

## The Health Impacts of Toxic Remnants of War on Civilian Populations: A Scoping Review

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**Introduction:** An estimated two billion people are currently affected by war, with civilian populations increasingly exposed to the hazards of armed conflict. While the effect of explosive remnants of conflict is well documented, the impacts of the toxic remnants of war on civilian health are less well understood.

**Methods:** This study was a scoping review examining the human health impacts of exposure to toxic remnants of war. Toxic remnants of war refer to any toxic or radiological substances arising from military activities. In this study, however, the focus was limited to the health effects of exposure to toxic substances and explosive by-products from munitions fired, dropped, or abandoned during conflict. The following databases were searched: Embase PubMed, Scopus, and Web of Science. The Mixed Methods Appraisal Tool (MMAT) was used to assess the methodological quality of studies that met the inclusion criteria.

**Results:** Common toxicants reported on were Tetrachlorodibenzo-p-dioxin TCDD, white phosphorus, depleted uranium, lead, mercury, and sulfur mustard. Common health effects included respiratory diseases as well as cutaneous, cardiovascular, reproductive, and congenital effects. Posttraumatic stress disorder, depression, anxiety, cognitive impairments, and decreased quality of life were also commonly reported. The evidence base, however, is mixed with heterogeneity in study design and outcome measures. Lack of baseline data and inadequate exposure models make establishing an adverse causal relationship between an agent and a disease challenging.

**Discussion:** Civilian exposures to toxic remnants of conflict remain understudied and under-addressed. The study suggests assessment of the human health impacts of toxicants should be part of a post-conflict response, especially given the potential long-term intergenerational effects. The current lack of recognition of the human health impacts of toxic remnants of conflict also limits the amount of global resources assigned to post-conflict decontamination.

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## International Humanitarian Law and Review of Recurrent Violations Including Chemical Weapons Use

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**Introduction:** The basis of International Humanitarian Law (IHL) is the Theory of Natural Law, which states that the laws of morality and the ability to use reason in the determination of inalienable human rights, are innate to humans, and cannot be taken away by any states or laws. IHL is an agreement among nation-states that applies to situations of conflict to protect civilians and guides conduct in time of war. IHL extends

protection to civilian medical personnel. The recent escalation in chemical weapons use by states has violated IHL and the 1997 Chemical Weapons Convention (CWC) treaty, with little repercussion from the international community.

**Aim:** We review the increase in chemical weapons use, international chemical weapon treaty violations, and violations of IHL against medical personnel.

**Methods:** A review was conducted of existing medical and grey literature for sources discussing chemical agents, their history, and violations of laws prohibiting their production, stockpiling, or use. The following publications were reviewed: PubMed, EBSCoHost, and Google Scholar.

**Results:** The use of sarin, chlorine, and mustard gas against civilians has been confirmed multiple times in Syria by the United Nations since 2011. Physicians for Human Rights mapped 537 attacks, both violent and chemical, against 348 different medical facilities in Syria from March 2011 to July 2018. Since March 2011, at least 847 civilian medical personnel have reportedly been killed. Many were killed by government forces as part of a war strategy creating further incapacitation. Most recently, Medecins Sans Frontiers concluded its Yemen mission due to repeated attacks, including two in one week in October 2018.

**Discussion:** There must be recognition and emphasis on the health severity of such attacks and the violations of IHL and the CWC. Physicians must use their unique positions for advocacy and call for action in upholding international treaties.

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## Newborn and Child Health Care in Humanitarian Crisis Settings: Piloting of Training Package for Primary Health Care Workers in Rural Nepal

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**Introduction:** The community-based integrated management of newborn and childhood illness (CBIMNCI) training package has been widely used throughout Nepal. Adding a component of disaster response and management to this program would greatly impact the community, and could improve the knowledge and skills of community workers for the management of children during a disaster.

**Aim:** Describe the development and implementation of a community-based training for children in disasters.

**Methods:** Using expertise from emergency and pediatric emergency physicians, pediatricians, and psychiatrists, we developed a two-day training and facilitator manual covering topics such as trauma, resuscitation, burn, drowning, disaster, nutrition, and care of the newborn. The information and manuals were presented to the Nepal Division of Child Health for approval. Four pilot trainings were conducted in Bardia and Bardibas in Nepal in September 2017, including knowledge and skill-based sessions. Knowledge was tested pre- and post-training using multiple choice questions (MCQ) and self-reflections. Skills were evaluated by direct observation and marked using