



Security and public health: the interface 1

Militaries and global health: peace, conflict, and disaster response

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This is the first in a *Series* of two papers about security and public health

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Many countries show a growing willingness to use militaries in support of global health efforts. This Series paper summarises the varied roles, responsibilities, and approaches of militaries in global health, drawing on examples and case studies across peacetime, conflict, and disaster response environments. Militaries have many capabilities applicable to global health, ranging from research, surveillance, and medical expertise to rapidly deployable, large-scale assets for logistics, transportation, and security. Despite this large range of capabilities, militaries also have limitations when engaging in global health activities. Militaries focus on strategic, operational, and tactical objectives that support their security and defence missions, which can conflict with humanitarian and global health equity objectives. Guidelines—both within and outside militaries—for military engagement in global health are often lacking, as are structured opportunities for military and civilian organisations to engage one another. We summarise policies that can help close the gap between military and civilian actors to catalyse the contributions of all participants to enhance global health.

Introduction

Military engagement in global health has a long history. Military health scientists and practitioners have been at the forefront of key advances in public health domestically and internationally since the 18th century,^{1,2} and some countries' uniformed public health services have roots in military medicine.³

Militaries are often providers of medical care and public health interventions during peace, conflicts, and

as part of emergency response efforts during naturally occurring and manmade disasters. Militaries from all regions and across country-income categories have participated in providing public health assistance at home and overseas, and governments of many countries show an increased willingness and interest in using military capabilities for global health. However, some of the published literature suggests that a so-called militarisation of global health, with potentially negative consequences, is underway.^{4–6}

Militaries differ from other global health actors; international military action is motivated mainly by defence and security considerations, not by humanitarianism or health equity. Military action can itself be a threat to public health, as conflict and violence lead to loss of life, livelihoods, and essential public health infrastructure and protections. Since 2010, the burden of disease from war and associated violence has grown.⁷ Major adverse population health effects have resulted from civil wars (including in Syria, Libya, Yemen, and Iraq), insurgencies (in Nigeria, Afghanistan, and Pakistan), and other conflicts featuring military action.^{8–13} However, militaries can also be an essential tool for protecting health and life, preventing further violence, and even ending armed conflict.¹⁴

Defining militaries and their role in global health

Militaries can be defined as armed groups authorised to use deadly force (panel 1), that organise, train, and equip a force to address any threat, or future threat to security.

Although improving global health is not the pre-eminent objective for militaries, engaging in global health activities aligns at times with their national defence and foreign policy interests.¹⁶ When poor population health or a health threat is perceived to negatively affect security, a rationale emerges for military engagement in global health.¹⁷ Policy makers are increasingly emphasising these links, as most

Key messages

- Countries are showing a growing willingness to use militaries to support global health, yet comprehensive guidelines and strategies to govern military engagement in global health are scarce
- Military engagement in global health is often driven by defence and security objectives that can put them at odds with humanitarian and civil society actors, and can be contrary to core principles of global health
- In peacetime, militaries are heavily engaged in research and development, as well as partnership efforts that can help build capacity and military medical readiness across different countries
- The changing nature of conflict means militaries are often fighting in complex environments that blur the lines between military and civilian actors, rendering support for military health interventions during conflict more complicated and contested
- Understanding how to guide and govern military engagement in global health can assist in achieving a balance between military and civilian global health capacities, but requires mechanisms for communication, coordination, and joint action across relevant entities at national and global levels

clearly shown by the common depiction of epidemic and pandemic diseases in security terms.¹⁸ Indeed, health issues of all kinds are now often framed as aspects of local, national, and global security.^{19–22}

Although militaries can bring unique capabilities to global health, militaries also have important limitations compared with other actors in global health. Military engagement is typically motivated by considerations linked to defence and security objectives, and concerns about disease burden or sustainable development are usually relevant only when linked to these objectives. Military approaches and actions are sometimes at odds with—and even directly counter—core global health and humanitarian principles. The misalignment can be particularly acute during armed conflicts. Additionally, most military leaders and personnel are not trained or equipped to think or function as global health practitioners. Cultural and communication gaps exist between militaries and other global health actors, and militaries can operate at higher levels of secrecy and lower levels of transparency than civilian agencies. Finally, broadening military missions to incorporate global health could create difficulties for militaries themselves by potentially drawing resources and focus away from a military's core objectives, fostering distrust, and at times increasing risks of illness and harm for deployed forces.^{23,24}

The literature suggests that most military global health-related activities are implemented primarily by the national militaries of Canada, the USA, and countries in western Europe. However, militaries in other world regions also engage in such activities at times, but these are rarely reported in the literature, therefore most examples described here are from militaries in North America and western Europe.

Militaries also regularly engage in domestically focused health activities; examples include the Brazilian military's deployment of 200 000 personnel to combat the Zika virus outbreak, and other countries' national military medical support for responses to domestic disasters, such as earthquakes and tsunamis.^{25–29} However, the primary focus of this Series paper is cross-border health activities of militaries, or those military health activities with global implications.

Peacetime

In stable, peacetime environments, military contributions to global health are typically focused in the areas of research and development and partnerships and capacity building.

Research and development

Militaries, motivated to find ways to protect personnel from epidemic disease, have contributed to advances in public health and disease control since the 18th century. For example, during the period of colonisation, military medical practitioners developed and implemented some of

Panel 1: Definition of militaries

At the most basic level, militaries are organised armed groups, authorised to use deadly force, and tasked with providing defence and prosecuting war at local, national, and international levels. For the purposes of this Series paper, we identify several broad categories of militaries:

- National militaries—armed forces of a state, associated with a national government, or self-defence forces (eg, Japan).
- Multinational militaries—armed forces, typically drawn from national militaries, organised under the auspices of a multilateral or regional organisation or alliance. Examples include the African Standby Force of the African Union, the North Atlantic Treaty Organization, and UN Peacekeepers.
- Non-state armed groups—groups that have the potential to use arms for force to achieve political, ideological, or economic objectives; are not within the formal military structures of states or intergovernmental organisations; and are not under the control of the state or states in which they operate.¹⁵

Militaries vary widely in size, influence, geographical reach, goals, strategies, and tactics.

the first successful population-level disease control efforts against malaria and yellow fever.^{30–32} Military medical researchers also helped develop many vaccines and drugs used to combat diseases such as influenza and malaria.^{33,34}

Militaries continue to engage directly in, or fund, public health research and development as a strategy for protecting and sustaining their personnel's health, because having a healthy fighting force is a high priority.³⁵ In some cases, military health research and development has been applied to public health more generally. For example, US military research helped create the first HIV vaccine to reach phase 3 trials and the first approved vaccine for malaria.^{36–38} The US and Chinese militaries have also contributed to research on Ebola virus vaccines and drugs.³⁹ Australian military scientists have researched dengue and malaria, and Thailand's Royal Thai Army has conducted joint research with the US military on a number of infectious diseases.^{40,41} Published in December, 2017, a report estimating research and development spending on neglected tropical disease research showed that the US Department of Defense was the fifth largest funder of such research globally in 2016, providing an estimated US\$79 million (2.5%) of total global funding for research and development.⁴² By comparison, the US National Institutes of Health was the largest funder of such research in 2014, providing \$1.3 billion (38%) of global funding for research and development.

Because militaries' support of research and development related to global health challenges is a by-product of their mission to protect their own forces, most research and development relevant to global health is focused on acute infectious diseases in a young adult population, specifically those diseases that can jeopardise operational

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readiness (eg, malaria, dengue, diarrhoeal disease), or represent health security threats or potential bioweapons (eg, Ebola virus disease, anthrax, smallpox).^{36,42} Other important global health concerns, including many causes of preventable infant, child, and maternal mortality, are not usually addressed by military research and development. Additionally, funding can fluctuate over time, with funding surging after outbreaks or during certain troop deployments and decreasing when a threat is thought to have passed, or deployment ends.⁴³

Partnerships and capacity building

Many militaries see value in health training and capacity-building efforts because they can create and strengthen international relationships, help partners become more resilient, and provide training opportunities for their militaries' own personnel. Given that health is often seen as neutral, such activities can be feasible when relationship building is difficult by other means.⁴⁴ Such relationship building can be especially relevant and effective when militaries partner with other nations' military medical services, which can be crucial actors in delivering health interventions, and can help countries enhance influence with their partners. Such partnering activities can be a way to actively promote security sector reform, contributing to developing peace and preventing conflict. The US military, for example, explicitly uses medical partnership activities as a way to shape environments to reduce the threat of future instability and violence.⁴⁵

Since 2006, China's People's Liberation Army has periodically deployed medical units throughout Africa on missions targeting malaria and HIV/AIDS.⁴⁶ Some militaries also deploy specialised naval vessels—so-called hospital ships—for short-term medical diplomacy missions as a gesture of goodwill, training opportunities for medical military personnel, and as a method for building relationships.^{47–50} Collaborative exercises between militaries and other partners, including some with a substantial health component, are another strategy contributing to partnership-building efforts. For example, the so called Exercise Khan Quest, co-hosted by the Mongolian Armed Forces and US Department of Defense, is an important annual international peacekeeping exercise (involving more than 40 countries) that incorporates civilian participants and has a substantial medical readiness training component. Able Response is an annual exercise between the Republic of Korea and the USA designed specifically to prepare for biological threats in the Korean peninsula.⁵¹

Some militaries also seek to build partner capacity surveillance and response to human disease threats. Militaries build and maintain physical infrastructure (ie, laboratories and equipment) and support training and research in partner institutions. Since 1946, the US Army and Navy have operated 20 overseas laboratories at various points in collaboration with agencies of host countries.^{52,53} The French Armed Forces have assisted

countries such as Djibouti and French Guyana with real-time early warning and surveillance systems for infectious disease.⁵⁴ Since 2008, the US Department of Defense has provided training and conducted exercises with foreign militaries in 16 countries in Africa to enhance their roles in pandemic preparedness and response.^{55–57}

However, militaries engaging in these activities and the nations they partner with can face challenges and drawbacks. Decisions on which countries are assisted when, and the types of services rendered, are based primarily on security and foreign policy considerations, rather than solely on health requirements. Furthermore, because militaries often prioritise short-term interventions over sustained efforts, little consideration is given to longer-term health needs. For example, mobilising a tertiary care medical facility in the form of a hospital ship into a port and providing outpatient services for a brief period in the name of so called health diplomacy does not necessarily match services to needs and can alienate local providers.⁵⁸ Likewise, military construction and staffing of facilities such as laboratories have sometimes failed to take into account whether local human resources and support systems are sufficient to ensure long-term viability.⁵⁹ Military-to-military engagement on pandemic preparedness and response is not always integrated into national civilian response plans, and a lack of awareness regarding military plans in civilian government agencies can limit their usefulness. Some public health capacity-building efforts led by the military have been met with unease and sometimes outright distrust, even to the point of prompting closure or relocation. For example, in 2010, a US Navy laboratory in Indonesia was closed and relocated to another country, primarily because of Indonesian national sensitivities over a foreign research establishment run by the military.⁶⁰

Conflict and post-conflict

Militaries have responsibilities under international humanitarian law to help ensure the safety of and access to medical care and public health during conflict, although specific combatants in conflicts have shown a troubling lack of compliance with these responsibilities. The chronic and often non-traditional nature of many modern conflicts has resulted in further complications of military health engagement in times of war. Instead of defined battlefields with one uniformed military fighting another, many militaries operate in counterterrorism, counterinsurgency, and complex civil conflict environments, leading to a blurring of lines between civilian, military and combatant, and non-combatant environments that at times renders military support of health interventions more controversial than traditional warfare.

Medical and public health obligations under international humanitarian law

International humanitarian law, and in particular the Geneva Conventions, place a responsibility on combatants

and foreign forces occupying a territory to ensure appropriate provision of medical care and to respect, protect, collect, and care for the wounded and sick without adverse distinction. Medical assistance should be provided in an impartial manner at all times on the basis of the needs of the affected people and populations. The Geneva Conventions, specifically Articles 55 and 56 of the Fourth Geneva Conventions, state that an occupying power (which can often refer to a military entity that has taken control of a territory) must ensure sufficient hygiene and public health standards and the provision of food and medical care to the population under occupation.⁶¹

Conflicts over the past two decades have seen serious, repeated violations of these principles. If steps are not taken by combatants to ensure health-care access, conflict can unnecessarily impede health care for vulnerable populations—eg, when local health-care professionals flee areas of conflict—emphasising the need to ensure security alongside essential services.⁶² In civil conflicts such as in Syria and Yemen, some militaries and some non-state armed groups (NSAGs) have failed to provide required medical care to affected populations, which has resulted in outbreaks of polio and cholera among other health issues.^{63–65} Combatants have, at times, even actively targeted civilian non-combatants and mounted direct attacks on health workers and health facilities.⁶⁶ The Safeguarding Health in Conflict Coalition estimates that in 2017 alone there were at least 701 attacks on health-care facilities and health workers in 23 conflict-affected countries, which resulted in 101 health worker and 293 patient deaths.⁶⁷

The challenge remains to reverse these violations of long-standing principles and restore protection to ensure that the provision and delivery of health care is needs based and impartial. After the 2015 bombing of a Médecins Sans Frontières hospital in Kunduz, Afghanistan, the US Government, including its Department of Defense, clarified US policy regarding civilian casualties related to the use of force and reiterated its commitment to abiding by humanitarian principles during conflicts in which the US military engages.^{68,69} Another example of how protection policies are being strengthened is the UN Security Council unanimously adopting a May, 2016, resolution to increase protection for health-care workers in war zones under the Geneva Conventions.⁷⁰

Application of the Geneva Conventions is further complicated when the boundaries of what constitutes war, occupation, and occupying power are unclear or purposely vague. For example, after the Sept 11, 2001, terrorist attacks in the USA, the US Government controversially argued that the Geneva Conventions' protection did not apply in the context of conflicts with non-state terrorist organisations such as Al-Qaeda and the Taliban, although this policy was reversed in 2006.⁷¹ After the US military entered Iraq in 2003, the USA stated the country was a liberator rather than an occupying power;⁷² a characterisation that was interpreted by some as obviating the responsibilities

outlined in the Geneva Conventions.⁷³ In civil and sectarian conflicts such as those in Syria and Yemen, it is unclear whether combatants consider themselves occupying powers or are even aware of their responsibilities under international humanitarian law.

Difficulty in determining when a conflict ends and the responsibilities militaries and other actors have during a transition from a conflict to post-conflict environment is another aspect of the complexity of modern conflict that affects militaries' health activities. The Geneva Conventions only apply during times of armed conflict, so occupying powers are not specifically obliged to ensure maintenance of health care post-conflict, even though conflicts can leave affected countries' health systems in a terrible state. However, there are examples of militaries assisting in health-care reconstruction efforts in post-conflict environments, such as the Australian Defence Force assisting in Rwanda and Timor-Leste, and the North Atlantic Treaty Organization and international partners working with the Afghan Government to rebuild health capabilities in Afghanistan since 2003.^{74,75} Militaries do not often plan adequately for the transition from a conflict to a post-conflict environment. If militaries fail to meet the expectations of local populations, coordinate with local actors and humanitarian agencies, or help implement appropriate and sustainable health systems in affected communities, they can undermine prospects for building secure, stable, and prosperous environments after hostilities cease.

Using health to reduce conflict and instability

Militaries have sometimes used health, including provision of clinical care and public health interventions, as an explicit tactic to win the hearts and minds of local populations during conflicts, most notably in the context of counterterrorism and counterinsurgency operations. US military campaigns in Vietnam, Afghanistan, and Iraq, among others, incorporated health interventions to generate local support, enhance influence, and promote stability.^{16,76,77} NSAGs such as the Tamil Tigers in Sri Lanka, the Taliban in Afghanistan, and Hezbollah in Lebanon have also used health interventions during conflicts in a bid to establish legitimacy.^{78,79}

Evidence that such tactics contribute to militaries' own objectives, such as promoting peace and security and fostering goodwill, or help militaries gain legitimacy, is scarce.^{20,80} In some cases, military-led health efforts in conflict areas have weakened existing local services, sometimes severely.^{81,82} Interventions can also undermine the authority and standing of local health-care professionals, resulting in counterproductive health outcomes and adverse effects on military aims.^{77,83}

Militaries' use of health interventions to meet counterterrorism and counterinsurgency objectives can blur the lines between militaries and humanitarian actors during conflict.⁸⁴ Non-governmental organisations (NGOs) are often key health-care providers in unstable areas

and places affected by conflict that strive to adhere to the humanitarian principles such as neutrality and independence, and frequently present before militaries arrive and after military forces depart. Militaries, however, prioritise national security or foreign policy imperatives and might identify with a particular political ideology. Therefore, the use of military medical assets might not be consistent with the humanitarian principles. Delivery of health care that is perceived to be a military tactic can lead to population distrust of and even outright hostility towards military and non-military providers of care. Furthermore, communities might not distinguish between military and non-military interventions, placing non-military providers and those who use them at risk of community mistrust or violence because of broader community perceptions.⁸⁵ Such ambiguity can also undermine legitimacy and trust in local government-supported health services in areas affected by conflict. Humanitarian actors have called for clear limits on how and when militaries should engage in humanitarian actions, to prevent confusion and distrust in the population with regard to health care.^{86,87}

Ethical issues can arise for military and civilian health-care practitioners at the population and individual levels when they engage in global health activities, especially in areas affected by conflict. We do not address the ethical dimensions of military medical practice here, although they are examined in several publications.⁸⁸⁻⁹¹

Disaster response

Roles filled by militaries in health aspects of disaster response are diverse. Perhaps the best known examples involve military health assets deployed after large-scale natural disasters used to provide medical care to affected populations, as well as coordination, communication, logistics, and other support. Since 2004, multiple militaries have been engaged in health responses to tsunamis, earthquakes, hurricanes, typhoons, and cyclones.⁹²⁻⁹⁵ In the 2010 Haiti earthquake response, 19 different militaries provided support and personnel.⁹⁶

Disease outbreaks induce a particular type of disaster response from militaries. During an outbreak, distinguishing between the population that needs to be protected (the uninfected) and the victims that need to be isolated and treated (the infected) can be a challenge. Such circumstances demand close, regular, consistent interaction with local communities, which can be difficult for foreign military forces. Militaries faced this challenge during the response to the Ebola virus outbreak in west Africa (panel 2).

The notion that military forces are unsurpassed in specific capabilities related to disaster response is almost universally accepted. A large part of the domestic response capacity of many countries resides in the strength of their national militaries. Militaries are often far better equipped to mobilise rapidly and provide transport, lift, and engineering capacities at a larger scale than other actors.

Notably, militaries often have such exceptional capabilities because they typically have much larger budgets and more staff than civilian disaster response agencies.^{4,108}

Under current UN guidelines, foreign militaries' international disaster responses are only meant to occur as a last resort, after all other resources have been used and military assistance is requested by an affected country.¹⁰⁹ The application of the so-called last resort principle can sometimes be challenging. Militaries have responded without having been explicitly requested to do so or before the principle of last resort has been triggered.

Although military involvement in disaster responses is usually welcomed, the effectiveness of military assistance in this context is sometimes questioned.¹¹⁰ For example, militaries tend to focus on quick-turnaround, short-term interventions and have historically had less involvement in helping to make an effective transition from an immediate response to longer-term recovery than civilian organisations.¹¹¹ Militaries have sometimes made an effective contribution to this transition—eg, when the US military integrated host nation military health personnel into a mobile US Army hospital during the 2005 Pakistan earthquake response and into a US Air Force hospital during the 2010 Chilean earthquake response, and then eventually donated both mobile hospitals to their respective host nation's military to support the ongoing recovery efforts.^{112,113} Conversely, military involvement can interfere with disaster response. Some NGOs have expressed concerns about humanitarian flights being given lower priority by the US military than military flights when they controlled air traffic in Haiti following the 2010 earthquake.¹¹⁴

Even as militaries increasingly engage in disaster response, the relative size of military contributions should not be overestimated. Militaries do not comprise a primary source of funding for disaster response and humanitarian assistance. One analysis from 2013 reported that humanitarian funding channelled through militaries ranged from 1.6–4.2% of total humanitarian assistance funding from 2006 to 2010.¹¹⁵

Similarly, emergencies have also become more complex and long lasting. Chronic, complex emergencies require sustained infrastructure and institution building in areas such as health, but militaries have not often supported such longer-term interventions. Additionally, it is becoming increasingly difficult to differentiate between conflicts and humanitarian emergencies, with many emergencies now occurring in conflict zones or exacerbated by conflict and instability.¹¹⁶

Stronger guidance on how militaries can best contribute across various scenarios could help lead to more effective responses. The Oslo Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief (Oslo Guidelines),¹⁰⁹ the Civil–Military Guidelines and Reference for Complex Emergencies (also known as the Military and Civil Defence Assets [MCDA] guidelines),¹¹⁷ and the UN

Panel 2: Military involvement in the 2014–15 west African Ebola virus outbreak

Major foreign militaries, including those of the USA, UK, China, Canada, Germany, France, and member states of the African Union, deployed personnel to assist in the international response to the west African Ebola virus disease outbreak, and the domestic militaries of the countries most affected by the outbreak—Liberia, Sierra Leone, and Guinea—were also involved in the response. Foreign militaries primarily provided transport, logistics, training of health-care workers, laboratory testing, medical care, construction, response coordination, management of burials, and treatment for responders, although roles and activities varied considerably among forces. Domestic militaries were involved in providing protection to health-care workers and burial teams as well as enforcing quarantine and restricting travel to and from affected areas to reduce the risk of transmission. Reports and articles published since the outbreak identify several advantages and benefits from militaries' engagement in the response:^{97–107}

- Served as a morale booster and showed resolve and support for affected countries, communities, and organisations working in affected areas
- Provided rapidly deployable assets such as mobile laboratories and logistical support while showing evidence of speed, flexibility, and self-sustainment in deployment in some circumstances
- Provided readily-available trained, professional staff accustomed to working in austere, challenging environments
- Had robust command-and-control hierarchies and communication systems
- High quality of care was shown by military medical personnel who provided clinical care to civilians

• Provided collaborative and constructive support to the national response efforts of affected countries

However, some challenges and difficulties have been noted:

- Unnecessary violence engaged in by some local security forces, particularly in relation to the imposition of quarantine on affected communities; such violence exacerbated public mistrust of the government, militaries, and the response in general, hampering efforts to address the disease
- Policies put in place by some militaries prohibited direct patient care by military personnel and, in some cases, refusal to transport laboratory samples or health-care responders, which consequently reduced full use of foreign military capabilities
- Lack of military flexibility in mission objectives, such as insisting on compliance with non-local building codes, added to already lengthy construction times for Ebola treatment units
- Expenditure of substantial resources to deploy foreign militaries to west Africa, without a clear understanding of the cost-effectiveness of military versus civilian response; foreign military deployments were paid for through development assistance and defence budgets
- Lack of training and preparation of foreign military forces with key skills and knowledge, such as epidemiology, biosafety, and cultural anthropology (this challenge also applied to civilian responders)
- Insufficient monitoring and evaluation of foreign military outbreak response contributions and outcomes
- Concerns about host nation sovereignty and security upon deployment of foreign military forces

Global Health Cluster paper on civil–military coordination during humanitarian health action¹¹⁸ provide some guidance, especially over the short term and, in particular, about how military actors interface with key actors during the acute phase of a response. However, these guidelines do not provide strategies and guidance on how militaries can best interface with other actors, including host nation security services, to contribute to longer-term recovery and resilience efforts, which are more relevant to chronic and intractable emergencies. Militaries might also have limitations in internal guidance and training; in many cases, neither military nor civilian personnel have been aware that the Oslo Guidelines and MCDA exist or how they are meant to instruct military engagement.^{119,120}

Interactions of militaries with WHO and other UN actors

Leaders at WHO have referred to militaries as non-traditional partners, emphasising that the organisation has a mandate and a desire to coordinate with militaries. WHO has a history of working with militaries on global epidemic alerts and responses.¹²¹ It has worked with the US Department of Defense Global Emerging Infections

Surveillance and Response System programme and the Defense Threat Reduction Agency's Cooperative Biological Engagement Program (DTRA-CBEP) to strengthen infectious disease preparedness and response systems for over a decade.¹²² Several military medical research institutions, including the Australian Army Malaria Research Institute and the US and Thai Armed Forces Research Institute of Medical Sciences, are designated WHO Collaborating Centres. Partnerships with the military have shown substantial benefits: so-called seed funding provided by DTRA-CBEP helped to fund development of WHO training materials in the management of severe sepsis that later became the foundation of WHO training guides used in the west African Ebola virus disease outbreak.¹²³ A US Navy critical reagents programme supplied much needed laboratory diagnostic support to the Ebola outbreak in the period of summer 2014 before the global response had fully materialised.¹²⁴ Other military medical laboratory resources, such as those of the Chinese military, the Institut of Mikrobiologie of the German Bundeswehr, and the UK Royal Army Medical Corps, were also utilised to help build Ebola diagnostic capacity.¹²⁵

Panel 3: Potential strategies for more effective military engagement in global health

- Develop more forums in which militaries and other global health actors can interface effectively—eg, a multilateral, permanent military–civilian body that meets regularly to provide guidance for military engagement on global health
- Focus on shared objectives and goals, and work to develop better frameworks that guide and constrain militaries working within the global health system (particularly when outside of areas in which their comparative advantages lie)
- Develop and implement military policy and doctrine on global health engagement activities in peace, conflict, and disaster response, in collaboration with civilian counterparts
- Train and educate military medical professionals to include and emphasise global health concepts and goals, including health disaster risk management, the roles of international organisations and non-governmental organisations, and the rights and requirements for medical care and public health under existing international humanitarian law
- Support joint exercises and training activities between military and civilian agencies, and with non-governmental organisations (NGOs) and other stakeholders; actively incorporate militaries in planning and training alongside civilian government and NGO counterparts, and recognise that the cultural context will shape relationships among militaries, NGOs, and others
- Increase military engagement in planning and implementation efforts related to infectious disease prevention, detection, and response, through the Global Health Security Agenda, the International Health Regulations, and other capacity-building initiatives
- Support expanded monitoring, evaluation, research, and publication on militaries' global health activities, particularly among militaries of countries outside of North America, western Europe, and Australia

For more on **The International Committee on Military Medicine** see http://www.icmm-icmm.org/index_en.php

Militaries have also partnered with WHO and others on broader multilateral efforts on epidemic response, notably including the Global Health Security Agenda (GHSA), a 5 year partnership effort of over 60 countries launched in 2014 to help to establish efforts to prevent, detect, and respond to emerging health threats around the world.¹²⁶ GHSA multisectoral standing committees and action plans seek security sector involvement, and evidence of military contributions can be found in several countries' GHSA plans, including those of Bangladesh, Guinea, Sierra Leone, and Vietnam.¹²⁷ Involvement of the security and defence sectors has allowed for a new coordination framework for military and civilian health efforts. However, much more can be done to strengthen and expand on these collaborations between the military and civilian sectors in the context of global health security.

There are few permanent forums for militaries to partner with WHO and other multilateral partners, with relationships largely sporadic and ad hoc.¹²⁸ The US military has assigned active-duty military medical officers to WHO during various periods, most recently from 2002 to 2012, for scientific cooperation purposes. Disaster response is the most formalised area of cooperation between militaries and UN agencies. Military engagement in large-scale disaster responses is overseen and coordinated by the UN Office for the Coordination of Humanitarian Affairs, which has a dedicated Civil–Military Coordination Section. Other UN humanitarian-focused

agencies, such as the UN High Commissioner for Refugees and the UN World Food Programme, have less formalised pathways for military engagement in disaster response. Beyond the UN, there are regional multilateral organisations, such as the Association of Southeast Asian Nations and the Economic Community of West African States, that bring together civilian and military institutions to work on the health aspects of resilience and risk reduction.¹²⁹ The International Committee on Military Medicine also represents the interests of global militaries in interactions with the UN.

Many non-military humanitarian and global health actors are unfamiliar, and sometimes uncomfortable, with militaries and their engagement in global health, whereas on the military side the focus on the mission can overtake wider humanitarian or political issues.¹³⁰ Militaries are not always aware that humanitarian agencies have far fewer human resources available for planning and implementing plans than do militaries, which they can then incorrectly attribute to inefficiency. Greater communication, collaboration, and participation before crises hit could ameliorate some of the gaps. The WHO Health Emergencies Programme states that it envisions engagement with military medical establishments not only in crisis settings, but also as part of a long-term strategy for multisectoral engagement,¹³¹ signalling less separation between militaries and non-military global health actors.

In the aftermath of the 2014–15 west African Ebola outbreak, there is now recognition that global public health is enhanced when there is earlier, consistent communication with military counterparts during normal conditions as well as during a crisis. One way forward is for militaries to embrace the concept of disaster risk management (DRM) in global health strategic planning, programmatic development, and personnel development. DRM envisions the management of all-hazards health risk as part of a continuous cycle of prevention, preparedness, detection, response, and recovery. DRM is core to initiatives such as the Sendai Framework as well as the WHO Health Emergencies Programme (endorsed by UN and WHO member states, respectively).¹³² Health DRM emphasises that communities and nations face a dynamic and evolving set of health risks that require consistent, adaptive preparation and occasional response. Military organisations could better identify and more actively engage with partners along the points in the DRM cycle at which their specific capabilities and relationships would be additive.

Conclusion

Militaries have a long history of engagement in activities that continuously impact global health.¹³³ The trend of the past two decades has been towards greater military engagement, with more national militaries from more countries becoming involved on a broad scale. Several factors are responsible for increased military engagement,

such as altered views within national governments and militaries about how security is linked to health, the growing complexity and duration of state instability and global conflicts, and a series of threats to human health from more frequent and larger-scale natural disasters that include infectious disease outbreaks. These factors will continue to be present for the foreseeable future, and will result in the continued engagement of militaries in global health.

Therefore, the key question is not whether militaries should be involved in global health but rather how to ensure military engagement is appropriate, constructive, effective, and coordinated with other actors. Panel 3 lists policies that could help engender effective coordination and engagement between militaries and other global health actors.

Consideration should be given to the achievement of an appropriate balance between military and civilian global health capabilities. Military action as a tool for global health might not be the most effective method to address a particular health issue, but policy makers should take care to not further exacerbate any existing dichotomies in funding and power by giving preference towards militaries working on global health when civilian agencies can do so, often more economically. Further investigation is needed to understand the cost-effectiveness of military compared with civilian interventions and to identify areas in which there is synergy between military and civilian actors.

Closure of the gap between military and civilian actors will require increased efforts, and can catalyse the contributions of both parties to global health.

Contributors

All authors contributed to the concept, literature review, analysis, writing, and editing of the paper.

Declaration of interests

LL reports previously being Surgeon General of the UK Armed Forces. All other authors declare no competing interests.

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