

USE OF PUBLIC HEALTH METRICS AS INDICATORS OF IMPENDING VIOLENT  
CONFLICT OR PEACE PROMOTION TOOLS

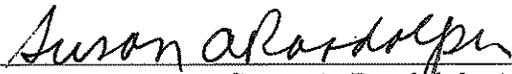
By

Nicole M. J. Martin

A Master's Paper submitted to the faculty  
of the University of North Carolina at Chapel Hill  
in partial fulfillment of the requirements for the degree of  
Master of Public Health  
in the Public Health Leadership Program.

December 2016

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11/22/2016

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## ABSTRACT

The purpose of this paper is to assess the potential for the field of public health to actively contribute to violent conflict prevention by ascertaining which public health metrics may be indicative of impending violent conflict and identify examples of public health interventions being used to promote peace and reduce the risk of violence. Several public health indicators were found to be predictive of conflict and include demographic changes such as increased population density or infant mortality; large population displacement such as increases in refugees or migrants; degradation of public services like delivery of healthcare and education; malnutrition and related food shortages or lack of safe water; increased mortality and injury associated with collective violence; decreased access for women to healthcare, education and employment with concomitant increases in the sex trade and domestic violence; and in some cases, increased incidence of certain infectious diseases.

There was limited evidence that public health interventions prevent conflicts or health interventions contribute to lasting peace efforts. Several potential tools can aid in conflict prevention efforts including Health Impact Assessments, health relief and development initiatives as part of peace promotion efforts, and global health diplomacy. Public health practitioners should make addressing violent conflict a public health and political priority by accurately documenting its catastrophic effects on health, aiding in prevention by building evidence regarding risk factors and effective primary prevention interventions, and collaborating with practitioners from other disciplines to study and evaluate risk assessment and primary prevention strategies. By using existing public health skills and monitoring systems, public

health professionals can become true partners with other disciplines to apply public health expertise to this pressing problem.

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## **LIST OF ABBREVIATIONS**

APHA	American Public Health Association
USAID	United States Agency for International Development
UNHCR	United Nations High Commission for Refugees
UNDP	United Nations Development Program
WHO	World Health Organization
WFPHA	World Federations of Public Health Associations

# CHAPTER I

## INTRODUCTION

War and other forms of violent conflict have dire health consequences. Besides the direct loss of life, injury, and disability from weapons and fighting, health care infrastructure is often destroyed, supply chain for food, safe water, and medical supplies may be disrupted, torture and rape may be used against the population, and environmental damage or pollution may persist long after an armed conflict has ended (Levy & Sidel, 2008). It is also recognized that violent conflict has root causes and interventions can be used at different stages for prevention just as with disease (De Jong, 2010).

### **Purpose of Paper**

The purpose of this paper is to examine the use of global public health indicators to predict impending violent conflict, locate any examples demonstrating the strategic use of these indicators and subsequent public health interventions in preventing violent conflict, and gain insights on how these practices can be applied to public health policy. This scholarly investigation focuses primarily on two specific questions:

1. Are some public health metrics predictive of war or violent conflict?
2. Can public health interventions be used as conflict prevention tools?

Key findings from the reviewed literature showed that there are several public health metrics that are predictive of violent conflict. These include demographic factors, social factors, economic factors, and political factors. Within these subgroups of factors there are a few key public health metrics that are indicative of impending conflict though the exact mechanism of their influences is not always known. Some examples of these include demographic changes,

displaced populations, availability and performance of public services such as healthcare, and insufficient access to food and safe water (Fund for Peace, 2016; Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002; Levy & Sidel, 2008; Van de Goor & Verstegen, 2000). There is limited to no evidence that key public health interventions to address some of these predictive factors have been used or evaluated in the past to prevent conflict and promote peace in areas with conflicts. This may reflect a bias in public health towards reactive versus proactive interventions as many health professionals focus on the downstream effects of violent conflict on health or in post conflict settings in terms of conflict epidemiology or crisis response (American Public Health Association [APHA], 2009; Guha-Sapir & Van Panhuis, 2002). This bias may also be partially due to the fact that data surrounding conflict are difficult to collect, causation in terms of violent conflict prevention is multifaceted, and the field suffers from a lack of models and theories for evaluation (APHA, 2009).

## **CHAPTER II**

### **THEORETHICAL PERSPECTIVE**

#### **Brief Overview of War, Violent Conflict, and Conflict Prevention**

Violent conflict for humanity is nothing new. There are several levels of interpersonal and collective violence. Categories of violence often overlap or may occur at the same time, and are often difficult to clearly define (Rutherford, Zwi, Grove, & Butchart, 2007). War dates back for centuries and has always exacted a heavy toll on human life and health (Guha-Sapir & Van Panhuis, 2002). There are several definitions of violence, armed conflict, war and collective violence outlined below.

#### **Definitions**

Violence is defined by the World Health Organization (WHO) as

...the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation. (Krug et al., 2002, p. 4)

War is defined generally as a conflict between two states or governments (Uppsala University, 2014) and armed conflict is defined as “a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths” (Uppsala University, 2014, Armed conflict, para 3). War is also defined as “armed conflict conducted by nation states” but may also refer to “armed conflict within a nation” or “armed action by a clandestine group against a government or occupying force” (Levy & Sidel, 2008, p. 3). Collective violence refers

to “instrumental use of violence by people who identify themselves as members of a group...against another group or set of individuals, in order to achieve political, economic or social objectives” (Krug et al., 2002, p. 240). Conflict can be represented by anything from secession to state collapse or failure, can be intra or inter state and range from violent repression to genocide (Van de Goor & Versteegen, 2000), which makes it difficult to clearly describe using a single category or definition. This paper discusses violent conflict both between and within nation states. For the purposes of this paper, “violent conflict” will be used to refer to collective violence as well as armed conflicts that may occur within and between states and non governmental actors.

While interstate conflicts or wars between nation states has been on the decline since 1999, there has been an increase in other types of conflict-related violence such as terrorist attacks, non combatant war-related deaths, and organized violent attacks against civilians by non state actors (Levy & Sidel, 2008). However, armed or violent conflict continues to have huge costs on modern society. The Global Burden of Disease Study noted that in 2015 the disability directly associated with collective violence and legal intervention (including war) worldwide totaled over 12 million disability adjusted life years worldwide with deaths of approximately 170,000 individuals (Institute for Health Metrics and Evaluation, 2015). Estimates of deaths related to armed conflict in the 20th century range from 110 million to 149 million (Garfield, 2008) while some studies calculate additional deaths resulting from genocide, slavery and trafficking, famines, and other events associated with war and conflict could bring the total to approximately 231 million for the entire century (Leitenberg, 2006). During violent conflicts, International Humanitarian Law, designed to protect civilians during wars, is often disregarded

and results in deliberate targeting of civilians, health workers, the injured or disabled, and other protected groups (Jaff, Singh, & Margolis, 2016).

Conflict prevention, according to the Johns Hopkins School of Advanced International Studies (2016, Overview, para 1), includes “a wide range of policies and initiatives; its aim is to avoid the violent escalation of a dispute.” It can include monitoring/intervening to stabilize a volatile conflict by addressing root causes or trigger of a dispute, establishing system to detect early signs and indicators predictive of violence, preventing the creation of conflict through coordination when delivering development aid, and institutionalizing conflict prevention concepts at every level (Johns Hopkins School of Advanced International Studies, 2016).

Though violent conflict frequently brings to mind the field of military security, King and Murray (2001) argue that the fields of international development and security have become significantly more intertwined. They used the concept of “human security,” the idea of focusing on improving the lives of people rather than a concept of security of national borders, to describe this marriage of fields. They theorize that continued linkages across these fields, including the public health arm of development, can improve human security and foreign policy. In relation to violent conflict, a major threat to human security that often overlaps with foreign policy and national security concerns, they advocate for public health involvement most in the role of supporting risk assessment and prevention as well as an active role in mitigation of the consequences and effects of these conflicts while the conflict is ongoing or post conflict.

### **Public Health Effects of Violent Conflict**

Public health transects many other disciplines and seeks to identify root causes or determinants of poor health that occasionally may overlap root causes of violent conflict. Public health as a field should also have a vested interest in conflict prevention as violent conflicts

destroy the health and wellness of the population that participates in or endures them. Both the World Federation of Public Health Associations (WFPHA) and the APHA espouse war and violent conflict as preventable and amenable to intervention efforts. Both organizations advocate for the active participation of public health practitioners in the prevention and mitigation of its effects (APHA, 2009, WFPHA, 2011). Violent conflict has a number of impacts on public health metrics including death and injury from fighting, profound and deep mental trauma, displacement of populations, disruption of infrastructure and provision of health and social services, and increased risk of disease transmission (Murray, King, Lopez, Tomijima, & Krug, 2002). Medact (2013) noted that healthcare of any kind is more difficult to deliver in these environments and transmission of communicable diseases is more likely due to disruption of health and public health services, environmental contamination, or difficulty in providing safe water and sanitation. Poor living conditions or displacement might occur along with malnutrition and food insecurity while chronic illness often goes untreated and pharmaceutical supply chain may be disrupted. Mental health illness can become widespread within populations exposed to violence (Levy & Sidel, 2008). Levy and Sidel (2008) also discussed “indirect” effects of war or violent conflict that may continue long after hostilities have ceased to include three major categories: diversion of resources, domestic and community violence, and damage to the environment. Often human rights violations accompany war and violent conflicts including targeting of non-combatants, torture, unlawful detention, policing of daily life, or denial of free speech (APHA, 2009). Militarism can divert critical government funding away from public health priorities and increase normative levels of violence, while veteran or displaced populations increase demands on health systems (WFPHA, 2011).

It is well documented that conflict is a major cause of death and disability worldwide but its exact effects are difficult to assess (Levy & Sidel, 2008). During conflicts, measuring public health data is difficult for a myriad of reasons which may include loss of data collection infrastructure, destruction of health information systems, security threats limiting mobility and organizational operations, and/or deliberate concealment or misrepresentation of loss of life and injury by the offending parties (Murray et al., 2002). Countries suffering violent upheaval may also experience rapid population shifts or displacements that limit the population's access to health services to have data recorded (Levy & Sidel, 2008).

### **Public Health as a Tool for Conflict Prevention**

There are many difficulties in assessing interventions that prevent conflict or promote peace. How could the impact of a conflict that has not occurred be measured? While that may not be simple or currently possible, the data surrounding nation states that have descended into war or violent conflict can be explored to find indicators predictive of such strife, just as data are used to evaluate and predict risk for disease. At the time United States Agency for International Development (USAID) was created, President Kennedy acknowledged the role of development aid in preventing the collapse of developing-country government and the need to promote peace and stability globally in the interest of U.S. national security and economic interests (USAID, 2009). Foreign policy for many countries continues to link development aid, which often includes health system and public health interventions, to matters of national security and political stability (Alexander, 2009). The Clingendael Institute (Van de Goor & Versteegen, 2000) argued that there are a number of factors that can lead to escalation of violent conflict and that these factors can be grouped into more useful predictive clusters. They also argued that though conflict prevention interventions might be unable to effectively address root causes in the short

term, interventions for proximate or triggering causes might be more susceptible to prevention efforts.

If certain metrics within the realm of public health are predictive of conflict, then it stands to reason that interventions targeting these areas or their root causes might be useful for preventing violent conflict and promoting peace in at risk communities. Levy and Sidel (2008) argued that the role of public health professionals in preventing violent conflict could be multifaceted. They recommended public health practitioners continue to pursue surveillance and documentation of the health effects of war and its contributing factors. They also advocated for public health workers to provide education and raise awareness of the health effects of wars and advocate for policies and interventions to promote peace and mitigate the health consequences of violent conflict. They reasoned that public health interventions and actions could address prevention of violent conflict in the way disease is approached: using primary, secondary, and tertiary prevention. Primary prevention, that is, “preventing war or causing a halt to a war that is taking place” (Levy & Sidel, 2008, p. 15), is the primary focus of using the indicators and tools reviewed in this paper.

## CHAPTER III

### METHODS

This paper attempts to answer the following questions relating public health metrics to violent conflict and conflict prevention specifically:

1. Are some public health metrics predictive of war or violent conflict?
2. Can public health interventions be used as conflict prevention tools?

These questions are addressed through a non-systematic but rigorous review and analysis of policy documents and academic literature pertinent to public health and the prevention of violent conflict or war with some assessment of case studies involving real life application. An examination of the literature was performed using the search terms “war,” “conflict,” “public health,” “public health and conflict prevention,” “public health and peace building,” “conflict indicators,” and “public health interventions for peace.” Searches were conducted using numerous databases including Google Scholar, Pub Med, MEDLINE, Articles+, and Science Direct with over 150 results.

#### **Limitations**

A limitation of this paper is that stringent selection criteria for inclusion of published articles are not useful for addressing such interdisciplinary questions. An understanding of the relationship between public health and armed conflict or war comes from examining papers and articles across a broad range of public health, political science, foreign policy, and international relations literature, and from incorporating case studies of conflicts that are difficult to target with search queries. However, the criteria for selection for review for academic literature included English language publications, post 2000 publication date, and publications subject to

peer review. The articles selected directly addressed the relationship between public health metrics and violent conflict/war or the role of public health in peace promotion. Thus, this paper is not a comprehensive assessment of every published article related to this subject; rather, it seeks to provide a review of key existing literature that illuminates the relationship between public health metrics and conflict prevention.

## **CHAPTER IV**

### **DISCUSSION**

#### **Public Health Metrics and Surveillance/Monitoring Systems**

Levy and Sidel (2008) argue that a public health approach to prevention can be applied to war and violent conflict. This approach is scientific in nature and in keeping with epidemiology theory, begins with a definition of the problem. They go on to describe the stages of prevention that include identifying underlying or root causes along with risk or protective factors of violent conflict, development and analysis of interventions that reduce risk and lastly, wide dissemination the ideas and implementation of interventions to change outcomes.

Due to the field's broad nature, public health metrics stem from and intersect with a number of fields and can come from a number of sources. The field of public health has become increasingly focused on the social determinants of health with a deeper appreciation and understanding of the profound influence social and environmental factors have on health (Bartlein, Kanter, Wade, & Hagopian, 2013). The World Health Organization (Commission on Social Determinants of Health, 2008) organizes determinants of health to include:

1. Socioeconomic environment – education, employments, income, social support,
2. Healthy child development,
3. Both physical and natural environments,
4. Personal health practices,
5. Health services – delivery, access, medication expenditure and use, needs unmet by existing services, and
6. Biology and genetic endowment (Wilkinson & Marmot, 2003).

These are broad ideas, touching on almost every aspect of a society. For most global health programs, metrics may include population health information such as death rates, birth rates, maternal mortality, infant mortality, life expectancy, prevalence of certain diseases or injuries, access to care, numbers of healthcare facilities and healthcare workers and pharmaceutical supply chain. National programs may track other data such as malnutrition, education access, displaced persons, poverty levels, food security, population density and pollution. These monitoring and surveillance systems which are already in place and functioning well in many areas, might be leveraged by public health professionals to help “sound the alarm” of impending conflict and its potential effects if the role these metrics play as prognosticators is understood.

The Fund for Peace (2014) uses metrics from sources such as United Nations High Commission for Refugees (UNHCR), WHO, United Nations Development Program (UNDP), and World Bank which often include public health data in their reporting. Murray et al. (2002) note that data from the World Health Survey and World Health Reports might be useful for assessing conflict related global burden of disease. The WHO report on violence and health (Krug et al., 2002) lists a number of United Nations agencies and programs as well as international donors, nongovernmental organizations, and religious organizations with statistics on public health metrics as well as measures of violence prevention activities. It also lists a number of organizations that track violent conflict data that often overlaps with public health metric such as mortality, displacement, access to health care, and injuries. These organizations include Stockholm International Peace Institute, Amnesty International, Human Rights Watch, and Correlates of War project. Use of household surveys to collect health related data during conflict is advocated in conflict environment (Levy & Sidel 2008).

## **Stages of Conflict and Conflict Prevention Tools**

There are several phases of conflict outlined by Sriram, Wermester and Wermester (2003) to include:

1. **Potential Conflict Phase:** Low intensity conflict with underlying causes creating division and discontent. Preventative action is least risky and has highest potential at this phase.
2. **Gestation Phase:** Conflict issues are more defined and there is mobilized, popular discontent. This phase has an increased possibility of violence but issues are negotiable and ties exist between conflicting groups.
3. **Triggering and Escalation Phase:** Intergroup ties have broken down, violence increases, and compromise becomes more difficult as trust is lost between groups. This phase can be triggered by change or perceived change in the groups' economic, social, or political conditions. Intervention at this phase is more costly and risky due to violence.
4. **Post Conflict Phase:** This phase follows the de-escalation of violence and attempts to reestablish intergroup ties and reduce the likelihood of recurrent violence.

According to Lund (1996) in *Preventing Violent Conflicts*, there are different types of preventive interventions or preventive diplomacy based on the scope of intervention and the timing of action within the stages of conflict. These include crisis prevention aimed at blocking violent acts and reducing tension, pre-emptive engagement to address specific concerns between parties, moving grievances to negotiations and engaging factions and lastly, pre-conflict peace building focused on building opportunities for dispute resolution, supporting political institutions, change attitudes or norms, and reduce root causes of conflict. At any of these levels,

public health initiatives might be of use to provide guidance on potential health impact of violent conflicts or create common ground for trust building and mediation.

There are generally two categories of causal factors for conflict: underlying causes or permissive conditions and proximate causes or triggers (Brown, 1996). Underlying causes create the right conditions for conflict to develop making a society more or less conflict prone, but do not predict when or how the conflict may escalate to violence. Proximate causes or triggers are the aspects that indicate if or when a conflict will escalate to violence and should be targeted with preventive interventions. Proximate causes are generally underlying causes that have undergone rapid and unexpected changes. Conflict in and of itself is a normal part of social dynamics but violent conflicts are destructive.

### **Public Health Indicators Predictive of Violent Conflict**

Most publications reviewed (Fund for Peace, 2016; De Jong, 2010; Krug et al., 2002; Levy & Sidel, 2008; Van de Goor & Versteegen, 2000) have divided indicators into a number of broad categories that include social factors, economic factors, political factors, globalization, resource distribution, and governance. The analysis below seeks to ascertain the metrics that tie directly to public health systems and identify those with the closest links to public health as a practice.

Van de Goor and Versteegen (2000) developed a Conflict and Policy Assessment Framework (CPAF) to help integrate research on early signs of budding conflict and policy planning. Their research has identified a number of indicators that are predictive or early warnings signs of violent conflict. Indicators that overlap with common public health measures include:

1. Sudden demographic changes

- a. Population growth
  - b. Population density
  - c. Rapid changes in population structure
2. Lacking state capacity
    - a. Provision of education, sanitation and healthcare services
    - b. Increasing child mortality
    - c. Increasing poverty
    - d. Decreasing educational levels
  3. Population displacement
  4. Increase in inequality
  5. Influx of refugees from a neighboring conflict

In the same report, Van de Goor and Verstegen (2000) noted that to address these indicators the appropriate policy fields and actors must be identified to develop the policy response and plan of action. Peace promoting tools described in the report included interventions well within the realm of public health such as relief aid, emergency food aid, development assistance, health assistance, agricultural programs, and social welfare safety nets.

One analytical model (Fund for Peace, 2016) provides 12 indicator categories for internal conflict and state collapse that are used to develop the Fragile State Index. The indicators used to predict state collapse, that often accompanies violent conflict, overlap with many common public health metrics, including:

1. Demographic pressures
  - a. Infectious disease prevalence and control especially HIV/AIDS or other epidemics

- b. Pollution
  - c. Malnutrition
  - d. Mortality among infants
  - e. Population growth, density and distribution
  - f. Food shortages and water scarcity
2. Refugees and displaced populations
    - a. Disease related to displacement
  3. Public services
    - a. Quality healthcare including number of hospitals/clinics, number of physicians and access to medications.
    - b. Water and sanitation coverage
  4. Security apparatus
    - a. Fatalities from conflict or military violence

The WHO report on violence and health (Krug et al., 2002) also provides a list of indicators of nation states at risk of collapse and conflict taken from the Carnegie Commission on Preventing Deadly Conflict (1997). Public health indicators and metrics culled from this list include:

1. Demographic changes
  - a. High rates of infant mortality
  - b. Rapid changes in population structure including refugee movements but especially increased population density and greater proportion of young people
  - c. Insufficient supply of food or access to safe water
2. Deterioration of public services

- a. Decline in scope and effectiveness of social safety nets (welfare, healthcare, education)

Gendered social changes may also be predictive of violent conflict just as gender and social changes influence health (Levy & Sidel, 2008). Of the eleven of these gendered indicators, four seem to intersect with public health specific metrics:

1. Increases in gender specific unemployment,
2. Greater barriers to women's access to healthcare and education,
3. Increased trafficking in women, the sex trade and prostitution, and
4. Increased incidence of domestic violence.

They also found that low fertility rates, more female participation in the labor force, and governance demonstrate improved gender equity and increase the likelihood of a country using non-violent conflict resolution methods.

The general risk factors for war identified by in War and Public Health (Levy & Sidel, 2008) are similar to prognosticators identified by other researchers. Of potential risk factors for armed conflict, four of the fifteen indicators are directly linked to public health and routinely monitored by those in the field. These include:

1. High infant mortality,
2. High population densities,
3. Insufficient supply of food or access to clean water, and
4. Inequality among groups.

De Jong (2010) analyzed risk factors related to political violence, and found a number of political, economic, and social factors that indicate a heightened risk of violent conflict. The

indicators were drawn from a number of case studies. The indicators that overlap with public health metrics specifically include:

1. Demographic factors
  - a. High infant mortality
  - b. High population densities
  - c. Rapid changes in population structure
  - d. Insufficient supply of food or safe water access
  - e. Increase child and adult malnutrition
2. Lack of democratic processes
  - a. Violations of human rights (such as torture, mutilation, imprisonment)
3. Deterioration of public services
  - a. Decline in scope and effectiveness of social safety nets (such as health, education, and other social services)

According to the State Failure Task Force (Esty, Goldstone, Gurr, Surko, & Unger, 1995, p. 2) a “state failure” consists of revolutionary wars (“sustained military conflicts between insurgents and central governments, aimed at displacing the regime”), genocides and politicides (“sustained policies by states or their agents and, in civil wars, by contending authorities that result in the deaths of a substantial portion of members of communal or political groups”), and adverse or disruptive regime transitions (“major, abrupt shifts in patterns of governance, including state collapse, periods of severe regime instability, and shifts toward authoritarian rule.” King and Zeng (2001) in their review of the work by the State Failure Task Force found that public health indicators of infant mortality and population density were both predictive of state failure. They go on to report that infant mortality is seen as a good proxy for the

competence and efficacy of central government interventions. It is unclear exactly how population density affects the result as people must interact for conflict to occur but it may have some other mediating effect.

Feldbaum, Lee, and Michaud (2010) argue that part of the political rise in prominence of global health may be partly a result of the impact of disease on national security, local populations, trade, or military capability. Infectious disease is one of the public health factors that may influence risk of conflict as in the case of AIDS/HIV in parts of Africa (Cheek, 2001; Peterson & Shellman, 2006). High mortality rates from infectious diseases and/or malnutrition can decrease national earning potential, increase urbanization and migration, intensify competition for resources, reduce numbers of skilled administrators and decrease confidence in governance which all make a society at higher risk for war (Moodie & Taylor, 2000).

Guha-Sapir and Van Panhuis (2002) also reported the potential for infectious diseases to contribute to state failure, especially HIV/AIDs as it relates to several aspects of state stability though the evidence is not robust. This threat of potentially destabilizing infectious disease can be increased by background factors such as increased population growth and urbanization, inadequate sanitation, lack of safe water, deteriorating health care services, and increased opportunity for transmission and microbial resistance. They theorize that infectious disease outbreaks may have indirect destabilizing effects by influencing political and economic systems through changing mortality and risk for various social groups and diverting resources from other peace building initiatives.

### **In Practice: Public Health and Violent Conflict Prevention**

There are very few scholarly articles that have been able to demonstrate examples of public health interventions being used as conflict prevention tools. Medact (2013) argued that

Health Impact Assessment (HIA) methodology might be useful to inform policy makers of conflict consequences and, though at the time of their publication it had not been used, its potential for use in foreign policy has been recognized (Lee, Lock, & Ingram, 2006). HIA, according to Medact (2013, p. 2), “uses different methods and approaches to reach a judgment about the ways a policy will affect the health of a particular population” by aggregating and triangulating diverse data sources to exam complex policies or proposals. One of HIA’s strengths is the ability to assess impacts on social and economic determinants of health as well as direct health effects.

Feldbaum et al. (2010) noted a few cases in which public health practitioners have argued that cease fires arranged for health purposes or cooperative health projects between conflicting parties have created avenues for conflict resolution but the evidence on the measurable benefits or effectiveness of these arguments is very limited. There have been ceasefires negotiated in seven countries to allow for humanitarian aid and immunization deliveries (Rodriguez-Garcia, Sclessor, & Bernstein, 2001). Krug et al. (2002) reported health section reconstruction programs in Angola, Bosnia and Herzegovina, Croatia, Haiti, and Mozambique, were instrumental in demobilizing combatant and improving health services post conflict. In a few instances, these programs were useful for establishing communication and collaboration between ethnic groups and communities that were in conflict previously that might help to promote peace. However, the evidence for sustained peace as a result of health interventions is weak (Labonte & Gagnon, 2010). Vass (2001) makes the same argument that health initiatives as peace building or conflict prevention tools have not been effectively assessed. There are also concerns that the delivery of aid might also occasionally be seen as lending legitimacy to warring factions, fueling inequities, or be diverted to support warring parties rather than reaching the intended target group,

potentially prolonging the conflict (Krug et al., 2002). In some instances, even the highest levels of emergency humanitarian and food aid provided by organizations such as the United Nations may be diverted or interrupted as seen in a recent Syria conflict report (British Broadcasting Corporation, 2016).

The APHA (2009) in a position paper on war and public health did not identify any specific public health based, peace effort, successes relating to war or armed conflict but identified other areas relating to violence where collaboration between a myriad of disciplines was successful in identifying root causes and reducing risk. These included the field of transitional justice to address human rights violations and reconciliation through collaboration between law, public policy, economics, history, psychology, and the arts. Another example was harm reduction strategies for violent crime including contributions from the fields of public health, psychiatry, law enforcement, and public policy. The APHA (2009) also noted that public health field's technical suitability for addressing violent conflict. Skills in identifying risk and protective factors, developing and evaluating prevention techniques, and monitoring effects of interventions are all within the skillset of the field and can contribute to strengthening the theories and models for conflict related issues. They also found that health professionals are well positioned for peace promotion and conflict prevention work since they are already involved in conflict epidemiology, logistical support, and emergency response.

The WHO has few programs that focus specifically on health workers' contributions to peace. Its main peace promotion program, Health as a Bridge for Peace, largely focuses on integrating peace promoting principles into health relief and development efforts rather than focusing on conflict analysis, resolution, communication, or negotiation (APHA, 2009). The WHO report on violence and public health (Krug et al., 2002) advocates for addressing poverty,

decreasing inequality, investing in health development, and reducing access to weapons as ways to reduce the potential for violent conflict. These are all existing public health targets as determinants of ill health. With better predictive models, public health practitioners can be well positioned to alert decision makers to the increased risk for violent conflict based on indicators they are already consistently observing. Healthcare workers are well positioned to draw attention to these signs and identify signaling changes before a conflict has broken out especially through identifying inequities in access to care or health status or monitoring disease trends related to poverty, and performance of social welfare systems that underlie health systems (Krug et al., 2002). These early warning systems could help decision makers prioritize interventions, better understand root causes of conflict, and take action to prevent it.

Guha-Sapir and Van Panhuis (2002) also reported on the health as a bridge for peace program as a possible avenue for peace promotion as health professional engages with parties on both sides of a conflict. They also advocated for use of humanitarian cease fires to reduce conflict as well and gave the example of the cease fires negotiated in El Salvador, Afghanistan, and the Democratic Republic of the Congo for international humanitarian aid to provide health services. Both suggestions leverage the neutrality, ethical credibility, and community relationships of the healthcare field and common interests relating to the health and medical care by the conflicting parties. Care during demobilization post conflict and preventative diplomacy also present opportunities for healthcare providers to advocate for peace. They also noted the dearth of evidence regarding evaluation of health as a peace promotion tool due to the complexity of conflict and differences in circumstances of each conflict.

The United Nations' Sustainable Development Goals (SDGs) (UN Division for Sustainable Development, 2016) include very little specifically regarding conflict prevention

though several of the priorities might address the risk factors identified previously in this paper. These include provisions regarding reducing economic inequality, safe and adequate food production to decrease malnutrition, reducing maternal and child mortality, improving gender equity especially women's political participation and access to health and educational services, improving access to safe water and improved sanitation services, and equitable natural resource sharing and management. There is surprisingly no provision specifically related to conflict prevention except the general statement of provision 16 which states: "Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels" (UN Division for Sustainable Development, 2016, Sustainable development goal 16). Targets under this provision related to conflict include reduction in the illegal arms trade, strengthening of nation institutions to reduce violence, terrorism and crime, and reduction in violence from all causes.

The World Bank (2016) described state's fragility and risk for conflict or violence as crucial to developmental outcomes. They have reported that the risks for state fragility are on the rise though there are fewer large-scale conflicts. Forced displacement of populations and other activities associated with increased risk of conflict are related to rising inequality globally. Most of the programs under this focus relate to peace building post conflict, supporting displaced persons and responding to crises created by violent conflict though there are a few initiatives in conjunction with the United Nations to address conflict prevention specifically such as the State and Peace Building Fund.

Global health has an increasingly high profile in international politics and health is intertwined in foreign policies of nations (Feldbaum et al., 2010). Public health, due to its multifaceted nature, is well positioned to interface with the disciplines needed to promote peace.

Public health practitioners are able to assist policy makers in understanding the ramifications of armed conflict and the cost to public health and welfare. Collaboration between political science, international relations experts, and public health practitioners is useful for building more effective aid delivery systems and more strategic diplomatic or development interventions (King & Murray, 2001).

Multinational agreements such as the International Health Regulations and other transnational global health agreements indicate the growing political influence of global health and its role in public policy and can be used to help resolve health crises of political origins (Feldbaum et al., 2010). Global health diplomacy is a nascent field with great potential to leverage public health and global health interventions for peace and other diplomatic initiatives. The term is used to describe “the processes by which state and non-state actors engage to position health issues more prominently in foreign policy decision making” (Labonte & Gagnon, 2010, p. 6). It involves both human and national security perspectives and may have the added benefit of improving the traction of global health initiatives by leveraging the inherent priority of the former fields in the political sphere.

## CHAPTER V

### CONCLUSIONS/RECOMMENDATIONS

There are several policy recommendations that can be made based on these findings. Preventing violent conflict should be a political priority. Public health professionals can assist in this effort by continuing to raise the profile of the issue through accurately documenting the effects of conflict on the health and wellbeing of populations. There are many challenges to documenting the cost and consequences of violent conflict such as decreased access to displaced populations, destroyed infrastructure, and safety and security concerns. Public health practitioners need to continue to advocate for groups affected by violent conflicts and utilize multiple avenues of dissemination to expand audience awareness of the realities of war, and its costs despite its inherently political nature.

Practitioners should continue to build evidence and prove causality or consistency between early indicators and violent conflict. There are always challenges in documenting the efficacy of prevention efforts but public health epidemiologists have the right skill set for evaluating prevention strategies, as the root causes of conflict are as complex as multifaceted as the determinants of health in many cases. Though the focus of this paper is prevention, similar modeling could be used to identify risk and protective factors for health consequences during ongoing conflicts to reduce the negative impact (Levy & Sidel, 2008). Systems need to be created that link already existing data collection systems to those that monitor risk for conflict in high priority areas.

Public health professionals should connect with experts in other disciplines, such as public policy, foreign policy, development, defense, academia, and economics, to evaluate the

effectiveness of prevention activities and contribute to a better understanding of risk factors for conflict. More research is needed to identify the most effective conflict prevention or de-escalation interventions within the public health realm and outside of it. There is a need for concomitant research into coherent mechanisms for conflict prevention action on behalf of governments and multinational organizations and well as advocacy for their timely implementation and use (APHA, 2009). Research is also needed to evaluate the effects on health as a result of these interventions such as sanctions or aid. The Clingendael Institute noted that early warning systems should go beyond just reporting and monitoring but also focus on response-oriented analysis that presents options for how to address these conflicts (Van de Goor & Verstegen, 2000). Some of these interventions could have their roots in public health intervention to reduce poverty and inequality, improve delivery of social services, prevent rises in infectious disease and infant mortality, and monitor population growth and other risk factors discussed earlier.

As Van de Goor and Verstegen (2000) noted, policy tools for conflict prevention can be complex and their implementation may require strategic level coordination about which instruments, how and by whom they may be used. Do public health practitioners have the willingness, mandate, or resources to act when these trends are identified? At the bare minimum, they should be aware of and monitor the early indicators for violent conflict within their data and alert and advocate for political and foreign policy decision makers to take action and intervene. Intervention planning should involve international relations and foreign policy experts. Public health practitioners should also seek to educate themselves and other colleagues on war and violent conflict as a public health problem and develop competencies focusing on conflict prevention (Wiist et al., 2014). This is particularly pressing, as one study estimates less than 1%

of public health curricula in top schools focuses on the primary prevention of war (White, Lown, & Rohde, 2013).

In addition to improving the quality of evidence for risk of conflict and prevention efforts, specific advocacy activities would be useful within the health field. Levy and Sidel (2008) gave a number of suggestions on actions for public health professionals in the prevention of war, which based on the evidence reviewed, should most prominently include:

- Promoting non violent conflict resolution,
- Advocating for increased public health spending to address some of the predictive indicators such as decreased access to health and social services or reduce infant mortality, and
- Advocating for decreases in arms trading, abolition of nuclear weapons and decreasing development or use of biological weapons and land mines.

Krug et al. (2002) also recommended advocacy work from a public health perspective to decrease the arms trade, improve early warning systems, and promote more equitable forms of development and development assistance. Advocacy work is crucial within the political systems as, arguably, war might be considered merely a continuation of politics by other means (Clausewitz, Howard, Paret, & Brodie, 1984).

It is essential to make prevention of violent conflict a well coordinated priority as countries that have experienced armed conflict have a high risk for relapsing with approximately 40 percent of countries in the post conflict phase falling back into violent conflict within five years (Human Security Center, 2005). There are many advocates for recognizing war and violent conflict as a pressing public health issue that can be addressed in much of the same way as other public health issues with a focus on primary prevention (APHA, 2009).

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