

# Who will assist the victims of use of nuclear, radiological, biological or chemical weapons – and how?\*

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## **Abstract**

*It is uncertain who will assist the victims of use of nuclear, radiological, biological or chemical weapons if an international response is required, and how this assistance can be provided without undue risk to those providing it. The use of such weapons or any other release of the materials of which they are composed cannot be considered as presenting a uniform risk. There are a variety of risks, each with its own implications for getting help to the people affected and for the health and security of those bringing that help. The political implications are serious and complex. This brief review shows the difficulties inherent in assisting the victims or potential victims of use of nuclear, radiological, biological and chemical weapons.*

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Despite having no specific plans to assist the victims of an NRBC event,<sup>1</sup> the ICRC intervened several times during the twentieth century in armed conflicts in which nuclear, chemical and biological weapons were used or allegedly used. Its experience on those occasions has revealed the difficulties involved in bringing assistance to the people affected and ensuring the security of ICRC staff. It has also raised complex legal, political and diplomatic questions. The issue of assisting the victims of an NRBC event has been even more challenging and complex.

\* This article reflects the views of the authors and not necessarily the views of the ICRC.

There is increased dialogue among international players<sup>2</sup> about the risk of use of NRBC weapons by states and non-state entities. This dialogue has been amplified by concerns arising from such events as the release of sarin gas in the Tokyo subway in 1995, the sending of “anthrax letters” in the United States in 2001, the use of a fentanyl derivative to end the Moscow theatre hostage crisis in 2002, the purported presence of NRBC weapons in Iraq before 2003, the investigation of the use of polonium<sup>210</sup> in a murder enquiry in London in 2006 and the use of “chlorine bombs” in Iraq in early 2007. Each international player, understandably, looks at the risk of use of NRBC weapons from the point of view of their own particular interest or mandate. Another concern therefore is that by having a mandate to assist and protect all victims of armed conflict and other situations of violence, the ICRC accepts that, as in the past, it may be called upon to assist these victims in any way it can. Obviously, attempting to fulfil its mandate has profound implications for the health and security of ICRC staff. Furthermore, the ICRC may already be present in the conflict zone when an NRBC event takes place.

To address these concerns we began by reviewing the ICRC’s action hitherto in relation to use of nuclear, radiological, biological and chemical weapons and analysing all available material pertaining to the risk of such use in the future.

No formal methodology was used to generate our risk assessment. It is based on information provided by sources such as government experts, independent experts, wide reading and participation in numerous conferences and think tanks. Our work has brought us into contact with most, if not all, of the principal international players and has enabled us to make observations with respect to their possible roles and capacities. We based our dialogue with them on their perception of the risk involved and on the basic question reflected in the title of this article: in those NRBC events which would have a high impact in terms of the “human cost” and would require an international response, who will assist the victims of use of NRBC weapons – and how will this assistance be provided? Whilst this question was deemed extremely complex by all players, it is rendered more complex still if we extend consideration of an assistance response to all NRBC events.<sup>3</sup> We have dealt with this wider set of risks only in passing.

1 “NRBC weapons” means any weapon or device used as a weapon which utilizes nuclear fission or fusion, radioactivity with potential to cause effects on human health, toxic chemicals or biological agents. “An NRBC event” means any use of a nuclear, radiological, biological or chemical weapon. It also means a situation in which there is a high probability of use of such weapons. It includes accidental release of NRBC materials in the event of an attack with conventional weapons on an NRBC facility, as well as allegations of use.

2 “International player” refers to any agency, whether governmental, military, the United Nations, the ICRC, other components of the Red Cross and Red Crescent Movement or non-governmental organizations which could potentially be involved in mounting an assistance response across international borders for the victims of an NRBC event.

3 “Assistance response to an NRBC event” includes potentially bringing “assistance to victims” and “staff security”. It includes strategies to prevent use or repeated use which may involve dialogue with authorities with respect to their obligations under international law. It also includes aspects relating to

This article gives a brief insight into the history of the ICRC's intervention in contexts where NRBC weapons have been used or allegedly used. We then describe our assessment of the risk of use of NRBC weapons and identify eleven separate risks. A heterogeneous risk assessment necessitates a heterogeneous approach both to assisting victims and to staff security, and we have therefore attempted to give a realistic indication of the expected "human cost" pertaining to these eleven separate risks. We give an overview of how this risk assessment might apply to international players collectively; we do not name any specific government or organization. The conclusions we draw may help to advance thinking among international players with respect to this extremely complex issue.

Normative and preventive legal activities are not considered in this article. These are undertaken by a variety of international players within the framework *inter alia* of the 1968 Nuclear Non-Proliferation Treaty, the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, the 1972 Biological Weapons Convention, the 1993 Chemical Weapons Convention and Security Council Resolution 1540. Preventive work in relation to scientists working in the academic world or industry likewise is not considered.

## Use of NRBC weapons: not a new issue for the ICRC

Many of the fundamental questions and dilemmas relating to assistance today for victims of use of NRBC weapons and to staff security have been identified in internal ICRC discussions over the last seventy years. The ICRC's history with regard to NRBC weapons raises issues that warrant clear policy guidelines for any international player.

- In response to the use of gas in the First World War, the ICRC issued a forceful appeal to all belligerents.<sup>4</sup> This provided, in part, the necessary momentum for states that ultimately concluded the 1925 Geneva Protocol.
- The activities of the ICRC in relation to use of chemical weapons in the Italo-Ethiopian War in Abyssinia have been described by a former staff member in his memoirs. These activities were heavily criticized as a result of archival research.<sup>5</sup>

diplomatic dialogue and public communication. "Assistance to victims" means both specialized and general assistance to the people affected. It also means provision of general and specific means for the protection of potential victims from exposure to the effects of NRBC weapons. "Staff security" means consideration of all aspects of security and health of staff (whether expatriate or national) in relation to preventing exposure to and suffering from the effects of NRBC weapons.

4 Appeal of the International Committee of the Red Cross to the belligerents against the use of poisonous gases, 8 February 1918.

5 Marcel Junod, *Warrior without Weapons*, ICRC, Geneva, 1982. See also Rainer Baudendistel, "Force versus law: the International Committee of the Red Cross and chemical warfare in the Italo-Ethiopian war 1935–1936", *International Review of the Red Cross*, No. 322 (March 1998), pp. 81–104.

- The ICRC was involved in providing medical supplies to hospitals after the atomic bombing of Hiroshima in 1945.<sup>6</sup>
- In 1952 the United States submitted a proposal to the UN Security Council requesting that the ICRC investigate the alleged use of biological weapons in the Korean War; the investigation never took place.<sup>7</sup>
- Some of the most difficult dilemmas the ICRC would face in mounting an assistance response today became evident as early as the conflict in Yemen in 1967, in which chemical weapons were used.<sup>8</sup> The visit of ICRC staff, including a medical team, to areas where chemical weapons had allegedly been used raised a multitude of complex issues. These included the question of whether the ICRC should issue protective masks to the civilian population (thereby appearing to verify the allegations); the risk of exposure of ICRC staff to chemical agents; the possibility of ICRC staff coming under attack to prevent their witnessing the effects of use of chemical weapons; and whether an ICRC team assisting victims should carry out scientific investigations to verify the allegations. The question of public disclosure of the reports by the ICRC became a prominent feature of diplomatic exchanges and in the media.<sup>9</sup>
- Only public statements issued by the ICRC on the use of chemical weapons during the Iran–Iraq war can be made known here. The two press releases issued by the ICRC in 1984 and 1988 both imply that Iraq was the user.<sup>10</sup>

The ICRC can learn a number of lessons from its previous involvement in this matter:

- The question whether and how to provide assistance automatically raises issues relating to the confirmation of alleged use.
- Public statements pertaining to an NRBC event that are made by an organization such as the ICRC are of keen interest to many states.
- Assistance and denunciation are easily confused at field level.
- Where verification of allegations is lacking, a politically driven dialogue rapidly overrides concern for the victims. Information pertaining to verification of allegations is manipulated. Anyone in a position to verify alleged use might be in danger.
- The use or alleged use of chemical weapons by a state makes for extremely difficult decisions within an institution such as the ICRC, which go beyond the

6 See François Bugnion, “The ICRC and nuclear weapons: from Hiroshima to the dawn of the 21st century”, *International Review of the Red Cross*, Vol. 87 (September 2005), p. 511.

7 United States of America: Draft resolution submitted on 20 June 1952 on the question of a request for investigation of alleged bacterial warfare, UN Doc. S/2671.

8 The Stockholm International Peace Research Institute, analysing the political and media aspects of the allegations, concludes that of the fifty or so incidents of alleged use of gas in Yemen, only two have a significant quantity of substantiating document evidence. *The Problem of Chemical and Biological Warfare*, SIPRI, Stockholm, 1971, Vol. I, pp. 225–38.

9 Ibid.

10 ICRC press release No. 1481, “Wounded of the Iran/Iraq conflict: appeal of the ICRC”, 7 March 1984; ICRC press release No. 1567, “Iran-Iraq conflict: the ICRC condemns use of chemical weapons”, 23 March 1988.

dilemmas pertaining to assisting the victims and staff security. There are major political and diplomatic implications as well.

- There are complex issues relating to staff security. In addition, examining and exhuming dead bodies is potentially very hazardous, as could be taking samples for subsequent analysis.

## The risk of use of NRBC weapons

“Risk” is scientifically defined. It is a function of two variables, namely the probability of an event occurring and the effects of that event. This section therefore deals with the probability of use of different kinds of NRBC weapons; the section following describes the effects resulting from their use. (The effects equate with what we have understood as the “human cost” and, in particular, the numbers of direct deaths and injuries.)

Our risk assessment relates to the probability and effects of eleven different possible uses of NRBC weapons anywhere in the world.<sup>11</sup> It differs from a risk assessment of all possible NRBC events; in our opinion, an attempt to make such an assessment would prove meaningless. We have given these eleven risks, as compared with each other, a rating of high, medium or low probability. This is based on a retrospective analysis of how frequently certain weapons have been used in the last hundred years, the current perception of experts of the likelihood of use and our understanding of the interface of technical, tactical and political considerations. We recognize that our assessment must not be seen as static. The risk could change very rapidly if, for example, a state were to threaten a nuclear strike. Our risk assessment pertains to use of:

- nuclear weapons (low)
- improvised nuclear devices (low)
- “radiological device” (medium)
- highly infective and contagious anti-human biological agents with global implications (low)
- bacterial agents which are infective but whose effects can be treated and of which human-to-human transmission is controllable (low)
- non-contagious agents (medium)
- infective and contagious agents against animals or plants (medium)
- chemical warfare (low)
- limited or small-scale use of chemical weapons (high)
- “new” chemical weapons (medium)
- riot control agents (high)

An important point with regard to the probability element of this risk assessment is that probability of use may be influenced by perceptions resulting

<sup>11</sup> The definitions given below are for the purpose of generating our risk assessment. They contain terminology drawn from disarmament conventions.

from the “war on terrorism”. For example, the probability of terrorist use of certain NRBC weapons is perceived as more likely than their use by states. The risk assessment inevitably carries a political dimension which is difficult to refine. In other words, politically influenced perception of the probability may be very different from the real probability.

In an armed conflict the probability of an NRBC event that does not involve confirmed use of NRBC weapons is likely to be higher than the probability of confirmed use.

### **Effects of use of NRBC weapons (the “human cost”)**

For each of the eleven risks listed, the effects of use of a particular NRBC weapon are based primarily on our understanding of the direct effects that are likely. These direct effects are the number of people killed, injured or rendered sick. (There are many indirect effects, such as social or industrial disruption, possible impact on health long after the event and impact on the environment.) This section gives an overview of the effects and some implications for assisting survivors and for staff security. The management of remains of those killed is not considered here.

Providing assistance in such an environment would take a very heavy toll on the psychological well-being of those who are closest to the victims, whether the latter are survivors or dead.

### **The use of nuclear weapons<sup>12</sup>**

The number of victims will vary greatly, depending on the number of nuclear weapons used as well as the yield and location of the explosion(s). Obviously a nuclear weapon used in a desert or at sea against a discrete military objective will have less immediate human cost than if such a weapon was used in a populated area. The direct causes of injury to humans following a nuclear explosion are, first, thermal (heat) radiation resulting in large-scale firestorms that cause burns and other severe injuries; second, blast waves and accompanying high-speed winds that cause injuries similar to those from conventional explosives; and, third, radiation and radioactive fallout, causing radiation sickness.

The chances of survival will be determined mainly by the extent of exposure to heat, blast or radiation, which in turn is determined by the yield of the bomb and the person’s proximity to the epicentre. A great many of those exposed are likely to die in the following days or weeks. In addition, there are long-term effects on health. Radioactive particles and radioactive fallout can cause cancers and birth defects.

<sup>12</sup> “Nuclear weapons” refers to nuclear weapons produced by a state and which provide destructive energy through nuclear reactions (fusion or fission). The yield of a nuclear weapon may vary from less than 1 kT to up to 10 MT (= 10,000 kT). It cannot be excluded that these weapons could be acquired by non-state entities, but the likelihood of this occurring is considered minimal, in particular compared with the acquisition or development of improvised nuclear devices.

Describing the management of radiation sickness is beyond the scope of this article. Specific prophylaxis (e.g. with iodine tablets) or treatment for radiation sickness will have a limited effect on the overall chance of survival. Even in the most sophisticated facilities, treating large numbers of people with severe burns is extremely difficult, time-consuming and expensive. Less ambitious but effective treatment would take the form of general supportive measures (general care, dressings, antibiotics, pain relief, etc.) Assistance would also include provision of shelter, uncontaminated water, food and clothes.

The main risk for anyone bringing assistance to survivors of the use of a nuclear weapon is from exposure to the radioactive material that will be present in the dust, water or air. The time that any one person could spend working in a contaminated area would be limited.

### Improvised nuclear devices<sup>13</sup>

Use of an improvised nuclear device is likely to be an isolated incident. If fusion or fission were achieved, the effects would be similar to a smaller-yield nuclear weapon. The number of victims will be determined by whether or not the explosion takes place in a populated area. The implications for assisting victims and for staff security are similar to those described above with reference to the use of nuclear weapons.

### The use of a “radiological device”<sup>14</sup>

The radioactive material used in a radiological device could theoretically cause radiation sickness as well as long-term radiation effects. These effects are difficult to quantify or predict. They are likely to include other long-term effects. The main effects of the use of a “dirty bomb” would come from the detonation of the conventional explosive – that is, death and injuries from blast and fragments. Depending on where it is used, the main effect from the radioactive material in a dirty bomb would probably be widespread panic with subsequent economic disruption. Decontamination of even a small area of a city would require large resources and would be time-consuming. A difficult technical and political question would relate to the “safe” level of radioactivity at which the population could return. It is deemed more likely that such an attack would be carried out by a non-state entity and would target a populated area.

13 “Improvised nuclear device” means a device developed mainly by non-state entities and which provides destructive energy through nuclear reactions (fusion or fission). However, compared with nuclear weapons such devices are rudimentary. The expected yield is probably between 1kT and 20 kT.

14 “Radiological device” refers to any device that utilizes radioactive material to harm people or for dissemination into the environment. This includes radioactive gases, powders or liquids. When explosives are used to disperse the radioactive material from a source other than a nuclear explosion, it is commonly referred to as a “dirty bomb”. In such a case, the explosive would cause most of the injuries to people and material damage, whereas the radioactive material would cause disruption mainly through the psychological impact. In the long term, there is a theoretical risk of a variety of health problems.

The immediate needs of the survivors would be similar to those resulting from an attack using a conventional explosive, although with an additional and vital need for decontamination (the issue of radioactive fragments embedded in the human body has not been addressed in surgical literature). Uninjured people contaminated with radioactive dust might only need washing; this would nonetheless require some specific measures and special training for healthcare personnel.

The main risk for anyone bringing assistance to survivors of use of a radiological device is from exposure to radioactivity. However, the levels of radioactivity will not be comparable to those resulting from detonation of a nuclear weapon or an improvised nuclear device.

### The use of a highly infective and contagious anti-human biological agent with global implications<sup>15</sup>

The intentional release of anything such as smallpox, SARS (severe acute respiratory syndrome) or influenza is potentially, in terms of magnitude of effects, one of the most serious of all NRBC risks. A number of factors combine to make the potential effects so severe:

- the attack is likely to be silent (i.e., the target population and authorities are unlikely to know it has taken place);
- the incubation period may be up to three weeks after exposure;
- the disease may spread rapidly as a result of extensive international air travel;
- diseases caused by these agents can be highly lethal;
- there would be widespread panic and economic collapse.

The SARS outbreak of 2003 (a natural outbreak) indicates the potential widespread impact on health and the economy. This is reflected in experts' predictions about the possible mutation of H5N1 avian influenza to a strain transmissible from human to human. An uncontained smallpox outbreak would almost certainly result in a global public health and economic catastrophe. The SARS outbreak and the concerns about avian influenza, combined with the experience gained in controlling smallpox epidemics in the past, obviously help in contingency planning to combat a deliberate release of highly infective and contagious agents. In other words, assisting victims falls within the domain of public health preparedness for any major epidemic.

In terms of staff security, any person working in an area affected by such an epidemic should have the necessary vaccinations and medication in advance.

15 “Biological weapon” refers to a biological agent and the means to deliver it. “Biological agent” means any living organisms or a toxin (a poison produced by a living organism) that cause disease in, or harm to, humans, animals or plants. Biological agents can cause an effect on the target and may be contagious (i.e., the infection can be transmitted onwards) or not. They may be delivered as liquid droplets, aerosols, or dry powders. The release of a biological agent can also be achieved by traditional delivery systems for weapons such as artillery or aircraft, or by more rudimentary means (e.g. by introduction into the water supply or by letters), or by accident.

However, the very fact of being in possession of vaccines and medication or samples or even of having access to transport out of the area might be a security risk in itself. Staff could be attacked by people who have no vaccines, no medication and no adequate means of transport.

### The use of infective bacterial agents of which human-to-human transmission is controllable and whose effects can be treated

Use of agents such as cholera or plague would result in a classic, potentially containable epidemic. The victims and potential victims would be treated with appropriate antibiotics and other means. It is unlikely that deaths would be in the thousands as long as a public health response was possible.

Such situations are manageable both at national and international levels within the existing public health responses. International players already have a wide experience of treating such outbreaks, albeit those from natural causes. However, if it is proven that an outbreak results from an intentional release of an agent, this would change the investigation of its origin and the political/media environment. It should not change the management of the epidemic.

As in a natural outbreak, a standard public health approach including prophylactic antibiotics or vaccinations would reduce the chances of disease spreading to those bringing assistance. Serious illness among staff may be possible if the final diagnosis is unknown and, for example, the wrong prophylactic antibiotics are used. Another threat for international players could arise from any state, group or person trying to suppress public knowledge of the attack or the nature of the disease agent.

### The use of non-contagious biological agents

Non-contagious agents such as anthrax, botulinus toxin or tularaemia could be delivered by air or put in food or drinking water. The anthrax letter attacks in the United States in 2001 showed how widespread the panic is in comparison to the number of people directly affected. Whilst some such agents can be highly lethal, the diseases they cause are not contagious.

In the event of a single use, the delay in confirming the nature of the agent used and that it was a deliberate release may mean that the full effects are suffered before specific treatment can be given. If international help is requested, the delay is likely to be longer, and so assistance for the victims may arrive long after the outbreak has run its course (unless the international agency is already present in the country concerned). Individual victims can be treated in ordinary medical facilities once the diagnosis is made. Measures to prevent the disease from spreading to other people are not necessary. However, decontamination of an area or building requires specialized equipment and training. It should be noted that vaccinating against anthrax involves a course of injections over several months.

Most concerns about staff security should be covered by maintaining a level of caution, having medical advice and treatment readily available and taking

common-sense measures to avoid contamination (for example, following guidelines about opening suspicious packages).

### The use of infective and contagious agents against animals or plants

Biological agents can be directed at animals and plants. The degree of economic damage (collapse of markets, disruption of food supplies, loss of livelihoods, etc.) or more catastrophic effects such as starvation are obviously determined by how widespread the agent's effects are.

The requisite assistance activities (e.g. food and seed distribution, and animal vaccination) have been well tried and tested by international players in responding to natural events. However, those players involved in providing assistance may not be so involved in investigating whether the disease outbreak was intentional or not.

Our understanding is that the only potential anti-animal agent that carries major implications for staff security is avian influenza. Apart from that, one can assume that it would be safe to work in an area where there is an outbreak of an animal or plant disease. Again, the most serious security implications could come from anyone wishing to deny access to international agencies or to prevent confirmation of the nature of the outbreak.

### Chemical warfare<sup>16</sup>

Chemical warfare is most likely to occur as an attack involving a state's armed forces; it could take place on a large scale and would need sophisticated delivery systems. The number of people affected will depend on the amount of the agent used and atmospheric conditions such as wind direction and rain. The nature of injuries sustained will depend on the kind of agent, for example whether the agent exerts its effect on the skin, nerves or respiratory system.

Assisting victims and preventing exposure all depend on knowing that an attack has happened or is likely to happen. This may be far from obvious. If people arrive at hospital with "burns", it may only be discovered later that they are suffering from the effects of a chemical weapon. Successful treatment of such cases requires their decontamination and subsequent treatment according to the agent used. As it is necessary to protect hospital staff from secondary exposure, and as working for any length of time in protective suits is not feasible, any health facility would quickly be paralysed by the arrival of even a small number of people affected by a chemical agent.

16 "Chemical warfare" means use of chemical weapons by a state or organized military body. "Chemical weapon" means a toxic chemical which produces incapacitation, serious injury or death, and the means to deliver it. It covers nerve agents, blister agents, blood agents and choking agents. A toxic chemical can be released via a weapon designed for this purpose or by more rudimentary means such as by piercing plastic containers which contain the agent or by simply placing a container of chemical next to an explosive charge.

The means to protect any group, whether the general population or staff, include special shelters, decontamination, detectors, distribution of protective clothing and distribution of auto-injectable antidotes.

The main implication in terms of staff security is the probability of contamination. This would be greatest for international players when called upon to assist victims, rather than simply being near to, entering or living in an area that is attacked. All potential measures to reduce the risk of exposure, such as protective masks, detectors and sealed rooms, do not necessarily ensure protection and certainly give rise to more difficult questions. There are also security implications for international agencies if their staff only – and not the population at large – have protective measures at their disposal.

### Limited or small-scale use of chemical weapons

A single attack with a chemical weapon employing an improvised or low-tech delivery system is likely to target a crowded area. Such an attack is unlikely to cause a large number of deaths among those exposed. The number and nature of injuries will depend on the kind of agent and the amount released. Many hundreds of people will, however, be gripped by panic once it is known that a chemical weapon has been used.

Unless international agencies are already present, and even if they have a medical facility on the spot, they are unlikely to be involved in assisting the victims because the needs resulting from a single attack are relatively small. But this may change if multiple such attacks are anticipated.

The implications for staff security are less serious than in chemical warfare unless an attempt is made to provide immediate assistance. The nature of the agent is unlikely to be confirmed in time to be able to respond with specific measures such as antidotes.

### Use of “new” chemical weapons<sup>17</sup>

The use of a fentanyl derivative to end the Moscow theatre siege was the first time a therapeutic agent was used in a tactical situation. Until then, fentanyl derivatives had been considered “non-lethal” chemical weapons. One hundred and twenty people died purportedly because of respiratory failure and because medical care was lacking in the critical minutes after the attack. Most such “new” chemical weapons are those which might incapacitate by reducing the level of consciousness, such as analgesics and anaesthetic drugs.<sup>18</sup> An attack is likely to be “silent” and the agent used may not be identified until much later.

17 “New chemical weapons” refers to a variety of new chemicals – many of them related to pharmaceuticals – which are being considered for use as weapons. These may be termed “calmatives” or “incapacitants”. They are purportedly being developed for law enforcement purposes because there is a perception that their use will cause few deaths.

18 V. Nathanson (ed.), *The Use of Drugs as Weapons: The Concerns and Responsibilities of Health Professionals*, British Medical Association, London, 2007.

There may be specific antidotes capable of reversing the effect almost completely (naloxone, for instance, is the specific antidote for the fentanyl derivatives), but the nature of the agent may not be known soon enough to administer them.

The implications for staff security are considerably less serious than those of chemical warfare or limited or small-scale use of chemical weapons. Direct exposure is unlikely, and as these agents are likely to be “medicines” when given in another dose in another context, the probability of significant exposure for those bringing assistance is low (the situation is similar to that of hospital staff treating a person with a drug overdose).

### The use of riot control agents<sup>19</sup>

States regularly use riot control agents for law enforcement. However, the use of riot control agents as a method of warfare is prohibited by the 1993 Chemical Weapons Convention. International players need to recognize why use of riot control agents falls within our risk assessment and why being present for whatever reason in an area of conflict where riot control agents are widely used can be complicated and even dangerous. The reasons are, *inter alia*:

- the documented use of chemical weapons in twentieth-century conflicts was in most cases preceded by the use of riot control agents;<sup>20</sup>
- an attack using riot control agents in a tactical situation other than riot control would not be announced as such. Hence if military personnel were targeted, they might treat it as an attack with chemical weapons and respond in kind;
- if riot control agents are used and there are dead bodies lying on the ground, it will not be clear whether they have been killed by conventional weapons or by the parallel use of a chemical weapon.

In the event of widespread use of riot control agents alone, it is unlikely that there would be any specific assistance needs. If the people targeted with riot control agents need medical assistance, it will probably be for injuries from parallel use of conventional weapons, including blunt instruments. Respiratory support may be required for those who inhale riot control agents in a confined space from which they cannot escape. A small proportion of people may be sensitive to inhalation of small quantities of riot control agents because of pre-existing health problems such as asthma.

The main issue with regard to staff security does not stem from the use of riot control agents *per se*, but from not knowing whether riot control agents or

19 “Riot control agent” refers to a chemical substance which can produce, in humans, sensory irritation or disabling physical effects which – if it is used appropriately – disappear within a short time after exposure to it ends (e.g. tear gas).

20 *The Problem of Chemical and Biological Weapons*, Vol. I, *The Rise of CB Weapons*, ch. 2, “Instances and allegations of CBW 1914–1970”, Stockholm International Peace Research Institute, Stockholm, 1973. For the Iran–Iraq war (1980–9), see “World armaments and disarmament”, *SIPRI Yearbook*, Stockholm, 1985, pp. 206–8.

chemical agents have been used or that use of riot control agents might precede use of chemical weapons. The staff security considerations cited in the section on chemical warfare could therefore apply, depending on the context.

## Overview of international players in terms of assistance to victims of use of NRBC weapons

The title we chose for this article highlights a critical question: in any context requiring an international response, who will assist the victims of use of an NRBC weapon, in particular victims of an event that represents a “low probability/high impact” risk – and how? When we put this question to a wide range of international players, a number of important points emerged about their resources, competences and capacities collectively. These points may be useful for consideration and help to advance discussion on assistance for victims and potential victims of an NRBC event.

Many states, especially in western Europe and North America, have developed national capacities which could be deployed rapidly and effectively in response to NRBC events. However, when it comes to the deployment of such national capacities at international level, states are only just starting to address the many issues involved, such as political sensitivities inherent in intervening in a foreign country, legal issues related to customs examinations, or co-ordination between themselves or with existing international organizations.

The majority of international players understand “assistance” to mean assistance to the state affected, and not necessarily assistance to the people affected. Most of them assume, moreover, that any assistance activity will be initiated by a request from the affected state. Obviously, such a request would not be forthcoming if the government in question was the user or potential user of a nuclear, radiological, biological or chemical weapon. Another assumption is that other states will offer help in the form of personnel and material.

No international player would be working in isolation in a “low probability/high impact” NRBC event. Any action to assist victims (and, in the case of contagious biological weapons, to prevent further spread) would have to be co-ordinated at a global level. Factors complicating this co-ordination include:

- the fact that realistic co-ordination mechanisms are in their infancy;
- lack of clarity as to who would be responsible for co-ordinating such a response;
- cancellation or prohibition of flights into or out of a contaminated area;
- the question whether the event involved an accidental release, a natural outbreak (in the case of a biological weapon), an alleged use or an intentional release; the distinction carries heavy political, security and media implications.

Assisting victims of an NRBC event is perceived by some as being reliant on military expertise. However, this expertise pertains, understandably, to

protecting one's own forces and to continuing to function militarily in a contaminated environment or in the presence of a threat. It does not necessarily reflect a capacity to assist hundreds or thousands of non-military victims.

Broadly speaking, nearly all international players have a security policy which involves a withdrawal of staff in the event of use of NRBC weapons. This policy may not be consistent with

- the mandate of that organization to assist victims (as is the case, for example, of the ICRC);
- the practicality of getting staff – whether international or national – out of an area where they may be at risk;
- the fact that some “NRBC events”, such as a deliberate cholera outbreak in a refugee camp, may present no significant risk to those bringing assistance and may precipitate an influx of staff to the area affected.

International players have given little consideration to the impact of NRBC events on their legal responsibilities for health and security of their staff in terms either of potential risks during the event or of longer-term implications of exposure to NRBC agents; the latter may include an impact on reproductive health.

Few international players have considered the security, legal, political and media implications of possibly being in possession of information pertaining to verification of alleged use of an NRBC weapon.

## Conclusions

There are many reasons for concern as to who will assist the victims of use of nuclear, radiological, biological or chemical weapons if an international response is required, and how this assistance can be provided without undue risk to those providing it.

This concern stems first from the ICRC's experience over the years with regard to the use of such weapons; second, from the numerous uncertainties about the real risks involved and hence as to whether, which and to what extent resources should be mobilized in advance; and, third, from the uncertainty as to whether and how the various international players will act, which will do so, and how and to what degree any action would be co-ordinated.

Given our risk assessment and our overview of international players in this domain, the critical question reflected in the title of our article remains unanswered. A number of points must therefore be made to aid future thinking about who will assist the victims of an NRBC event – and how.

NRBC weapons cannot be treated as a single category of weapon and certainly not as “weapons of mass destruction”. With respect to use of such weapons, each risk we have identified has its own distinctive combination of

probability and effects on victims. This in turn has risk-specific implications for assisting the victims and for staff security.

In terms of probability, our risk assessment pertains only to *use* of NRBC weapons. We have described eleven separate identifiable risks. The effects, or the human costs, associated with each risk are considered mainly in terms of the potential number of deaths and injuries. Obviously, a broader risk assessment would include the probability of displacement of people or social or economic disruption. The probability of events involving the use of those NRBC weapons likely to have the greatest impact on the victims and potentially posing the greatest problem for international players is low. These “low probability/high impact” risks include the use of nuclear weapons, the use of highly infective and contagious biological agents, and chemical warfare. In contrast, some risks, such as use of biological agents with low potential for human-to-human transmission, could be addressed relatively easily and safely within existing capacities.

Some Western countries have plans and capacities at national level to address some or all of the risks we have identified. However, an effective international assistance response which would be of direct benefit to surviving or potential victims and which provides adequate security for staff is not possible at present. To our knowledge, no government, international organization (including the ICRC and other components of the International Red Cross and Red Crescent Movement), non-governmental organization or collaborative body has either realistic plans or the capacity to mount such an international response.

For international players embarking on creating a capacity for an adequate assistance response to “low probability/high impact” NRBC events, huge initial investments together with long-term commitments are required. These investments are not only financial; they include massive investment in human resources and commitments to maintaining this new capacity, especially in training. Political motivation and willingness to co-ordinate efforts are also required.

Any player considering preparations, plans or training to respond to man-made NRBC events must accept that any expertise and capacity gained would inevitably be called upon to help deal with an accidental release of NRBC agents and natural outbreaks of widespread disease. Furthermore, the latter are more likely. Such preparations must be compatible with existing plans to control natural outbreaks of disease such as SARS and avian influenza.

The nearest international players are to being collectively prepared for a “low probability/high impact” event is in their ability to cope with a deliberate release of highly infective and contagious anti-human biological agents with worldwide implications.

An unplanned, unco-ordinated and badly executed assistance response is likely to be ineffective. For persons providing that assistance, it may make an NRBC event more dangerous than it need be.

Dialogue among international players on this complex issue is in its earliest stages. Further work is required to understand better the roles, resources,

capacities and collaboration mechanisms of all international players who might be involved in assisting victims of NRBC events.

The evident lack of an international capacity to help such victims underscores the inescapable fact that to prevent the use of nuclear, radiological, biological and chemical weapons is an absolute imperative.