

Wednesday 10 June 2020

The Biological Weapons Convention and responses to disease

The 1972 [Biological and Toxin Weapons Convention](#) (BWC/BTWC) is the international treaty to prohibit possession of biological weapons. As biological weapons are essentially tools for inducing deliberate disease, activities within the context of the BWC have examined responses to naturally and accidentally occurring disease as well as to deliberate acts owing to the overlap of responses. There are lessons to be learned from past BWC activities and discussions for responses to the COVID-19 pandemic as well as impacts of the pandemic on BWC activities that need to be considered.

The COVID-19 pandemic has created a situation unprecedented in living memory. While there were some hopes at the beginning of the pandemic that it may be over in some weeks, it is becoming increasingly apparent that the disease will be impacting upon humankind for some time to come. Unlike an influenza pandemic which tends to pass within a year, there is a strong likelihood that the novel coronavirus will remain in circulation in the human population for a considerable time.

Most countries have been feeling the impact of COVID-19 and the world will not be free of the SARS-COV-2 coronavirus that causes it until all outbreak hotspots are effectively dealt with. A complicating factor is that the pandemic coincides with a challenging global political environment in which issues relating to the disease have, on occasions, become mixed in with unrelated geo-political issues.

Many public discussions of how the pandemic may be brought to an end have been focused on the possibilities of vaccines. While there are a number of vaccine candidates being researched, it is not clear how quickly any viable products can be developed and, significantly, be manufactured and distributed in sufficient quantities around the world. The solution to the COVID-19 pandemic is likely to be a combination of measures such as disease surveillance (including testing and contact tracing), improved treatments for those with the disease, preventive medical countermeasures such as vaccines, and preventive physical measures such as social distancing and quarantining. These types of measures have all been discussed at BWC meetings in recent years.

The Biological Weapons Convention

The BWC was the first international treaty to prohibit possession of an entire class of weapons of mass destruction (WMD). A key input into the negotiations for the Convention was a World Health Organization (WHO) study entitled *Health Aspects of Chemical and Biological Weapons* published in 1970. Embodied in this work, and made more explicit in the 2004 follow-up, is the concept that the best counter to deliberately caused disease is to have effective understandings of and responses to naturally occurring disease. The 2004 WHO study, *Public health response to biological and chemical weapons – WHO guidance*, is recommended reading for anyone dealing with BWC issues.

The BWC holds annual meetings in the years between its five-yearly Review Conferences. These are Meetings of Experts (MXs) held back-to-back during the middle of the year and a Meeting of States Parties at the end of the year. As a number of other international meetings have already been postponed or adapted owing to the pandemic, consideration needs to be given to how the work of the MXs could continue with

COVID-19 restrictions in place. Some aspects of the MXs, such as the exchange of ideas through working papers, are easy to replicate if there were to be limitations to physical meetings; others, such as the less formal interactions that allow exchanges of experiences, would be harder to do in virtual settings.

Perceptions of disease

There has always been an innate and instinctive human fear of disease. For many people, the instinctive fear of deliberate disease is greater than that for naturally occurring disease. This has been a significant contributor to the taboo against biological weapons.

For centuries, allegations have been made about the misuse of disease. These have mostly been propaganda activities intended as political messages to suggest the alleged perpetrators are unworthy. An effective response to this has been to examine any available information in factual terms and separate this from the rhetoric.

An underlying assumption of much contemporary discussion is that the impact of COVID-19 could inspire an increased interest in development or use of biological weapons. The same logic would have applied in relation to the 1918-19 flu pandemic that killed a larger number of people than had died on the battlefields of the First World War. Yet the most comprehensive published review of the nascent biological warfare policies of the post-First World War period, [Volume I](#) of the SIPRI six-volume series, provides no evidence of such an influence. Nevertheless, COVID-19 has highlighted possible vulnerabilities that potential perpetrators might look to in the future. For example, there have been instances of peacekeeping troops being unable to patrol as usual and of major warships being out of service for weeks to deal with outbreaks on board.

About these reports

In light of the discussion above, there is benefit in drawing out lessons from past BWC activities that would be relevant to responses to COVID-19 and to examine impacts that the pandemic may have on the BWC. Hence this series of reports in the style of the daily summaries from the BWC meetings. These COVID-19 impact reports will be supported by the webpage listed below which will include direct links for documents and articles referred to in the reports as well as links to other useful materials.

Within this series of reports a number of subjects will be examined, such as how BWC meetings have looked at distinguishing deliberate disease outbreaks from natural events or accidental releases. There are lessons that can be drawn from past inputs to BWC annual meetings on the importance of disease surveillance. BWC Article VII deals with the provision of 'assistance' if a State Party is 'exposed to danger' because of a breach of the Convention. BWC Article X relates to access to peaceful benefits of the life sciences. There are lessons to be drawn from Article VII and Article X discussions for responding to disease outbreaks. The reverse of this is also true as there will be lessons from the COVID-19 pandemic for Article VII and Article X discussions in future BWC meetings, in particular as the pandemic has exposed vulnerabilities in responses to infectious disease. This may also lead to implications for future BWC programmes of work, and in particular the Ninth Review Conference (scheduled to be held in 2021). Impacts on the practicalities of holding BWC meetings following from measures to control the pandemic will be examined. Further ideas might well arise to either supplement or replace proposed topics as the series progresses.

This is the first in a series of reports looking at the impacts relating to the COVID-19 pandemic in relation to the BWC published by the [BioWeapons Prevention Project \(BWPP\)](#), a global network of civil society actors dedicated to the permanent elimination of biological weapons and of the possibility of their re-emergence. These reports follow the style of the daily reports that have been produced for all BWC meetings since the Sixth Review Conference in 2006 and are posted to <http://www.bwpp.org/covid.html> where links can be found to background materials that readers may find useful as well as to an email subscription link. The reports are prepared by Richard Guthrie, [CBW Events](#), who is solely responsible for their contents. The author can be contacted via richard@cbw-events.org.uk. Financial support for these reports has been gratefully received from the Department of Foreign Affairs and Trade of Ireland.

Wednesday 17th June 2020

Distinguishing deliberate disease from natural events or accidental releases

The 1972 Biological and Toxin Weapons Convention (BWC/BTWC) – the international treaty to prohibit possession of biological weapons – contains no provisions for investigating alleged use of biological weapons. As any use of biological weapons would embody a fundamental breach of the Convention, methods for investigating alleged use have been discussed on many occasions during BWC meetings looking at how to strengthen the Convention. In all cases of investigation of alleged use of biological weapons there is a need to evaluate the possibility that the disease effects being observed have any other plausible cause such as being of natural origin.

The most detailed discussions within BWC meetings about investigations of alleged use took place within the negotiations in the Ad Hoc Group that was established after the 1994 Special Conference and which came to a halt in 2001. Further relevant discussions have been held within the inter-sessional work programmes that started in 2003 and which continue.

A recent highlighting of the challenge of identifying the origin of a disease was included in a 2018 [working paper](#) from Japan (with co-sponsors) which stated: ‘In such a case as sudden spread of infectious disease, it is hard to determine at the initial stage whether the event has occurred naturally, accidentally or has been caused intentionally’.

Papers from the Friend of the Chair on Compliance Measures during the Ad Hoc Group included the text: ‘All outbreaks of disease which are due to natural causes do not pose a compliance concern under the Convention and shall not be a reason for an investigation of a non-compliance concern’ – reflecting a consensus that had been reached on this point. Several working papers were submitted to the Ad Hoc Group on investigation issues, the largest number of which were from South Africa. Three – [WP.16](#), [WP.54](#) and [WP.440](#) – tackled the relationship between investigations of alleged use of biological weapons and investigations of unusual outbreaks of disease, including the differences needed between the types of investigations. The interplay between responses to natural disease outbreaks and to deliberate use of biological weapons will be explored further in this series of reports when BWC Article VII issues are discussed.

Investigation techniques

Key elements are relevant to investigations of all forms of infectious disease – the identity of the pathogen (the infectious agent) itself and understanding how the disease spreads.

When viruses circulate in nature they are constantly acquiring mutations. Modern techniques can track these mutations and show the geographical spread of the pathogen. One genetic concept that has been useful for examining outbreaks has been that of ‘frozen evolution’. Reference strains of viruses used in laboratories do not gain mutations in the same way as they do in the wild. An early indication that the 2007 outbreak of Foot and Mouth Disease in the UK was from a nearby laboratory was similarity of the pathogen’s genetic sequence to a 1967 reference strain used for vaccine production. As most potential biological weapons are derived from naturally-occurring pathogens, the stored strains will show reduced natural evolution from the time they were initially isolated.

The initial spread of a disease gives some indication of its source. Just as a clear indication of arson is that a fire starts at more than one place in a building at the same time, a disease outbreak that appears to start at more than one location simultaneously carries with it a suggestion of a deliberate cause. The further a disease has become widespread through human-to-human transmission, the harder it is to clearly distinguish its source through epidemiological methods.

Lessons from the discussion above relevant to the current pandemic

There is clear evidence that the SARS-CoV-2 coronavirus that causes COVID-19 is so closely related to viral species observed in bats that there is little doubt that a bat virus is the ultimate source of the new disease. Uncertainty remains as to how and when the virus crossed over into humans. These can be sensitive issues and questions about the origins need to be dealt with on a factual basis and not be drawn into unrelated geopolitical issues. However, such uncertainty creates a space which can be filled with politically motivated allegations. As with any control regime, unfounded allegations could, in the long run, undermine control efforts. It is therefore worth noting what are the levels of certainty in currently available information. An important point is that COVID-19 is still classed as an emerging infectious disease and there is more being learnt about the disease each week.

Published evidence counters suggestions that SARS-CoV-2 has an engineered origin. Detailed genetic analysis indicates it has not been subject to obvious artificial genetic modification techniques. In an [article](#) published in March, scientists concluded that SARS-CoV-2 'is not a laboratory construct or a purposefully manipulated virus'.

There have been two highly publicised theories about how the crossover into humans might have occurred. The first is that it happened in a so-called 'wet market' in Wuhan in which live animals of numerous species are held in close proximity before slaughter. The second that it was the result of an accidental release from one of two biological research laboratories in Wuhan. In neither case is the available information about the initial stages of the COVID-19 outbreak completely consistent with each possible explanation. On the other hand, there is no available information that would categorically rule out either possible explanation. Tracing the origin of a disease can be difficult. If there were ever a future allegation of use of a coronavirus as a biological weapon, understanding how new diseases become established in the human population will be key to distinguishing between a biological attack and other possible causes.

The World Health Assembly, the gathering of representatives of the member states of the World Health Organization, at its meeting on 19 May adopted resolution [WHA73.1](#) that included language supporting investigations on the source of COVID-19 'to identify the zoonotic source of the virus and the route of introduction to the human population' and identify interventions 'to reduce the risk of similar events ... as well as to reduce further risks of emergence and transmission of zoonotic diseases'. It is not yet clear what form this investigation will take. As the investigation progresses, lessons may emerge that could be relevant for investigating future outbreaks of BWC concern.

Any infectious disease with a significant impact has some potential as a biological weapon. Three coronaviruses have evolved to cause fatal human diseases in the space of 20 years – SARS, MERS and COVID-19. Better understanding – whether through the WHO investigation or through other scientific research – of all routes by which further coronaviruses could crossover into humans will be valuable. Whatever steps might be identified that could reduce potential transmission via such routes would also reduce the possibility for future misuse of this family of viruses as well as help prevent future outbreaks of diseases similar to COVID-19.

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Wednesday 24th June 2020

BWC Article VII & Article X discussions relevant to disease outbreak response

The 1972 Biological and Toxin Weapons Convention (BWC/BTWC) – the international treaty to prohibit possession of biological weapons – contains a number of provisions beyond banning the acquisition and possession of biological weapons. This report focuses on Article VII and Article X – both of which have been the subject of considerable discussion in BWC meetings over many years.

Article VII deals with the provision of ‘assistance’ by states parties if a state party is ‘exposed to danger’ because of a breach of the Convention. As no government is likely to have ready all of the resources required to respond to a severe biological attack, the concept of receiving assistance applies to all. Just as Article VII discussions were invigorated by lessons learned from the Ebola Virus Disease (EVD) outbreak in west Africa in 2014, it is reasonable to expect that there will be a similar, potentially greater, influence resulting from the COVID-19 pandemic.

Article X embodies a bargain – that the renunciation by states parties of hostile uses of biological materials and technologies brings with it freedom to gain the benefits of the peaceful uses of the life sciences.

The two BWC Articles do not stand alone. Links or overlaps between Article VII and Article X have been highlighted over the years, not least because effective response to any deliberately induced outbreak of disease would be enhanced by further capacity building – a key lesson cited from responses to the EVD outbreaks. A 2011 UK working paper made explicit Article VII–Article X links, noting ‘efforts relevant to Article X which seek to improve further national and regional capabilities – including those under the Global Partnership, as well as other initiatives – can help strengthen Article VII too’.

It is too early for governments to have had any opportunity to evaluate their responses to the impacts of COVID-19, nevertheless there are clear indications that lessons similar to those drawn from the EVD experience would also apply in relation to the current pandemic.

Activities within the BWC relevant to the two articles and to disease response

Both articles have been the subject of considerable discussion in BWC meetings over many decades – within the five-yearly Review Conferences, during the Ad Hoc Group (1994-2001), and during the inter-sessional work programmes that started in 2003 and which meet in the years between Review Conferences. The reporting here will cover points from the last decade or so.

In 2009 a proposal for an [Article X implementation mechanism](#) was made by the non-aligned group of BWC states parties. While this proposal was not adopted, subsequent debates led to a decision by the [Seventh Review Conference](#) (2011) to ‘establish a database system to facilitate requests for and offers of exchange of assistance and cooperation among States Parties’. This has become known informally as the ‘Article X database’ and contains rising numbers of offers of help and requests for assistance. The operation of the database is summarized in the [Annual Report](#) of the BWC Implementation Support Unit (ISU). The Seventh Review Conference also encouraged states parties to submit reports on their Article X activities [these are published on the

[BWC website pages for the meetings](#) to which they are submitted]. There have been suggestions that consistency in the format and content of Article X reports would make their content more usable. Australia offered a [template](#).

It is only in inter-sessional meetings since the Seventh Review Conference that detailed discussions have been held about Article VII as a whole and distinct from questions of investigation of alleged use of biological weapons. The specific topic of how to strengthen implementation of Article VII was included on the agendas of the BWC inter-sessional work programme for 2014 and 2015. For the 2018-20 work programme, one of the Meetings of Experts (MXs) each year has been on the topic of ‘Assistance, Response and Preparedness’ with specific sub-topics relating to Article VII.

Within these meetings, practical concerns have been raised about how to implement Article VII. There have been discussions on how governments requesting assistance under Article VII should [communicate their needs](#). In 2015, France and India submitted a [proposal to establish a database](#), along the lines of the Article X database, for assistance under Article VII. The proposers emphasised that such a database would not mean duplicating other emergency assistance mechanisms and suggested it should encompass ‘emergency assistance, containment measures and recovery assistance’.

There is no consensus over whether or not a request for assistance under Article VII should be combined with a request for an investigation under Article VI. The means by which any alleged use of biological weapons might be investigated has been the subject of some controversy. Issues of distinguishing deliberate disease from natural events or accidental releases were covered in report no 2 of this series. Article VII specifies that the UN Security Council would decide if a state party was ‘exposed to danger’. The [Eighth Review Conference](#) (2016) concluded: ‘should a request for assistance be made, it should be promptly considered and an appropriate response provided. In this context, in view of the humanitarian imperative, the Conference encourages States Parties in a position to do so to provide timely emergency assistance, if requested pending consideration of a decision by the Security Council.’

There have been a number of national resources that delegations have presented to BWC meetings in recent years, connected with Article VII. For example, Russia proposed introducing [mobile biomedical laboratories](#) as part of international structures for response within the BWC. The UK [Public Health Rapid Support Team](#) ‘consists of public health experts, scientists and academics, and is on stand-by to tackle outbreaks of infectious disease anywhere in the world within 48 hours’. The [Japan Disaster Relief Infectious Diseases Response Team](#) was established to support affected countries’ ‘response effort and to minimize the spread of the naturally caused disease’ and identified five specialist functions: epidemiology, laboratory diagnosis, medical treatment, infection control and public health response. That practical ideas for disease response can transcend usual political challenges is illustrated by a 2018 joint Russia/UK paper on [Core Elements for an Effective Article VII Response](#) that was presented at a time of heightened tensions between the two countries.

A further idea that has been suggested in interventions in BWC meetings has been to establish a trust fund or other voluntary fund in relation to Article VII, although this has not been presented as a detailed proposal.

The impact of COVID-19 has focused political attention on issues relating to responses to diseases. How that might be translated into future discussions within the BWC will be examined in a future report in this series.

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Wednesday 1st July 2020

Discussion within BWC meetings in relation to disease surveillance

The 1972 Biological and Toxin Weapons Convention (BWC/BTWC) – the international treaty that prohibits biological weapons – has hosted considerable discussions on disease surveillance during its meetings over many decades. These include the five-yearly Review Conferences, the Ad Hoc Group (1994-2001), and the inter-sessional work programmes that started in 2003 and meet annually between Review Conferences. The annual meetings have usually consisted of a Meeting of Experts (MX) during the middle of the year [or, since 2018, a series of shorter MXs held back-to-back] and a Meeting of States Parties (MSP) at the end of the year.

Disease surveillance was described in a [background paper](#) for the 2004 MX by the secretariat – the forerunner to the Implementation Support Unit (ISU) – as ‘the routine and continuous collection of passive and active data of a given population (human, animal, plant) followed by analysis, interpretation and dissemination of information to detect the occurrence of disease for control purposes or for public health actions’.

That disease surveillance and related activities support the BWC was highlighted in a [2009 MSP working paper](#) summarizing an EU-sponsored workshop which noted: ‘Participants emphasized that improving cooperation for disease surveillance, detection, diagnosis and containment would directly support the security and non-proliferation objectives of the BWC, as well as supporting the development of the peaceful applications of biological science and technology in accordance with Article X’.

The public health overlaps

An attack with biological weapons that produced casualties would have a significant public health impact. If a biological attack were to be carried out using a disease that has limited spread from one human to another, such as anthrax, the casualties would be limited to those exposed to the pathogens – the disease-causing micro-organisms – from the delivery system. A biological attack using a disease with significant human-to-human transmission, such as smallpox, could mean that disease would spread widely across the population; the measures for detecting and controlling this spread would be the same as for naturally occurring disease. Similar concerns relate to animal and plant diseases.

Exchanges of information on outbreaks of infectious disease have been long recognised as helping the processes by which any deliberate outbreak might be distinguished from something naturally occurring. The BWC arrangement for doing this has been through Confidence-Building Measure (CBM) Form B, initially agreed in the Second Review Conference (1986) and amended five years later to be an ‘Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins’ with a focus on outbreaks ‘that seem to deviate from the normal pattern’. For human diseases, much more detail is now exchanged through the updated World Health Organization (WHO) [International Health Regulations \(IHR\)](#), agreed in 2005 and entering into force in 2007. The [Seventh BWC Review Conference](#) (2011) described the IHR as ‘important for building capacity to prevent, protect against, control and respond to the international spread of disease; such aims are compatible with the objectives of the Convention’. This has reduced the salience of CBM Form B.

The [Eighth Review Conference](#) (2016) recognized the ‘fundamental importance’ of enhancing international cooperation and agreed on the value of ‘working together to promote capacity building in the fields of vaccine and drug production, disease surveillance, detection, diagnosis, and containment of infectious diseases as well as biological risk management. The Conference affirms that building such capacity would directly support the achievement of the objectives of the Convention.’ It also acknowledged ‘the need to address the lack of ready operational capacity’ as a lesson from the Ebola Virus Disease (EVD) outbreak in west Africa.

The 2004 WHO study, *Public health response to biological and chemical weapons – WHO guidance*, underscored that the best counter to deliberately caused disease is to have effective understandings of and responses to naturally or accidentally occurring disease means that there is an overlap in activities between the WHO and the BWC. Some delegations to BWC meetings have expressed desires to avoid duplication of activities. Concerns have occasionally been raised about any roles that might be perceived as bringing the health body into the security realm with potential negative consequences for other health work.

Relevant resources from BWC meetings

The two key years of work on disease surveillance in BWC meetings were in 2004 and 2009. In more recent years, the topic of disease surveillance has not been an agenda item in its own right but has been raised under other agenda items.

One of the two topics on the agenda for the annual meetings in 2004 was ‘strengthening and broadening national and international institutional efforts and existing mechanisms for the surveillance, detection, diagnosis and combating of infectious diseases affecting humans, animals, and plants’. During the two-week MX there were 83 working papers submitted, the majority of which related to this topic. The papers are listed in the [report of the meeting](#). Many papers focused on aspects of national systems to detect and respond to diseases. Examples of papers in relation to human diseases include: Australia [[WP.25](#)], Germany [[WP.2](#), [WP.6](#)], Italy [[WP.62](#)], Netherlands [[WP.73](#)], South Africa [[WP.12](#)], Ukraine [[WP.47](#), [WP.48](#)] and UK [[WP.21](#)]. Examples in relation to animal diseases include: Australia [[WP.28](#), [WP.29](#), [WP.32](#)], Italy [[WP.61](#), [WP.67](#)], Russia [[WP.45](#)], South Africa [[WP.14](#)], Thailand [[WP.65](#)] and UK [[WP.22](#)]. For plant diseases examples include: Australia [[WP.30](#), [WP.33](#)], Japan [[WP.34](#)], South Africa [[WP.13](#)] and UK [[WP.23](#)]. Some countries submitted papers covering more than one of these areas, for example: China [[WP.18](#)], Cuba [[WP.52](#)], Germany [[WP.5](#), [WP.9](#)] and Sweden [[WP.16](#)]. Canada produced a short series of papers on lessons learned from earlier outbreaks, including SARS [[WP.78](#), [WP.79](#), [WP.80](#)]. The report of the meeting also includes a compilation of suggestions made during the MX.

The annual meetings for 2009 included a topic of capacity building to support disease surveillance. Working papers for the MX included Iraq [[WP.28](#)] reporting on its national system. There were joint papers illustrating capacity building activities such as Georgia/USA [[WP.12](#)] and Indonesia/Norway [[WP.5](#)] a well as a number of national papers. A total of 28 working papers and 5 ISU background papers are listed in the [report of the meeting](#) together with a compilation of suggestions made. The ISU prepared a [compendium of national approaches](#) based on information presented to the MX and MSP.

The Republic of Korea gave a [presentation](#) at a 2015 MX side event that included details of disease surveillance in relation to the MERS outbreak that year which has particular relevance for responses to the current pandemic.

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Wednesday 8th July 2020

A snapshot of pandemic lessons for the Biological Weapons Convention

Earlier reports in this series have focused on discussions within meetings of the 1972 Biological and Toxin Weapons Convention (BWC/BTWC) – the international treaty that prohibits biological weapons – that are relevant to the current COVID-19 pandemic. This report takes a different approach – examining how developments in the pandemic and the responses to them might provide useful inputs in the context of the BWC. This report also includes comments by the UN Secretary-General on the relevance of the BWC in the context of the current pandemic in a Security Council debate last week.

There are lessons that can be drawn from responses to the current pandemic that might inform responses to any potential widespread biological weapons attack. While an attack with biological weapons would probably have a number of differences to the current pandemic, there would be a number of similarities in response, including pressure on health services, requirements for physical protection, and a need to develop new medical treatments and vaccines. As well as having implications for BWC Article VII (provision of ‘assistance’ by states parties if a state party is ‘exposed to danger’ because of a breach of the Convention) and Article X (assistance and cooperation), there are also implications for efforts to have ongoing arrangements within the BWC for review of scientific and technological developments. With the pandemic ongoing, there are few specific lessons to be identified at this stage. More useful at this point is to identify areas of work that may be able to draw out relevant lessons for the BWC in the future.

One of the factors that has complicated the response to COVID-19 has been that it is a new disease. As such, it is taking time to learn how this new disease spreads from person to person, how it affects different parts of the body and how those with the disease might be treated most effectively. Much preparation work for response to an attack with biological weapons has focused on diseases that have well-established characteristics, such as anthrax or smallpox. However, there is always the possibility of the use in an attack of a new or modified disease for which the characteristics are unknown to the responders. In such a case, there may be particular lessons learned from the rapid international efforts to understand and characterise COVID-19.

Different political systems in different countries have taken different approaches to responding to the pandemic. It is up to national political processes to arrive at a judgement as to whether any particular approach was the most appropriate in any individual national context. One key lesson has been that those countries that took prompt action in response to the pandemic have tended to have fewer cases of the disease.

All actions taken to limit the spread of the SARS-CoV-2 coronavirus that causes COVID-19 have come with some costs. Some of these have been directly financial, such as the extra costs of medical care and the purchase of personal protective equipment (PPE), i.e., masks, gloves, aprons, etc. These financial expenditures have been dwarfed by the economic costs associated with measures to limit physical interactions between people and so reduce possible transmission opportunities. How such costs might be calculated can be dependent on the assumptions made about which costs can be attributed to lockdown measures rather than other broader economic influences. Nonetheless, similar measures might be needed in response to an attack with biological

weapons and therefore better understandings of the costs and benefits of particular measures and how such measures fit together could assist with prompt decision making by political authorities.

Health services have been under considerable pressure. Within some countries, public health is a devolved matter and so there have been variations of response across some national situations. There are many variations in ways any individual society might choose to structure its health services. From the perspective of promoting resilience in the face of possible deliberate disease, a key yardstick is whether the health services in any particular context are capable of dealing with a surge of cases. As any biological attack that produced casualties on the scale of the current pandemic would be likely to be perceived as a threat to national security, provision of governmental resources through mechanisms other than usual health budgets may be worthy of consideration.

Results from evaluations of pandemic preparedness were presented at a number of BWC meetings. These have included activities such as the [Global Health Security Index](#) and assessments derived from information supplied under the World Health Organization International Health Regulations. The results of such evaluations suggested some countries were better prepared than others. However, a mismatch between the predictions of the evaluations and the impact of the pandemic has appeared with some of the countries evaluated as best prepared having a high *per capita* number of cases. Careful examination of why such a mismatch occurred could contribute useful understandings to enhance preparedness for response to a biological attack.

The UN Security Council teleconference on ‘Pandemics and security’

On Thursday 2 July, the UN Security Council held an open [video teleconference](#) (VTC) on the subject of ‘Pandemics and security’. The Presidency of the Council circulated beforehand a concept note, [S/2020/571](#), in support of the VTC. This debate came the day after the adoption by the Council of [resolution 2532](#) on pandemic response.

The [first speaker in the debate was UN Secretary-General António Guterres](#) who noted the relevance of the BWC in the context of the VTC, stating ‘as we consider how to improve our response to future disease threats, we should also devote serious attention to preventing the deliberate use of diseases as weapons’. He described the Convention in a broader context before relating this to the pandemic, noting that the BWC ‘codifies a strong and longstanding norm against the abhorrent use of disease as a weapon, and now has 183 States Parties. I urge the 14 States that have not yet joined the Convention to do so without any further delay. We also need to strengthen the Convention, which lacks an oversight institution and contains no verification provisions, by enhancing its role as a forum for the consideration of preventative measures, robust response capacities and effective counter-measures.’

The Secretary-General highlighted the overlap between resilience against the threat of biological weapons and effective public health measures, stating: ‘Fortunately, the best counter to biological weapons is effective action against naturally occurring diseases. Strong public and veterinary health systems are not only an essential tool against COVID-19, but also an effective deterrent against the development of biological weapons.’ He noted that: ‘All of these issues must be on the agenda next year at the Convention’s Review Conference’ and closed the section of his statement on the BWC with the words: ‘Given the speed at which pathogens spread in an interconnected world, we must ensure that all countries have resilient and appropriate capacities to respond quickly and robustly to any potential global and deliberate biological event.’

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