PREVENTING THE REEMERGENCE OF CHEMICAL WEAPONS

Chemical weapons – devices or munitions employing toxic chemicals specifically designed to cause death, injury, temporary incapacitation, or sensory irritation – remain a serious threat to humanity and a dangerous misapplication of the chemical sciences. Traditional chemical warfare agents (CWAs) such as sarin and mustard agent are designed to kill or maim, and some industrially useful chemicals, such as chlorine and phosgene, have been and may in the future be misused as weapons.[1]

The production and stockpiling of chemical weapons has been banned since 1997 under the terms of the Chemical Weapons Convention (CWC). However, their documented[2] use in current conflicts, both by states and non-state actors, has sparked renewed concerns. Furthermore, scientists and policy makers recognize a growing convergence of chemistry and biology.[3] The cross-disciplinary research has provided new insights into chemical action on life processes, leading to greater knowledge regarding what kinds of chemicals are toxic. With this convergence comes the potential to produce toxic chemicals in ways that are difficult to monitor. As a result of these developments, there is international emphasis on preventing the reemergence of chemical weapons, whether produced by traditional chemical processes or bio-mediated production.

The American Chemical Society (ACS) endorses efforts by international bodies, such as the Organisation for Prohibition of Chemical Weapons (OPCW) and the United Nations Security Council, to investigate and hold accountable those determined to be responsible for the use of chemicals as weapons. ACS also encourages research to increase the efficacy of monitoring mechanisms.

Chemical Safety and Security

The ACS supports efforts on the part of the United States (US), the chemical industry, and the international community to improve the safety and security of manufacturing processes. In this connection, the ACS supports chemical practitioners' informed and coordinated engagement with policy makers and with people in the communities in which they live to minimize the misuse of chemicals. Evaluation of alternative materials as well as alternative uses of existing materials has become more relevant in light of more scrutiny of the broader impact of chemicals throughout the stages of manufacture, use, and disposal and increasing regulation of their effects on workers and the environment.

The ACS recognizes a role for governments in countries around the world facilitating dialogue to minimize or prevent chemical threats and supports those programs associated with such work, including the US State Department's Chemical Security Program and Export Control and Related Border Security Program. The ACS also applauds related work funded by the Defense Threat Reduction Agency's Cooperative Threat Reduction programs. In particular, ACS supports work to enhance standards for responsible conduct and prevent the misuse of pharmaceutical compounds as weapons as described below.

The American Chemical Society (ACS) Board of Directors Committee on Public Affairs and Public Relations adopted this statement on behalf of the Society at the recommendation of the Committees on Science, and on Corporation Associates. ACS is a non-profit scientific and educational organization, chartered by Congress, with nearly 157,000 chemical scientists and engineers as members. The world's largest scientific society, ACS advances the chemical enterprise, increases public awareness of chemistry, and brings its expertise to state and national matters.

Establishing Standards for Responsible Conduct

Chemical practitioners in countries around the world have been involved in grassroots discussion, development, and endorsement of ethical standards such as the Global Chemists' Code of Ethics (GCCE),[4] the Hague Ethical Guidelines,[5] and The Chemical Professional's Code of Conduct.[6] Such standards can help guide chemical practitioners in making sound decisions when faced with ethical dilemmas in the course of their work. Additionally, voluntary initiatives such as Responsible Care® and its Guiding Principles represent a positive means of preventing the weaponization of chemicals. The commitment demonstrated by the American Chemistry Council and the International Council of Chemical Associations through Responsible Care® and related programs to strengthen industry's environmental, health, safety and security performance support chemistry's key role in improving the human condition. In support of those efforts, ACS urges governments to prioritize the following actions:

- Enhance the safety and security of chemical inventories against threats posed by terrorists and criminals through the expansion of voluntary measures such as "Know Your Customer" codes of practice across the full range of chemical manufacturing and use industries.
- Optimize regulatory frameworks for export control to ensure they are fulfilling their purpose by ensuring responsible chemical use among "downstream" purchasers while minimizing unintended disruption to commerce.
- Partner with nongovernmental organizations (NGOs), civil society, and companies of all sizes in implementing best practices outlined in the UN's Strategic Approach to International Chemicals Management (SAICM).[7]
- Promote awareness of safe and responsible conduct in innovation communities who are performing work in areas of convergence of chemistry and biology. In this regard, efforts by participants in the International Genetically Engineered Machine (iGEM) competition provide a model others can follow to incorporate responsible practices into their work. Such efforts require those taking part to evaluate not only the safety of their research but also the potential implications of the work in terms of ethics, regulation, and public acceptance.

Preventing the Use of Pharmaceutical Compounds as Weapons

In 2007, the British Medical Association drew attention to the risks associated with the potential use of highly toxic central nervous system-acting pharmaceutical chemicals such as fentanyls, which are sometimes inappropriately referred to as "incapacitating agents," in law enforcement scenarios. More recently, Australia and 38 other countries that are parties to the CWC, including the US, have stressed that these chemicals pose a serious challenge to the Convention. As a global organization, ACS urges governments around the world to prioritize the following actions to prevent the use of such pharmaceutical compounds as weapons:

- Continue to highlight the dangers posed by the use of central nervous system-acting pharmaceutical chemicals outside the clinical setting.
- Issue warnings that the development, production, acquisition and stockpiling of central nervous system-acting chemicals for law enforcement purposes could constitute a "backdoor" to the reemergence and normalization of the weaponization of chemicals.
- Build and implement strong standards against the use of central nervous system-acting chemicals for law enforcement.[8]

Continuing Importance of the CWC

ACS urges the US to continue its strong support for the CWC in concert with ACS members, NGOs, and other governments whose efforts are aimed at preventing the reemergence of chemical

weapons. It recognizes that the CWC has led to strengthening international security against chemical weapons and notes OPCW's report indicating more than 96%[9] of the world's declared stockpile of CWAs have been destroyed. ACS urges the US to complete the destruction of its declared chemical weapons expeditiously and to assist other States Parties, particularly those whose chemical industries are in development, in decreasing the possibility of chemicals being misused.

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[1] *Report of the Mission Dispatched by the Secretary-General to Investigate Allegations of the Use of Chemical Weapons in the Conflict Between the Islamic Republic of Iran and Iraq*, New York, NY: United Nations Security Council. March 12, 1986: 19

[2] A/HRC/36/55, *Report of the Independent International Commission of Inquiry on the Syrian Arab Republic*, United Nations Human Rights Council. August 8, 2017. Accessible at https://documents-dds-ny.un.org/doc/UNDOC/GEN/172/341/8X/PDF/1723418.pdf?OpenElement

[3] It is understood in this statement that a chemical is defined as a non-living substance which may be produced by a synthetic chemical process (e.g. phosgene, mustard gas, chlorine), a natural living organism (e.g., ricin, conotoxin), or by a bio-mediated production process (e.g., butyric acid, bacterial toxins, or mycotoxin).

[4] https://www.acs.org/content/acs/en/global/international/regional/eventsglobal/global-chemists-code-of-ethics.html

[5] https://www.opcw.org/special-sections/science-technology/the-hague-ethical-guidelines/

[6] https://www.acs.org/content/acs/en/careers/career-services/ethics/the-chemical-professionals-code-of-conduct.html

[7] http://www.saicm.org/About/SAICMOverview/tabid/5522/language/en-US/Default.aspx

[8] Joint statement from CSP-21 (21st Conference of States Parties): https://www.opcw.org/fileadmin/OPCW/CSP/C-21/national_statements/c21nat03_e_.pdf

[9] Paragraph 10 of the OPCW Director General's statement from CSP-22 (22ndConference of States Parties): https://www.opcw.org/fileadmin/OPCW/CSP/C-22/en/c22dg20_e_.pdf