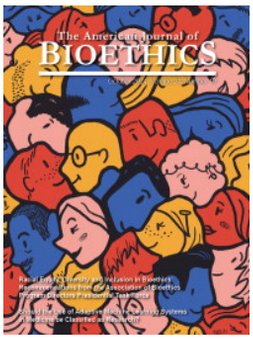

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TARGET ARTICLE

War, Bioethics, and Public Health

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ABSTRACT

This paper argues that bioethics as a field should broaden its scope to include the ethics of war, focusing on war's public health effects. The "Introduction" section describes the bioethics literature on war, which emphasizes clinical and research topics while omitting public health. The section, "War as a public health crisis" demonstrates the need for a public health ethics approach by framing war as a public health crisis. The section, "Bioethics principles for war and public health" proposes six bioethics principles for war that address its public health dimensions: health justice, accountability, dignified lives, public health sustainability, nonmaleficence, and public health maximization. The section, "Justifying and applying bioethical principles" shows how these principles inform ethical analysis, including just war theory and military ethics. The section, "From principles to practice" envisions ways in which bioethicists can promote these principles in practice through research, teaching, and service. The "Conclusion" section urges bioethicists to engage with war as a public health crisis, including calling attention to war's impact on civilians, especially women, children, and other vulnerable groups.

KEYWORDS

International/global bioethics; professional ethics; public health

INTRODUCTION

Bioethics has dealt with warfare in a limited fashion, highlighting mostly obligations of physicians to patients. For example, bioethicists have discussed physicians' conflicting loyalties to patients versus the state (ten Have 2023; Gross, 2006), duty to accept risks to personal safety to care for patients (Morin, Higginson, and Goldrich 2006), and challenges when nonstate armed groups demand priority for fighters or seek expulsion of ethnically or religiously identified patients (Rubenstein and Haar 2022). Bioethicists have also considered the responsible conduct of research in warzones, including the ethics of research involving pathogens used in bioterrorism (Clements and Evans 2004), complexities of research with warzone populations (Yamout and Jabbour 2010), and unethical Nazi research during World War II (Post 1991). A 2006 special section of *Cambridge Quarterly of Healthcare Ethics* devoted to "Bioethics and War" emphasized clinical ethics and health sciences research, including an historical overview of military physicians' moral dilemmas (Bennahum 2006), informed consent to research on chemical and biological weapons (Holdstock 2006; Schmidt 2006), and physician participation in wartime interrogation and torture (Allhoff 2006; London et al. 2006). A 2022 thematic issue of the *AMA Journal of Ethics* addressing, "Health Care in Conflict Zones," dealt largely with physicians' ethical dilemmas (Reynolds and Sánchez Meertens 2022) and moral distress (Jackson Smith, Procaccino, and Applewhite 2022), and with the ethics of conducting research on children in conflict zones (O'Mathúna and Upadhaya 2022). The most recent addition to bioethics war literature is a 2023 special section of *Bioethics* addressing "Bioethics Challenges in Times of War." Like prior bioethics contributions, it examines clinical ethics challenges, such as obstacles facing Syrian refugees seeking healthcare services in Turkey (Barış, Sert, and Önder 2023). Other discussions of select topics, such as physicians' social responsibility to reduce the threat of nuclear war, have also appeared (Abbasi et al. 2023).

While these clinical- and research-focused contributions are vital, they are fundamentally incomplete.

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Generally omitted from bioethics literature is sustained bioethical reflection on war's broader impact on the health of populations, including the myriad ways warfare undermines basic social determinants of health (SDOH). SDOH are non-medical factors impacting health outcomes, including income, education, unemployment, work life conditions, food security, housing, early childhood development, discrimination, structural conflict, and healthcare access. It is well-established that SDOHs have major effects on population health, accounting for 30-55% of health outcomes, which far exceeds the impact of the health sector (World Health Organization \(WHO\), 2024). War harms civilians' health both directly, by indiscriminate and targeted attacks and indirectly, by undermining SDOHs through mass displacement of people; damage to civilian infrastructure, such as hospitals, food supply systems, water treatment plants, and electric grids; and embargoes that restrict importation of food, medicine, and materials to repair war-related damage (Levy 2022).

Considering bioethical aspects of population health wrought by war requires looking beyond clinical settings in which healthcare is practiced and reflecting on war's wider effects on health. Just as bioethics as a field has moved well beyond its original moorings in clinical and research ethics (Ravitsky 2023), bioethical approaches to armed conflict must too. Broadly considered, war is not just an individual tragedy but a *public health crisis*.

Public health researchers, for their part, have already begun to explore war's adverse effects on population health. In a 2009 position paper, the American Public Health Association (APHA) declared, "War has profound public health consequences, and it is an entirely preventable source of some of the world's worst public health catastrophes;" they cite war's effects on morbidity; mortality, especially civilians, women, and children; healthcare and health-supporting infrastructure; human rights; the natural environment; and resource diversion away from non-war social goods (APHA 2009). Subsequently (in 2011) an APHA working group developed a social determinants preventions framework and recommendations for public health competencies and curricula to address war prevention (Wiist et al. 2014). Many of the competencies and curricula developed pertain to international peace research and advocacy.

The Association of Public Health in Europe (ASPHER), which represents 119 schools of public health spanning forty-three countries, recognizes that

> [w]ars and armed conflicts have devastating consequences for the physical and mental health of all people involved, for the social life within and surrounding the war-affected regions, and for the health of the environment. Wars destroy health infrastructure, undoing years of health advancement, and severely compromise health systems' capacity to respond to the direct and indirect health consequences of fighting. Millions of people have been internally displaced or forced to flee their countries due to armed conflict.

In 2019, ASPHER spoke out in support of imprisoned members of the Turkish Medical Association who had declared war, "a human-made public health problem" (Gross 2006) and who were tried, convicted, and sentenced to twenty months in prison for condemning Turkey's military operations in Afrin. ASPHER has also connected public health researchers to zones affected by war; coordinated hosting of scholars and students at risk during war; documented human rights abuses; and expressed dissent and non-cooperation with activities undermining peacebuilding (Wandschneider et al. 2022).

Bioethicists too must do their part. As bioethicists, we ought to build on empirical findings from public health researchers by highlighting *ethical* considerations raised by war's known impacts on public health and on the SDOHs designed to support health. Among the questions the field should consider are: What are the responsibilities of the field in the face of new and ongoing wars? What bioethics values and principles are most at stake during war? How can bioethics enact these values in war-related teaching, research, and service? By framing these questions in terms of the *field*, our focus is the ethical commitments that bioethicists as a group undertake.

We argue that bioethics should broaden its scope to include the ethics of war, focusing on war's public health effects. The section on "War as a public health crisis" demonstrates our proposed approach by framing war as a public health crisis. The section, "Bioethics principles for war and public health" introduces six bioethics principles addressing war and public health: health justice, accountability, dignified lives, public health sustainability, nonmaleficence, and public health maximization. The section, "Justifying and applying bioethical principles" applies these principles to the ethical analysis of war, and reveals shortcomings of standard approaches, including just war theory and military ethics. The section, "From principles to practice" urges bioethicists to prioritize war and public health in their research, teaching, and service. The "Conclusion" section urges bioethicists to follow the

lead of public health researchers by better incorporating war and public health into the field of bioethics.

WAR AS A PUBLIC HEALTH CRISIS

Bioethicists have long noted that human health is directly impacted by social determinants such as where people live, work, and go to school. Among the examples of SDOHs the World Health Organization (WHO) identifies are income and social protection; education; work life conditions; food security; housing; basic amenities and the environment; early childhood development; structural conflict; and access to affordable health services of decent quality (World Health Organization (WHO) n.d.). Gostin and Powers identify pertinent social determinants as including social disintegration, unhygienic and polluted environments (Gostin and Powers 2006). Recently, bioethicists have devoted increased attention to the ethics of large-scale global events, like pandemic disease, climate change, and migrant health, that adversely impact population health and entrench global health disparities. War also has large scale adverse impacts on SDOHs, undermining population health, not just for combatants but "in hospitals, homes, and refugee camps; and both during combat and in the years following, as communities struggle to live normal lives despite decimated social services, ongoing illness and disability, and the loss of loved ones." Mazzarino et al. (Mazzarino, Inhorn, and Lutz 2019) invite people living outside conflict zones:

> to imagine what it would be like—the bombings, sniper fire, unexploded ordnance, abductions and imprisonment, house raids, torture, rape, and surviving families' flight from all of it. Beyond the bombs and bullets, war brings privation: loss of access to food, water, and electricity; bombed out hospitals, schools, and many other institutions of human welfare and community; and loss of trust and emotional equanimity. These are the kinds of horrors that war inflicts on human beings, both combatants and civilians (Mazzarino, Inhorn, and Lutz 2019).

A helpful way to characterize the health burdens of war is "syndemic." The prefix, *syn*, designates "with" or "together" and speaks to the myriad ways multiple elements interact to increase risk for disease and death in a population. To illustrate, consider how people displaced by war congregate. Lacking access to food, they become malnourished, which, in turn, leads to being immunocompromised, which in turn, creates potent pathways for the spread of infectious pathogens. The syndemics of war touch the lives of many people—soldiers, militia members, civilians residing in warzones, refugees fleeing the area, and aid workers. Historically, a substantial proportion of deaths in war have been indirect, caused not by gunshot or explosions, but disease, starvation and exposure (Hasell 2022). During the Napoleonic wars, eight times more people in the British army died from disease than from battle wounds; during the American Civil War, two-thirds of deaths were caused by pneumonia, typhoid, dysentery, and malaria (Connolly and Heymann 2002). In all wars fought around the globe between 2004 and 2007, for each individual who died violently in battle, another four are estimated to have died from war-related disease and malnutrition (Geneva Declaration Secretariat 2008a). The proportion of indirect death varies based on factors like a society's wealth and baseline infrastructure. Thus, in poorer countries, like Afghanistan, infrastructure destruction is less impactful than in wealthier countries like Iraq.

Since the late 1980s, malnutrition and disease, not battle injuries, have been the primary causes of death in wars around the globe (Savell 2023). While more men than women die in battle, women and children suffer most of war's indirect effects, e.g., malnutrition; pregnancy and birth-related problems; infectious diseases; and noncommunicable diseases like cancer, post-traumatic stress disorder, and mental health conditions. Bendavid et al. estimate that globally, over 10 million deaths in children under 5 years can be attributed to armed conflict between 1995 and 2015, and women of reproductive ages living near high intensity conflicts had three times higher mortality compared to women in peaceful settings (Bendavid et al. 2021). In 2017, the estimated number of women and children affected by armed conflict—over 630 million—represented 8% of the world's population (Bendavid et al. 2021). While precise numbers are difficult to come by, especially in countries with poor or nonfunctioning vital registration systems, the Geneva Declaration Secretariat uses a conservative average estimate that calculates indirect deaths as quadruple the number of direct deaths (Geneva Declaration Secretariat 2008b).

Modern asymmetric warfare has only heightened war's public health crisis. During asymmetric war, armed conflict occurs between a standing army and non-state actor (e.g., insurgents or resistance movement militias), and there are significant disparities between warring sides with respect to military power, strategy, and/or tactics (Mack 1975). Unlike conventional wars involving standing armies disciplined by a state, and roughly matched in soldiers and armament,

asymmetric war involves an army and less well-armed opponent, who lacks a system of military discipline or military justice (Walzer 2015). Frequently protracted, asymmetric war is not "defined as a temporal event with a start and a finish," but often unfolds like "chapters in prolonged and protracted conflicts that ebb and flow yet trap the hostage populations for decades, consuming the lives of generations and shaping their health needs and the provision of health care" (Arawi and Abu-Sittah 2022). In protracted asymmetric war, public health effects can be exponentially greater, with transgenerational transmission of war-related trauma, and a state of chronic emergency that undercuts efforts to build stable healthcare infrastructure that meets basic health needs (Yehuda and Lehrner 2018).

To illustrate, consider how asymmetric war can readily spiral out of control. In 1961, uMkhonto we Sizwe (MK), the paramilitary wing of the African National Congress, took up arms against Apartheid government installations in the wake of the Sharpeville massacre. During the massacre, police had opened fire on people protesting anti-black pass laws, resulting in 69 deaths and 180 injured. Initially, MK had provided "strict instructions" to operatives not to injure or kill people; it selected sabotage of government buildings and Apartheid symbols, rather than attacks on citizens (Mandela 1964). After government violence, MK prepared for guerrilla warfare. Mandela, a founding MK member, defended MK's decision:

> It would be …wrong for African leaders to continue preaching peace and non-violence…when the government met our peaceful demands with force.…It was only when all else had failed…that the decision was made to embark on violent … political struggle…In the *Manifesto of uMkhonto*…we said "The time comes in the life of any nation when there remain only two choices—submit or fight." That time has now come to South Africa. We shall not submit, and we have no choice but to … fight (Mandela 1964).

Population-level health effects wrought by both conventional and asymmetric war should be of paramount importance to *bioethics*, a field focused on health and human values. Bioethics can contribute normative analyses of war by emphasizing this overlooked element of usual discussions about ethics and war.

BIOETHICS PRINCIPLES FOR WAR AND PUBLIC HEALTH

This section proposes a bioethics response to war stressing war's public health crisis and shows its implications for standard ethical approaches, including just war theory and military ethics. Our approach comprises part of a larger shift underway within the field to broaden bioethics to include public health concerns. Public health is pressing for bioethics for multiple reasons: a heightened awareness of structural injustices, such as racism and economic inequality; sobering reminders that infectious disease has not been conquered; increased knowledge of the impact of SDOH; and greater appreciation of the global scope of many bioethics concerns, such as climate change, migrant health, germline gene editing and access to essential medicines. Writing in 2002, Callahan and Jennings observed, "the time has come to more fully integrate the ethical problems of public health into the field… of bioethics" (Callahan and Jennings 2002). An obstacle they noted was "the predominant orientation in favor of civil liberties and individual autonomy that one finds in bioethics, as opposed to the utilitarian, paternalistic, and communitarian orientations that have marked the field of public health throughout its history" (Callahan and Jennings 2002). Fully including public health within the scope of bioethics requires conceptual retooling and expanding of bioethics principles to address public health concerns.

We propose a bioethics response to war that features six principles (Table 1).

The first four principles are deontologically based, justified not by consequences, but by conformity with fundamental moral duties. *Health Justice* prescribes distributing health-related benefits and burdens fairly, including health benefits and harms to civilian populations. It recognizes a special responsibility to populations most vulnerable to adverse health impacts, including women, children, displaced people, persons with disabilities, older people, and Indigenous Peoples (Levy 2022). This does not imply that civilians harmed by war can be returned to an *ex-ante* state. Nor does Health Justice assume a just baseline (Walker 2016). Instead, Health Justice "begins from and defines itself in terms of the reality of violation, alienation, and disregard among human beings" (Walker 2006). It attends to war's disproportionate impact on the health of civilian warzone populations, especially vulnerable populations. It considers civilian populations stakeholders during times of war as well as times of peace, and facilitates sustainable local efforts to meet their needs over the long haul.

The next principle, *Accountability,* holds warring parties accountable for war's effects on civilian populations. Responsibility also extends to the international community, including other nations and international organizations, such as the United Nations, International

Table 1. Bioethics principles addressing war as a public health crisis.

Ethics approach	Bioethics principle	Public health concern
Deontological	1. Health justice: Reduce the disproportionate burden war has on the health of civilian warzone populations, especially women and children	• Concern that death, disease, and injury are not justly distributed during war, because civilians, especially women and children, suffer most • Concern that war's impact on noncombatants can incite anger, leading to future violence and war
	2. Accountability: Hold warring parties accountable for war's public health impact	• Concern that framing 'collateral damage' as inevitable or unavoidable evades responsibility • Concern that indifference to suffering damages relations between warring sides
	3. Dignified lives: Uphold people's ability to lead dignified lives, including a minimal capability to be healthy	• Concern that war public health effects undercut the ability of large numbers of people to lead dignified lives
	4. Public health sustainability: Incorporate the sustainability of public health in the definition of war's 'success'	• Concern that 'winning' war amounts to a Pyrrhic victory when it significantly undermine SDOH,
Consequentialist	5. Nonmaleficence: Limit war's harmful effects on noncombatants	• Concern that war's impact on the health of civilians, especially women and children, may not be proportionate to war's imagined benefits
	6. Public health maximation: Compare the public health effects of war to its alternatives	• Concern that the alternatives to waging or continuing war are better from a public health standpoint

Criminal Court, and World Bank. While international humanitarian law permits collateral or incidental harms during war (provided requirements of necessity and proportionality are met), it does not obviate the need to attend to harms, nor does it sanction acts that humiliate and dehumanize people.

The ethical basis for Accountability is respect for persons, which is due to all individuals based on their dignity and worth *as persons*. Disrespecting people may involve not seeing persons as persons, but as something less, making tactics like rape, torture, or the use of human shields appear more acceptable. Accountability compels decisionmakers to extend dignity and recognition to the civilian victims of war, recognizing harms their decisions can create. Rather than tolerating gratuitous harms like sexual violence, Accountability demands warring parties be held responsible. The high degree of variation in wartime brutalities, like sexual violence, defeats the claim that these harms are inevitable, providing an empirical basis for accountability (Cohen, Green, and Wood 2013). Accountability should inform military policies, such as holding leaders accountable, and learning from armed conflicts where there is less unwarranted violence (Wood 2014).

Dignified Lives requires reasonable steps to ensure people in warzone populations can lead dignified lives. We operationalize Dignified Lives in terms of central human capabilities. Central capabilities include a list such as the following (adapted from Nussbaum (Nussbaum 2011) and Sen (Sen 1987), and defended at greater length elsewhere) (Jecker 2020):

- *life*: having a story or narrative that is still unfolding;
- *health*: being able to have all or a cluster of central capabilities at a threshold level;
- *bodily integrity*: being able to use one's body to realize one's goals;
- *senses, imagination and thought*: being able to imagine, think and use the senses;
- *emotions*: being able to feel and express a range of human emotions;
- *practical reason*: being able to reflect on and choose a plan of life;
- *affiliation*: being able to live for and in relation to others;
- *nature*: being able to live in relation to nature and other species;
- *Play*: being able to laugh, play and recreate; and
- *environment*: being able to regulate the immediate physical environment.

By causing many central capabilities to fall below a threshold considered minimal, war undermines people's ability to lead dignified lives. For example, it undercuts the ability to be minimally healthy by reducing people's access to SDOHs, such as housing, education, and healthcare. To lack the capability for health is not merely to lack resources or feel pain, but to be in a diminished state of human existence.

The last deontological principle, *Public Health Sustainability,* names the ethical requirement to maintain public health capacity for populations impacted by war. It requires sustaining the SDOHs that support people's ability to lead healthy lives, both during war and during war's aftermath (i.e., during peace). For example, war might force thousands of people to flee their homes, creating "physical and mental health problems during transit, in enforced encampments, and because of restricted entitlement to health care in countries hosting refugees. The disastrous effects might last for generations" (Razum et al. 2019). Public

Health Sustainability places these consequences squarely on the shoulders of military planners. It also links public health during war to public health during peace, supporting reliable systems that furnish health security over the long run.

The challenge of sustaining public health during war is exponentially greater when war is asymmetric. Insurgents may not hesitate to endanger civilians, using them as human shields, and benefitting politically if an enemy's response causes mass civilian casualties; thus "winning" modern asymmetric wars often entails "giving up on…any semblance of moral decency and simply killing and killing until the insurgents' civilian cover is literally gone" (Walzer 2015). Public Health Sustainability supports the claim that even when the costs of going to war are proportionate, the conduct of war may not be.

The next two principles are consequentialist. They judge the morality of war solely by its effects. *Public Health Maximization* prescribes creating the greatest balance of public health benefits versus harms. Determining how to maximize public health requires considering war's effects on SDOHs, e.g., schools, healthcare systems, and food security, and on the physical and mental health of warzone populations. When deliberating about war's necessity, Public Health Maximization instructs us to compare the impacts of war to its alternatives, such as economic sanctions, arms embargoes, diplomacy, nonviolent resistance, positive incentives, or military assistance. On this analysis, war's moral necessity turns on *ex ante* claims about the results of alternative futures, such as not acting to avert a threat. This assessment requires considering the chance that each alternative possibility would achieve (or come sufficiently close to achieving) war's objective. More than this, it requires considering, for each alternative, if it is likely to be effective in protecting basic human rights and distributing costs and benefits fairly (Pattison 2018). Lazar warns that when judging war's necessity, presidents and leaders, "almost always overestimate the likelihood of success from military means and overlook the unintended consequences of our actions," including public health impacts on civilian warzone populations (Lazar 2020). Even if an alternative to war *initially* appears unlikely to work, there might still be reason to try it after public health costs of war are weighed. Considering public health can be what the WHO calls, a "bridge to peace" (World Health Organization (WHO) 1996). For example, in El Salvador emphasizing public health led to short term ceasefires and laid the groundwork for better relations when, at the height of the country's civil conflict, 1-day truces were negotiated between government and guerrilla forces, following "a painstaking process that involved PAHO, UNICEF, the Red Cross, and the Catholic Church;" the truces made it possible to immunize against polio, diphtheria, whooping cough, tetanus, and measles (De Quadros and Epstein 2002).

By upholding each of the six principles, bioethicists express support for civilians on *both sides* of an armed conflict. Just as Doctors Without Borders pledges to "providing the highest quality medical care possible—no matter where we're working—and to acting in our patients' best interests, respecting their rights to dignity, confidentiality, informed consent, and to make their own decisions," (Médecins Sans Frontières 2022) bioethicists must make a parallel commitment: providing the best ethical analysis possible, no matter where we are. Enacting this commitment requires expanding bioethics concepts and principles in ways that enable bioethicists to grapple with the kind of large-scale challenges war presents. While more familiar bioethics principles, such as autonomy, beneficence, nonmaleficence and justice, have an abiding place, they are not alone sufficient to tackle concerns of the scale and magnitude the field currently faces.

JUSTIFYING AND APPLYING BIOETHICAL PRINCIPLES

This section adds depth to the bioethical analysis of war by identifying a supporting ethical theory or framework for each bioethics principle. While we do not defend the underlying theories and frameworks, we show how to draw on them to plausibly defend the principles. The section, "Justifying and applying bioethical principles" also shows how the proposed principles make a difference in standard ethical analyses about war, using military ethics and just war theory to illustrate.

Supporting Theories and Frameworks

Health Justice gains normative backing from philosophical arguments supporting a right to health. A right to *health*, as opposed to healthcare, highlights that more than healthcare is needed to secure the health of populations. People also require various SDOHs, such as education, housing, sanitation, clean water, and decent conditions for living and working. The WHO first recognized health as a fundamental right of all human beings in the preamble to its 1946 Constitution, defining it as the right of every human being "to a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity;" the preamble called for

"enjoyment of the highest attainable standard of physical and mental health" (World Health Organization (WHO) [1946] 2019). The International Covenant on Economic, Social and Cultural Rights grounded this right in intrinsic human worth and dignity and urged states to realize it by ensuring that everyone within their jurisdiction has access to SDOHs.

Independent of its status in international law, a right to health can be grounded morally on philosophical theories of justice. The capability approach to justice (discussed in the section, "Bioethics principles for war and public health") offers such grounding. While a right to health of the sort set forth by the WHO has been derided as impractical or overly demanding, Hassoun defends it against these objections, arguing that a right to health is limited in scope, protecting only remediable threats, i.e., "socially controllable determinants of health" where "it is possible, and otherwise permissible, to provide" what the right requires (Hassoun 2020). A right to health is less demanding when it is understood as something that can be progressively realized, beginning with support for groups whose health is at greatest risk or is already imperiled.

Accountability is anchored in the philosophical idea of passive injustice and the related concept of structural injustice. Both ideas enlarge justice's scope to encompass responsibility for omitting actions necessary to dismantle unjust systems and practices. Skhlar characterizes "passive injustice," as "a civic failure to stop private and public acts of injustice" and gives as examples mundane wrongs that accumulate gradually: not reporting crimes, turning a blind eye to cheating or minor theft, tolerating political corruption, and being silent in the face of unjust, unwise, or cruel laws (Shklar 1990). Young defines "structural injustice as 'processes that put large groups of persons under systematic threat of domination or deprivation of the means to develop and exercise their capacities, at the same time that these processes enable others to dominate or to have a wide range of opportunities for developing.'" (Young 2011) Unlike liability models of responsibility found in law that blame individuals who act in ways that cause unjustified harms, structural justice models of responsibility allow for the possibility that individuals who "did nothing" might be liable. Structural justice approaches regard those who dwell within a system of interdependent cooperation and competition responsible for remedying injustices those systems generate. For example, people who benefit from systemically racist systems of education or housing have responsibility to act to dismantle these systems' racist elements. Structural injustice often links to the duty to provide public health during war because the triggers for armed conflict often include oppressive structures left to fester, such as extreme poverty; racial oppression; or resentment toward colonizers who oust territories from indigenous people.

As noted (in the section, "Bioethics principles for war and public health"), *Dignified Lives* gains justification from capability theories first advanced by Nussbaum and Sen. Capability approaches hold that health is constitutive of human dignity, not just a means to outside ends, such as enhancing well-being. Venkatapuram argues that the capability for health is key to dignity because it underlies many other capabilities, characterizing it as a metacapability that underlies all or a cluster of central human capabilities (Venkatapuram 2011).

Public Health Sustainability finds support in ethical arguments that show the special importance of maintaining health. For example, Daniels theory of just health holds that health's special significance is due to the connection between health and having access to a normal range of opportunities (Daniels 2008). For Daniels, safeguarding not just access to healthcare, but to the broader SDOH, is needed to ensure that people can enjoy fair equality of opportunity over the lifespan.

Principles of *Nonmaleficence* and *Public health Maximization* are rooted in utilitarian theory, which prescribes producing the greatest expected utility for all affected parties. Applied to discrete acts, utilitarian calculations seek to maximize the balance of benefits over harms for everyone equally. A more common interpretation applies utilitarian principles to wartime policies and practices. When policies and practices are plausibly linked to military objectives, they gain preliminary support. However, a fuller utilitarian calculation after a military assessment occurs must consider war's long-term effects on civilian populations.

Just War Theory

Just war theory affords a useful way to bring out the impact of bioethical analyses focused on public health. The theory, which dates to the Middle Ages, is among the most influential approaches to warfare to date. Its influence spans the globe. Both the Geneva (1949) and Hague (1899 and 1907) conventions, and their subsequent protocols, embody the theory's central tenets, such as targeting only combatants and military sites, limiting interrogative methods involving torture or genocide, and using proportionate force. Contemporary just war theory divides the justice of war into two parts: *jus ad bellum* and *jus in bello. Jus ad bellum* refers to the morality of engaging in war, while *jus in bello* indicates the moral conduct of war once underway. A standard

Table 2. Just war principles.*

	Principle	Definition
Jus ad bellum (Justice of War)	Just cause	The war is an attempt to avert the right kind of injury
	Legitimate authority	The war is fought by an entity that has the authority to fight such wars
	Right intention	That entity intends to achieve the just cause, rather than using it as an excuse to achieve some wrongful end
	Reasonable prospect of success	The war is sufficiently likely to achieve its aims
	Proportionality	The morally weighted goods achieved by war outweigh the morally weighted bads
	Last resort (necessity)	There is no less harmful way to achieve a just cause
Jus in bello (Justice in War)	Discrimination	Belligerents must always distinguish between military objectives and civilians, and intentionally attack only military objectives
	Proportionality	Foreseen but unintended harms must be proportionate to the military advantage achieved
	Necessity	The least harmful means feasible must be used

*Summarized from Lazar S., 2020. War. In *Stanford encyclopedia of philosophy*, ed. E. N. Zalta. https://plato.stanford.edu/archives/spr2020/entries/war/.

account is Lazar's (Table 2), which distinguishes six *ad bellum* and three *in bello* principles (Lazar, 2020).

By underscoring war's downstream effects on food supply, pollution, disease, and health infrastructure, the six bioethics principles force a reckoning with war's wider consequences. This can change the calculations of just war theory, narrowing the range of war considered morally permissible. Specifically, bioethical analysis suggests a critique of just war theory that includes the principle of proportionality and the duty to provide medical care during war and war's aftermath.

The Principle of Proportionality

Just war theory maintains that war is proportionate when it prohibits attacks against military objectives that are "expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated" (International Committee of the Red Cross (ICRC), n.d.).

Proportionality, along with the condition of last resort (also known as necessity), are standardly considered essential requirements for justifying the use of force (*jus ad bellum*); they also factor into the ethical assessment of the way war is conducted (*jus in bello*). Proportionality calculations tend to focus exclusively on loss of life, limb, and property. Rarely do they consider near- and long-term public health impacts. Bioethics principles apply after proportionality is considered, situating Proportionality within the wider context of *population health*. This shift of emphasis toward public health carries implications for how we assess the justice of waging or continuing war. Thus, bioethics principles compel asking if the impacts of war on a society's SDOH are proportionate to the potential benefit of military aims. Extending ethical analysis of war to include public health applies a wide-angle lens, forcing us to see beyond the immediate loss of life, limb, and property, to war's foreseeable short- and long-term public health impacts. This opening of aperture challenges background assumptions often built-in to proportionality. As Crawford cautions, the values associated with calculating proportionality can depend on the eye of the beholder. Thus, the legitimacy of foreseeable collateral damage is "attributable to the *valuing of military necessity above civilian protection*" (Crawford 2013). By stressing public health, and the long-lasting effects of wartime decisions on SDOH, bioethics assessment compels reassessment of these background assumptions.

This shifting of emphasis will sometimes result in ethical evaluations turning out differently. To illustrate, consider U.S. President George Bush's decision to go to war against Afghanistan in response to al Qaeda's attacks against the U.S. on September 11, 2001. The al Qaeda attacks reportedly killed 2,977 people and injured many more. After a decade's long hunt for al Qaeda's leader, Osama bin Laden, ended in bin Laden's death, the war dragged on for another eight years, until U.S. and NATO forces reached agreement to formally end it in 2020. Whether the *jus ad bellum* requirement of self-defense was met is debated (Ahmad 2021); regardless, considering bioethics principles of war force our hand, bringing into the open the full human costs of the Afghanistan war, and weighing U.S. military objectives against these public health impacts.

How might bioethicists have weighed the decision to continue the war after bin Laden's death? We know now that the war took a tremendous toll, but at the time, from the perspective of military planners, the war might have seemed a success, since it supported a government free from Taliban rule and terrorist elements. Yet bioethicists drawing on the proposed bioethics principles might focus attention elsewhere, stressing ways in which war undermines civilian lives and health. Afghan civilians had already faced years of war and armed conflict; ongoing war further exacerbated health harms they were already subject to,

such as elevated disease rates from poverty, malnutrition, poor sanitation, lack of access to healthcare, and environmental degradation (Savell 2023). As the war continued, dignified lives were further eroded: unexploded land mines killed, injured and maimed civilians; mental health conditions escalated, affecting the majority of Afghans (two-thirds in 2009); U.S. forces relaxed rules of engagement for airstrikes over Afghanistan (in 2017), resulting in sharp increases in civilian deaths (a 330% increase between 2017 and 2020); the CIA's arming of Afghan militia to fight Islamist militants led to "serious human rights abuses, including extrajudicial killing of civilians" (Brown University Watson Institute for International & Public Affairs 2023; Crawford 2020). Bioethics assessment would have stressed these and related concerns, affording a crucial counterweight to military assessment. At the time, bioethical analysis was left out, which might have skewed assessments of proportionality in favor of military objectives. As Crawford stresses, "The abstract rights of noncombatants to protection are put at grave risk by the logic of military necessity and a failure to attend to the foreseeable consequences of operations" (Crawford 2013).

Evidence shows that Afghan society continues to suffer public health harms from the war today (Ahmadi and Sultan 2023). In a project examining costs of the 9/11 war, Savell reported the total death toll in the post 9/11 war zones of Afghanistan, Pakistan, Iraq, Syria, and Yemen to be at least 4.5–4.7 million and counting. While some resulted from fighting, most (3.6–3.8 million) were war-related health problems from war's damaging effects on economies, public services, and the environment:

> (1) Economic collapse, loss of livelihood and food insecurity; (2) destruction of public services and health infrastructure; (3) environmental contamination; and (4) reverberating trauma and violence. All these problems have led to increased malnutrition, illness, health complications, and death. Forced displacement… spurs some of the worst outcomes and increases people's vulnerability to the negative health impacts of all causal pathways…In practice, these pathways often overlap with and intensify one another, especially over time and with many compounding factors, such as natural disasters like droughts (Savell 2023).

While men were more likely than women to die in combat in post-9/11 wars, Savell reports that women and children were more likely to be killed by war's indirect impacts.

Stepping back from the analysis of this section, bioethical analysis adds crucial missing elements to the ethical evaluation of the Afghanistan war. Military ethics is not designed to consider health justice, accountability for public health, dignified lives, public health sustainability, nonmaleficence or public health maximization. Gross, one of the few bioethicists to discuss war as a public health problem, describes military reasoning this way: "Soldiers are entitled to medical care subject to their salvage value [i.e., their ability to return to war], enemy combatants receive care only insofar as they are nonthreatening, and civilians, including soldiers who cannot return to duty, warrant scarce medical resources subject to the dictates of military necessity and general welfare" (Gross 2006). On this analysis, respect for persons is contingent on war's exigencies. Gross amplifies this point by saying that respect for persons is among the first casualties of armed conflict; in military ethics, "combatants lose their right to life as they gain the right to kill" (Gross 2004). What military ethics captures best is the imperative to balance force protection and civilian protection. However, "civilian protection" does not encompass public health and the imperative to safeguard the basic SDOH.

Supplying Medical Care During War

A further implication of bringing bioethical analyses to bear concerns the duty to provide medical care to civilians during war, a duty historically neglected. Perhaps owing to its heavy reliance on traditional just war theory, the First Geneva Convention of 1864 provided medical care only for combatants. At that time, it was "considered evident that civilians would remain outside hostilities" (The Geneva Conventions of 12 August 1949). Not until the Fourth Geneva Convention of 1949 did the emphasis widen, owing both to the development of modern weaponry and to heightened awareness that "civilians were certainly 'in the war,' … exposed to the same dangers as the combatants—and sometimes worse" (The Geneva Conventions of 12 August 1949). Despite this recognition, concerns linger. Assurances of impartiality notwithstanding, Gross reports that the duty of occupying forces is "subject to available resources and military requirements," without any commitment to make reasonable efforts to ensure a minimal standard of care (Gross 2021). In short, medical care to civilians during war is subordinate to military necessity.

Statements made throughout the 1949 Convention lend support to this analysis. For example, Article 55 allows requisitioning medical supplies in an occupied territory for use by occupation forces once "the civilian population has been taken into account;" (Geneva Convention, 1949) Article 57 permits an occupying power to requisition civilian hospitals, albeit "only temporarily and only in cases of urgent necessity for

the care of military wounded and sick;" (The Geneva Conventions of 12 August 1949) Article 60 indicates that an occupying power may "divert relief consignment…in cases of urgent necessity" (The Geneva Conventions of 12 August 1949). Given the reality of wartime resource shortages, these affordances leave potentially wide gaps in care for civilians.

Bioethics principles (like Health Justice) stressing the disproportionate burden war places on the health of civilian warzone populations, place emphasis elsewhere, i.e., on the abiding duty to care for civilian populations. Bioethical analysis aligns well with ethical principles put forth by the ICRC, the WMA, the International Committee of Military Medicine (ICMM), the International Council of Nurses (ICN), and the International Pharmaceutical Federation (IPF). These groups agree that "Ethical principles of health care do not change in times of armed conflict and other emergencies and are the same as the ethical principles of health care in times of peace ICRC WMA, ICMM, ICN, and FIP 2015). They maintain that during armed conflict, health professionals remain bound by a duty "to preserve human physical and mental health and to alleviate suffering." Bioethics brings these enduring ethical concerns to the fore, placing military necessity in a broader context of healthy human lives. While it might be argued that during war, military objectives, not civilian lives, should be front and center, our reply is that warzone populations are not external to, but an essential feature of, war.

Supplying Medical Care During War's Aftermath

The duty to provide medical care to civilians during war extends to the period of reconstruction following war, which some contemporary just war theorists dub, *jus post bellum*. Bass explains, "in order for a state to wage a just war, it must demonstrate not only that it went to war for good reasons, but also that its post-war conduct was consistent with those ends: helping to make the region more stable and secure, and leaving the affected populations less subject to violence and oppression" (Bass 2004). Despite this understanding, Orend notes an absence of practical ground rules during war's aftermath and an urgent need for ethical reasoning. Lacking ground rules can:

> encourage extremism and arbitrariness on the part of the victor during the settlement process, and evasiveness, resentment, and plans for future revenge on the part of the vanquished. The lack of law causes enormous interpretative problems regarding what constitutes a reasonable peace settlement, since there are not even general guidelines in place from which to launch a fair dialogue and negotiation process (Orend 2000).

Bioethics can help to fill this gap. During war's aftermath, supporting public health becomes less risky to people on the ground, and what is established promises to be more sustainable than it was when war was underway. Each of the six bioethical principles continues to apply during war's aftermath, and the threshold for public health should generally be set higher. Since the effectiveness of different humanitarian health approaches is poorly understood, part of what is needed is data on which interventions are most effective. Yet what counts as "effective" clearly embeds goals and values. For this reason, Banatvala and Zwi also urge building a knowledge base critically examining the values at stake (Banatvala and Zwi 2000):

> in addition to evidence of…efficiency, evidence related to other dimensions of health interventions, such as their humanity, equity, local ownership, and political and financial feasibility, is important. How these relate to humanitarian principles of independence, impartiality, and neutrality warrants further analysis and debate (Banatvala and Zwi 2000).

The six bioethics principles introduced in the section, "Justifying and applying bioethical principles" give grounds for saying that effective humanitarian interventions during war's aftermath should comprise part of any adequate definition of a "just war." Thus, *Health Justice* incorporates a *restorative* dimension. If warring parties simply took leave when hostilities ended, omitting efforts to restore healthcare and other SDOHs, they would convey indifference toward warzone populations—"the antithesis of restorative justice" (Walker 2006). At the same time, once restoration is underway, departing a warzone eventually becomes essential. As Bass notes, Health Justice following war is time limited, because it is imperative to respect a conquered group's sovereignty and avoid colonization (Bass 2004).

A possible objection to the arguments set forth in this section is that war as a public health crisis is beyond bioethics' proper scope. Yet, in reply, it is hard to say where bioethics' horizons lie. Just as bioethicists have grown their knowledge base and contributed to global debates about climate change, mass migration, poverty, incarceration, gun control, and structural racism, bioethicists can and should expand their horizons to consider war's profound effects on population health. Considering war as within bioethics' purview does not imply that it is every bioethicist's job to address it. However, as a field, bioethics should address war, especially the intersection of war and public

health. More broadly the field should address public health during *war and peace*.

FROM PRINCIPLES TO PRACTICE

Incorporating war and public health into the field requires bioethicists to engage more with this topic in their research, teaching, and service (Table 3).

Research

Developing a body of bioethics research on war and public health provides the scaffolding needed to enhance bioethics education and service. To facilitate exchanges of ideas and foster collaborations, groups organizing bioethics conferences should include war as a topic. Funders should prioritize it. Publishers of bioethics journals and books should create space for it. Collaborations between researchers in public health and bioethics should be encouraged to consider it.

Bioethics research on war and public health should be comprehensive, spanning not only crisis response but also war's precipitating factors, such as poverty, food insecurity, and lack of access to education and healthcare. Levy cites upstream sources of war as including "attempts to gain political power…or control over resources…militarism and availability of weapons, poor governance, intergroup animosity, and environmental stress" (Levy 2022). War can be rendered as "part of a spectrum of violence that includes *structural violence*—'the ongoing and institutionalized harm done to individuals by preventing them from meeting their basic needs for survival, well-being, identity, and freedom.'" (Levy 2022) Other research topics include clarifying the relationship between local cultures and international aid (Lidén 2019).

Table 3. Incorporating bioethics principles for war in research, teaching, and service.

Targets	Examples
Research	Discuss war at bioethics conferences; feature thematic issues on war in bioethics journals; fund bioethics research addressing war and public health; collaborate with public health researchers; consider war's precipitating factors
Teaching	Develop curriculum for bioethics and public health trainees that encompasses diverse normative approaches; host public lectures; offer workshops; develop case studies for teaching about war and public health ethics; encourage professional societies to sponsor online seminars and courses
Service	Offer ethics facilitation and mediation during war and its immediate aftermath; advocate for warzone populations; partner with public health agencies at all levels

Teaching

As bioethics education increasingly takes on global health challenges, curriculum addressing war and public health is called for. Drawing on a still emerging body of bioethics research, bioethicists should host public lectures, develop courses, compile cases, and design other training materials. Bioethics teaching about war should encompass diverse normative approaches. While consequentialist theories often dominate ethics debate about war, normative analyses based on deontology (Löfquist 2018; Mitrović and Zack 2018), capabilities (Crabtree 2018), human rights (Ten Have 2018), virtue ethics (Fisher 2011; Kalokairinou 2018), and other ethical frameworks (Voice 2018) have emerged and merit consideration.

Professional societies can do their part to advance bioethics education by sponsoring online workshops and courses for members that address war as a public health crisis. Some professional groups may elect to issue statements or take positions on war in general or on specific armed conflicts by drawing on bioethics principles; such efforts can give guidance to policymakers and enhance the rigor of public debates.

Service

Building on methods deployed by ethics consultants in clinical settings, bioethicists should consider serving as ethics facilitators during war and its aftermath. In clinical settings, "ethics facilitation" consists of efforts aimed at "clarifying the ethics concern(s) and question(s) that need to be addressed, gathering relevant information, clarifying relevant concepts and related normative issues, helping involved parties to identify a range of ethically acceptable options, and providing an ethical justification for each option." (ASBH Core Competencies Update Task Force, 2013) Ethics facilitation also includes, "ensuring that involved parties' voices are heard" and "ensuring that identified options comport with relevant bioethics… standards. " (ASBH Core Competencies Update Task Force, 2013) While ethics facilitation skills are routinely applied to clinical contexts, they are rarely invoked beyond this, to a wider range of settings where the health of populations is at stake.

Just as a well-structured bioethics assessment can improve process and outcome for clinical medicine decisions (Dubler and Liebman 2021), so too it might enhance war-related decisions, cultivating an ethics environment that takes more seriously bioethics principles of Health Justice, Accountability, Dignified Lives, Public Health Sustainability, Nonmaleficence, and Public Health

Maximization. While clinical ethics consultants serve as patient advocates, wartime bioethics facilitators could serve as advocates for civilian war-affected populations.

It might be objected that advocating for warzone populations leaves little room for taking sides during an unjust war. In response, the greater risk is not that bioethicists will refrain from choosing sides, but that they will choose sides in ways that undermine their authority to advocate for public health broadly. Bioethics as a field should consider emulating the WMA, "a group that stresses a commitment to humanity which applies to all patients;" for this reason, physicians caring for patients have a professional mandate "to always give the required care impartially and without discrimination based on age, disease or disability, creed, ethnic origin, gender, nationality, political affiliation, race, sexual orientation, or social standing or any other similar criterion" (WMA 2004). This commitment to humanity justifies the privileges of protection enjoyed by medical personnel during warfare. A parallel claim for bioethicists might be that what warrants our authority to speak about war and public health is that bioethical analysis embodies impartial concern for human health broadly understood. This does not preclude bioethicists from taking sides during war provided they provide bioethical analysis in a way that gives each side an equal hearing. Similarly, it is acceptable for medical personnel to think that one side is just and the other unjust, so long as they deliver equal medical care to people on both sides.

CONCLUSION

In closing, bioethicists should follow the lead of public health researchers who recently turned their attention to war's public health effects. In 2009, the APHA urged its members to confront the public health consequences wrought by war, noting that

> For the most part, discussion of war and its impacts is missing from the public health agenda…. Public health professionals have tended to set aside this problem as an inevitable force in the world that seems impossible to change, with the direct and indirect effects on our daily work easily hidden from view. That mindset must change (APHA 2009).

Likewise, as bioethicists, we should commit to address the public health consequences of war, and call attention to war's full human cost. Doing so is a sober reminder of our shared human stake in peace.

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