the possible misuse of their benignly-intended work."

In their article the authors conclude that chemical and life scientists, health professionals and wider informed activist civil society need to play their part in protecting the prohibition of poison and chemical weapons. They must work with States to build effective and responsive measures to ensure that the rapid scientific and technological advances are safeguarded from hostile use and are instead employed for the benefit of all.

**More information:** M. Crowley et al., "Preventing chemical weapons as sciences converge," *Science* (2018). [science.sciencemag.org/cgi/doi ... 1126/science.aav5129](https://science.sciencemag.org/cgi/doi/10.1126/science.aav5129)

Provided by University of Bradford

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