

Review

Conflict and the spread of emerging infectious diseases: Where do we go from here?

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This article reports on conflict, peace support operations and spread of emerging infectious diseases as well as factors that potentiate emergence and transmission of infectious diseases in conflict situations and highlights several priority actions for their containment and control. Conflict is a complex system of clash or disagreement, often violent, between two opposing groups or individuals. Conflicts and wars have become a common place in the world, especially in Africa. So pervading are these conflicts and wars that African countries readily come to mind in any discourse on conflicts and wars any where in the world today. Infectious diseases continue to occur throughout the world, both sporadically and as outbreaks, because of multiple factors. Disease emergence is influenced by and environmental changes (e.g., agriculture, deforestation, droughts and floods), human demographics and behavior (e.g., population migration, urbanization, conflicts, international trade and travel), technology and industry, microbial adaptation and breakdown in public health measures. Conflict leaves populations in dire poverty, internally displaced or seeking asylum, having poor access to essential services and consequentially vulnerable to infectious diseases. Conflict situations present a multitude of risk factors that enhance disease emergence and transmission, over and above those in other resource-poor countries. The propensity for emerging infectious disease outbreaks to occur in conflict-affected countries and the need to monitor and respond more effectively to such events cannot be over-emphasized. Detection, containment and control of emerging infectious diseases in conflict situations are major challenges because of multiple risk factors that promote disease transmission and hinder control even more than those in many resource-poor settings. Beyond the global public health imperative to prevent the international spread of infectious diseases, there is also a moral imperative to alleviate the effects of these diseases on already vulnerable conflict-affected populations.

Key words: Conflicts, conflict resolutions, emerging infectious disease, forced migration, disease spread, global health and security threats, peace-support operations.

INTRODUCTION

Security is fundamental to the development of any society (Oyeneyin, 2007) whether health security, national

security or security of lives and properties. All nations, small or big, technologically advanced or otherwise, developed, developing or under developed put a very high premium on security. Infectious diseases continue to occur throughout the world, both sporadically and as outbreaks, because of multiple factors. Most researchers

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observed that the incidence and prevalence of infectious diseases are increasing in certain populations, particularly among immunocompromised persons. An emerging infectious disease is one that is either newly recognized in a population or involves a recognized pathogen affecting new or larger populations or geographical areas (Morse, 1995; Morse, 2004). Disease emergence is influenced by ecological and environmental changes (for example, agriculture, deforestation, droughts and floods), human demographics and behavior (for example, population migration, urbanization, international trade and travel), technology and industry, microbial adaptation and breakdown in public health measures (Morse, 1995; Morse, 2004).

Additionally, new infectious diseases and etiological agents continue to be identified with remarkable frequency and microorganisms are being identified as causes of chronic diseases, including cancer. Several researchers have expressed concern about the migrations of human populations, animal reservoirs and arthropod vectors into new populations and geographical areas. There are therefore urgent calls for additional support for the public health infrastructure and for basic sciences that provide the foundation for infectious disease prevention, control and treatment.

Conflicts are realities of human interactions (Enaikelé, 2007). Psychologists have discovered that human beings operate with an insatiable instinct (Basa and Achugbue, 2004). There are bound to be conflicts and chaos. As long as human beings have motives and manifest a complex web of behavioural patterns, the motive of which may not be immediately understood, conflicts are inevitable in the society (Zimako and Aihie, 2008; Omede and Luqman, 2005). Conflict may be defined as a struggle or contest between people with opposing needs, ideas, beliefs, values, or goals. Conflict on teams is inevitable; however, the results of conflict are not predetermined. Conflicts as an inevitable aspect of human existence, when it turns violent, could inflict massive suffering on those caught-up in the process (Omede and Luqman, 2005). Conflict might escalate and lead to nonproductive results, or conflict can be beneficially resolved and lead to quality final products. Therefore, learning to manage conflict is integral to a high-performance team. Although very few people go looking for conflict, more often than not, conflict results because of miscommunication between people with regard to their needs, ideas, beliefs, goals, or values.

Conflict situations are characterized by war or civil strife in a country or area within a country. Affected populations may experience defined periods of violence (weeks to months), ongoing or recurrent insecurity in a protracted conflict (years to decades), or long-term consequences of a previous (usually prolonged) war (Gayer et al., 2007). Therefore, it is important that the conflict be resolved as soon as possible (Team Building Inc., 2008). The peace building process can take place at any of these stages

and depending on where/ how it takes place, the graph can change into a peace building process or an escalation of violence (Active for Peace., 2008).

Conflicts in many African states only aggravate violence, poverty, hunger and spread of infectious disease, under-development and unemployment. Conflict is also characterized by forced migration. Conflict leaves populations in dire poverty, internally displaced or seeking asylum, having poor access to essential services and consequentially vulnerable to infectious diseases (Kelly-Hope LA. 2008; Gayer et al., 2007). Conflict situations present a multitude of risk factors that enhance disease emergence and transmission, over and above those in other resource-poor countries. Many such conflicts facilitate the occurrence of cholera outbreaks (Kelly-Hope LA. 2000; Gayer et al., 2007). Thus, more information is needed about conflict, peace support operations and the spread of new, emerging and reemerging infectious diseases such as cholera, malaria, TB, HIV/AIDS, especially in Africa. This review is therefore an attempt to provide information on global health and security threats in Africa and how conflicts, forced migration poverty and peace support operations aids the international spread of new, emerging and reemerging infectious diseases.

CONFLICT

Conflict of interest, a conflict of loyalties, internal conflict, external conflict, channel conflict, role conflict, world in conflict, conflict of laws, conflict prevention, conflict management and conflict resolution are all terms associated with conflicts. "Conflict", this is a word that causes most of us a great degree of discomfort, anger, frustration, sadness and pain. The dictionary defines "conflict" as "a struggle to resist or overcome; contest of opposing forces or powers; strife; battle. It is a state or condition of opposition; antagonism and discord (Word Press., 2008). It is a painful tension set up by a clash between opposed and contradictory impulses." No matter how hard we try to avoid it, conflict periodically enters our lives. Indeed, conflict represents a complex phenomenon, sometimes constructive, sometimes destructive. In its basic sense, conflict is a situation in which the party (ies) perceives or experience incompatible goals (Team Building Inc., 2008).

Types and causes of conflicts

Traditionally, there are four main conflicts: person vs. self (internal), person vs. person (external), person vs. society (external) and person vs. nature (external) (Team Building Inc., 2008). In each case, the conflict passes through a series of stages often depicted as in [Figure 1](#).

The major causes of conflicts in the West African sub-region include colonial class cleavages, religion, ethnicity,

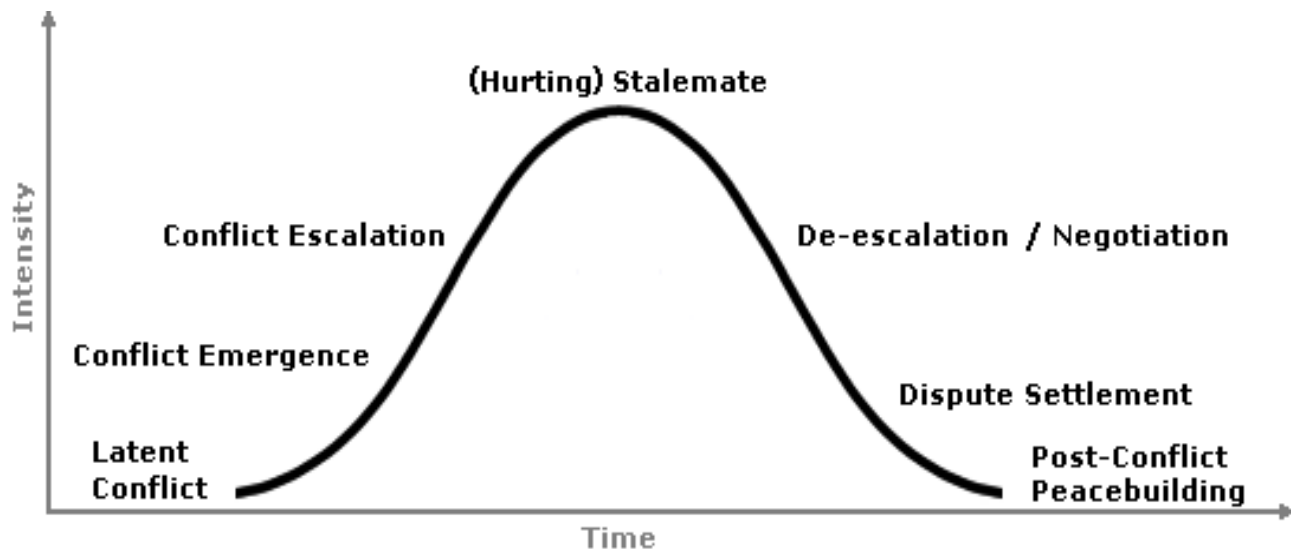


Figure 1. Stages of conflict. Sources: Active for Peace (2008) and Beyond Intractability (2008).

political and resource control, youth unemployment, deprivation and economy (Umaru, 2005). Conflicts itself arises generally from socio-economic and political injustices in society either at the level of person-to-person, group-group, or state-state interaction. These injustice may border on sharing of resources (including leadership positions), the way human rights and freedoms are handled, or on the handling of demands and jointly owned assets. These lead to clash of interests, values and opinions (Nwolise, 2004; Yakubu, 2005). Hence, conflicts arises from problems basic to all populations, the tugs and pulls of different identities, the different distribution of resources and access to power and competing definitions of what is right, fair, and just (Yakubu, 2005; Stedman, 1991). The forced convergence of various communities into nation-states led the conflicts and wars in taking a continental phenomenon (Yakubu, 2005; Stedman, 1991). Considering various conflicts and wars which have made various African countries become scenes of brutality, savagery and spreads of new, emerging and re-emerging infectious diseases in terms of the extent of prosecution of various unnecessary misunderstanding, ethnic conflicts and ego pursuits, one cannot but ponder, reflect and look for ways this can be control in the nearest future.

Violence

According to Enaikele (2008), violence connotes unrestrained emotion expressed with wanton mischief and destruction. In violence, the play of reasoning is restricted by strength of emotion, anger, frustration, irrationality and untamed impulses. It grows out of despair, desperation

and frustration. It inflicts pains and hatred. It destroys the society and makes peace impossible. It creates bitterness and frustrates dialogue. It is an outright immorality against sanity, peace, order and security. The challenges to seek and maintain peace, order and security have preoccupied human history. Thomas Hobbes (1588 - 1677) as quoted by Enaikele (2008, 2007) described the state of nature and observed that violence is apparently part of human nature. This often justifies the military interference as instrument to restore peace, order and security in the society.

Political instability

Political instability is also a constant feature on the African continent even though no right thinking African leader legitimately promotes instability. As long as people's aspirations are denied in national matters and some groups perceive that they are marginalized, there will always be a political conflict (Zimako, 2008). There is hardly any region in Africa without a form of political turbulence. Every part of Africa has its history of political instability. According to Zimako and Aihie (2008), an option or recipe for the resolution of political instability is the consideration of national interest. Nigeria as a leading African nation and a nation which has sacrificed a lot of human, material and military resources to keep peace in Africa, also has a great role in this direction. In the drive towards development, empowerment (Zimako, 2008) as well as prevention and control of emergence and international spread of infectious diseases, national interest is an indispensable tool that must receive sincere attention.

Conflict resolution

Conflict resolution refers to a situation short of hostilities in which at least one side considers, threatens or demonstrates willingness to use military force to deal with the other side. In realization of the existence of conflicts between and within nations and in their desire for survival, nations and international organizations have often evolved multilateral security arrangements fundamentally aimed at repelling perceived or real threats and resolving violent conflicts. There comes a time in every conflict situation when the conflict is ripe for resolution (Bamalli, 2005). After security of life and probably basic necessities of life-food, clothing and shelter, the next most important social value is peace. For the individual human being, peace is crucial for his security to be assured and enhanced and for him to have peace of mind and go about his daily chores freely and comfortably. For the nation however, peace is a sine quo for national stability, security and development (Mustapha, 2006). The major threat against peace is violent conflict. Violent conflict occurs and often escalated mostly when certain pre-requisites for mitigation and resolution is lacking (Mustapha, 2006).

Conflict management

Conflict management is the principle that all conflicts cannot necessarily be resolved, but learning how to manage conflicts can decrease the odds of nonproductive escalation. Conflict management involves acquiring skills related to conflict resolution, self-awareness about conflict modes, conflict communication skills and establishing a structure for management of conflict in your environment (Active for Peace, 2008). Conflict management has been a continuous process in Nigeria as an alternative to conflict resolution. In Nigeria, governmental agencies and institutions play major roles in the management of conflicts. Generally, political scientists considered political, economic, cultural, security and religious factors as been responsible for all the conflicts in Nigeria. Consequently, the need to control or benefit more from the federal resources becomes a source of conflict. Nigeria as a federal state therefore cannot be conflict-free (Aun, 2007).

PEACE SUPPORT OPERATIONS (PSOS)

Peace Support Operations (PSOs) can be defined as an operation that impartially make use of diplomatic, civil and military means normally in pursuit of United Nations Charter purposes and principles to restore or maintain peace. Such operations may include conflict prevention, peace-making, peace-enforcement, peace-keeping, peace-building and/or humanitarian operations (JWP., 1999; Adefolarin, 1984). The end of the Second World

War II in 1945 saw the emergence of a new body. The United Nation Organization (UNO) came into existence in 1945 when America, Britain, China and Russia came together and drew a charter based on the founding principle that the UN would take up issue and maintain international peace and security and save succeeding generations from scourge of war (Adefolarin, 1984; Bamalli, 2005). Nigeria on attainment of political independence from Great Britain in 1960 became a member state of the United Nations (UN). Since then, Nigeria has been contributing to international peace and security both at the global, regional and sub-regional levels in various parts of the world by offering funds, troops and supplies (Adefolarin, 1984; Bamalli, 2005).

From the formation of UNO in 1945 to the end of the Cold War in 1989, the UN was generally limited to moderating tension and aggression by mounting traditional or Nordic Peacekeeping Operation (Bamalli, 2005). The fundamental principle of the traditional approach was that all parties must consent and comply with ceasefire or a peace agreement. The use of force by the peacekeepers would normally be limited to self-defence (Bamalli, 2005; JWP, 2002). By the 1990s, peace-keeping has come to be increasingly applied to intra-state conflicts and civil wars. Consequently, peacekeeping tasks have become more varied and complex; indeed multidisciplinary, multidimensional and multinational in nature. Thus, military, police and civilians work together in an integrated concept. Accordingly, to make peace-keeping more realistic and effective given the nature of recent conflicts, the concept of Peace Support Operations (PSO) was evolved. Currently, PSOs cover not only Peace-keeping (PK) and Peace Enforcement (PE), but it is now used to embrace other peace related operations such as conflict prevention, peace-making, peace-building and humanitarian operations, which are principally the preserve of civilian agencies (Bamalli, 2005; JWP, 2002; Jinadu, 2004). Hence PSOs are in response to complex intra-state conflicts involving widespread human rights violations as opposed to more traditional PK, which was generally conducted in the aftermath of an inter-state conflict or war. PSOs now give the UN and other regional and sub-regional organizations right to intervene when consent was lost (Bamalli, 2005; JWP, 2002; Jinadu, 2004).

Peace-keeping

Peace-keeping is a popular concept in international conflict management and resolution which has generated a good deal of intellectual interest. Peace-keeping or peace-enforcement embodied the principle, theory and practice of mitigating conflict. Its uniqueness as well as its distinctive contribution lay more emphases on therapeutic action of peace negotiation. It is a third party contingency or intervention approach to conflict (Bassey, 1993). Through peace-keeping, efforts are made to provide the

basis for peaceful resolution of situations that are likely to engender threat or constitute threat to international peace and security (Gye-Wado, 1996). It is meant to calm down exploding conflict situations until more enduring resolution could be established. The whole essence of peace-keeping is to provide a buffer or demilitarized zone which will help the parties to negotiate and workout modalities for peaceful resolution of their conflict. In a nutshell, it could be considered as a diplomatic instrument of negotiation, conciliation and mediation (Bassey, 1993; Gye-Wado, 1996; Enaikele, 2007). The resort to force by ECOMOG to establish a minimum condition for peace process in Liberia falls within the application of self defence for the purpose of peace enforcement. While peace-keeping focuses on giving the warring factions a chance to explore the option of negotiation other than armed conflict, peace enforcement embodied the principle and idea involving the use of force (arms) to check the resistance of any of the warring factions to comply with the mandate to facilitate the resolution of the conflict and limit the casualties of combatants, civilians and peace-keepers (Bassey, 1993; Gye-Wado, 1996; Enaikele, 2007).

Peace-enforcement

Even when the conflict has abated, it might still be necessary to put in place the machinery of peace enforcement to sustain peace and security in the conflict zone (Gye-Wado, 1996). Both peace-keeping and peace-enforcement seem to have legitimized by general principles of moral obligation to intervene to seek restoration of peace and security in conflict zones (Enaikele, 2007). This approach to conflict management based on the confrontational approach believes in the deployment of force in dealing with conflict matters, not getting to the root of any problem as well as not addressing the fundamental matters required to resolve conflict (Aun, 2007). This approach also became a source for the spread of infectious diseases as some reckless officer of the peace-keeping operations began to molest, sexually harassed and even resorted in raping the female populace in the disguise of keeping peace in that area.

CONFLICT: AFRICA AS A CASE STUDY

Conflicts and wars have become a common place in the world, especially in Africa. So pervading are these conflicts and wars that African countries readily come to mind in any discourse on conflicts and wars any where in the world today (Yakubu, 2005). The incessant conflicts and wars in countries like Rwanda, Somalia, Burundi, Liberia, Sudan, Congo, Zimbabwe and Sierra Leone attest to the above facts (Yakubu, 2005). African states witnessed the most destructive and violent conflicts at the end of the 1980s and 1990s. From the genocide in

Rwanda, the almost decade long conflict in Liberia (1989 - 1997), the Sierra Leone crisis as well as the conflict between Ethiopia and Eritrea have all gone to show the extent of small arms and light weapons wreaking havoc on the continent (Oyeneyin, 2007).

The increasing incidences of conflicts in West Africa are a product of the numerous challenges faced by the sub-region. These challenges which have their roots in the colonial experience of such countries range from funding and unemployment and under-employment, to emergence of child-soldiers, delayed intervention by regional and international bodies amongst others (Umaru, 2005). Since the end of the Cold War, concerns have heightened about sustained violent conflicts in Africa. Conflict mitigation and resolution has become the dominant governance activity in almost every part of Africa. Many of these conflicts seem intractable; conflict mitigation and resolution initiatives are at best yielding modest success. Such success typically provides peace in the short term but hardly lay the foundation for the reconstitution of order and the attainment of sustainable peace (Dokubo, 2006).

At the early stage of development of society, conflicts were known to have the character of contest over space and resources. Overtime and especially during pre-colonial era in Africa, the characteristics of conflicts were based on competition for hegemony among various kingdoms, states and empires. While colonialism resolved some of these conflicts, it also sowed the seeds of conflicts because African countries became polarized along colonial interest which affected the capacity of Africans to cooperate and live in peace (Gye-Wado, 1996; Enaikele, 2007). In post colonial Africa, a good number of conflicts are civil strife or insurgencies arising from contests for political power or desire to secede. Following this, it has become a tradition for external bodies to seek restoration of peace and security through peace-keeping force intervention (Enaikele, 2007). This has in turn become a major factor in the spread of infectious diseases through the reckless life-style of some members of the peace-keeping force who indulges in unprotected sexual lifestyle among others.

Indeed, the world, especially Africa has experienced sporadic increase in conflicts (Enaikele, 2007) which had left them with international spread of new, emerging and re-emerging infectious diseases such as cholera. In December, 2008, nothing less than 418 people were confirmed death of cholera outbreak in politically troubled Zimbabwe since August. According to the World Health Organization, 11,700 patients have been reported with cholera over the same period. This has been attributed to prolonged conflicts, economic and food crisis that has ravaged Zimbabwe. Majority of the people had no access to good water and food. Lack of environmental sanitation promotes this outbreak of cholera in Zimbabwe.

The frequent occurrence and re-occurrence of conflicts in Nigeria in recent years is of serious concern to all stakeholders in the Nigerian project. These conflicts

and/or crises mostly emanated from political struggles over resource control, ethnic affiliation and emancipation as well as religious intolerance. Such conflicts did not only consume human and material resources but also left unfathomable problems in their trail (Aun, 2007). Between 1967 and 1970, marks the turn of world's event in Nigeria which commanded much of the world's attention to civil unrests and wars. These years were characterized by period of conflicts, violence, war, poverty, hunger, infectious diseases and deaths as Nigeria experienced civil war (Biafran War) that rock and shook mostly the Southeastern states of Nigeria. This still led to the present problem of land and boundary dispute between Nigeria and Cameroun in Bakkassi Peninsula, Akwa Ibom State of Nigeria. According to Zimako and Aihie (Zimako and Aihie, 2008), until 1999, Liberia and Sierra Leone also commanded much of the world's attention to civil unrests. In recent times, the on-going Sudanese crisis (Dafur) has attracted critical concern from world leaders and international communities and organizations. Congo, Chad, Uganda and Somalia are boiling currently. Cote d'Ivoire, Nigeria, Zimbabwe, Algeria, Togo, Kenya, Ethiopia and Guinea Bissau have experienced measures of conflicts and political instability. Africa faces enough socio-economic problems which could have been addressed by commitment by national government.

Interruption of routine immunization programs combined with forced migration of populations caused by conflict has also contributed to the resurgence of yellow fever in Africa (World Health Organization, 2005f). This resurgence began with the 1990 epidemic in Cameroon and then spread into conflict-affected West Africa, which since 1995 has been the most affected African region (World Health Organization, 2005g). Ten countries in Africa at risk from yellow fever have been affected by conflict and multiple outbreaks have occurred in 6 of them: Angola (1988), Liberia (1995, 1996, 1997, 2000, 2001 and 2004), Sierra Leone (2003), Côte d'Ivoire (2000 and 2001), Guinea (2001 and 2005) and Sudan (2003 and 2005). The 2005 outbreak in Sudan resulted in a high CFR of 25% (World Health Organization, 2005g; Gayer et al., 2007). Years of war in Sierra Leone during the 1990s weakened health systems and led to a long-term deterioration in infection control practices. As a result, a nosocomial outbreak of Lassa fever occurred in Kenema District Hospital from January through April 2004. A total of 410 cases occurred with a CFR of 30% (World Health Organization, 2005g; Gayer et al., 2007). Sierra Leone's decade-long war, which broke out in 1991 and was officially declared over in 2002, is one of Africa's most brutal, heinous and senseless wars that left an unprecedented trail of atrocities in its wake, against women and children (Cheo, 2006).

Conflicts in Africa have assumed epidemic proportions and are an impediment to development. A few facts may help to illustrate the immensity and destructiveness

posed by these conflicts. By 1966, almost half of war-related deaths in the world were in Africa. As a result, Africa accounts for over 8 million of the 22 million refugees' worldwide (Mills, 1999; Dokubo, 2006). During the 1980s, Africa was torn by nine wars, numerous other instances of large-scale violent conflicts and a kaleidoscope of coups, riots and demonstrations. These hostilities exacted a great toll on Africa in terms of the destruction of human life, cultural damage and economic disruption, lost of investment opportunities, destruction of health facilities and spread of infectious diseases. It is difficult to foresee significant economic and social development over wide stretches of Africa until the burden of violent conflict is eased (Dokubo, 2006).

Of the nine wars that ravaged Africa, five in Sudan, Ethiopia, Angola, Mozambique and Uganda-were major, with death totals, including civilian deaths, ranging from 60,000 to 100,000 commonly reported in Angola (Gerald, 1989), to the 3 million or more thought possible in Sudan (Howard, 1980). Three other wars, in Namibia, Western Sahara and Chad, probably resulted in deaths numbering in the 10,000 to 20,000 range. Little is known about the situation in northern Somalia, although the flight of 350,000 refugees to Ethiopia suggests that substantial fighting has taken place (World Refugees Survey, 1988; African Watch Committee, 1990; Dokubo, 2006). A human rights organization estimated that 50,000 to 60,000 civilians was killed in the above-mentioned conflicts (African Watch Committee, 1990; Dokubo, 2006). Of the crisis in the Mano River Basin area, a sub-region in West Africa covering Guinea, Liberia and Sierra Leone, Liberia was the first to suffer conflict. Insurgent Charles Taylor invaded the country on the eve of Christmas 1989 and toppled the government of President Samuel Doe in 1995 and the fighting continued for 7 more years. Sierra Leone was next. In 1991 Taylor and Foday Sankoh from Sierra Leone initiated a war. In 1999, the civil war in Sierra Leone had claimed the lives of more than 50,000 people while another 100,000 had been deliberately injured and mutilated (Dokubo, 2006). In mid-1999, the combined efforts of the UN and West African peace-keepers proved successful in helping to broker a peace agreement. However, the conflict in the Mano River Basin claimed an estimated death toll of nearly two million lives. In these large wars, the overwhelming majority of victims were civilians, including countless children, who were deprived of food, shelter and access to healthcare because of the fighting. After over a decade of violent conflict, plunder, pillage, illicit trade in drugs and natural resources, the Mano basin area became a gangster paradise (Dokubo, 2006).

Conflict in Somalia since 1991 resulted in polio vaccination coverage for the required 3 polio doses being only 35% in 2005 (World Health Organization, 2006c). Somalia had been free of polio since 2002 when a large outbreak occurred in Mogadishu in 2005. By September 2006, 14 of the 19 regions in Somalia were affected with

215 cases (World Health Organization, 2006d). In May 2004, a patient infected with poliovirus was confirmed during the Darfur conflict, the first case in Sudan since 2001. By January 2005, a total of 105 cases had been confirmed in 17 of the 26 states in Sudan (World Health Organization, 2005e). Six rounds of national immunization campaigns vaccinated 8.1 million children <5 years of age in 2005, with the last case reported in June 2005. A total of 154 cases were reported in the 2004 – 2005 outbreaks (Global Polio Eradication Initiative (GPEI), 2006). According to Kelly-Hope (2008), examination of data sources listed by Gayer et al. (2007) recent reviews (Griffith et al., 2006; Gaffga et al., 2007) indicated that cholera occurs in countries during war and civil unrest, as exemplified by the latest outbreaks among displaced populations across northern Iraq. It also occurs in neighboring countries, where temporary camps accommodate masses of political refugees under poor conditions, such as those in eastern Chad near Darfur, Sudan; and during the postwar period when large numbers of repatriated persons returned home and consequently placed undue pressure on an eroded and fragile national infrastructure, as evident in Angola in recent years (Gayer et al., 2007; Griffith et al., 2006; Gaffga et al., 2007). Moreover, all the countries affected by conflict have reported cholera outbreaks (Gayer et al., 2007; Griffith et al., 2006; Gaffga et al., 2007; World Health Organization, 2007; United Nations Development Programme, 2007). They are also among the poorest countries in the world; the latest statistics on human development indicated that compared with all developing countries, on average they have higher rates of undernourishment, refugees, child deaths and less adequate water and sanitation facilities (United Nations Development Programme, 2007; Kelly-Hope, 2008). Thus, more information is needed about conflict and cholera, especially in Africa.

In 2006, cholera was reported from 33 countries in Africa and 88% of all reported cases were from conflict-affected countries (World Health Organization, 2006). While the re-introduction of cholera into South America in 1991 and the appearance of serotype O139 in Asia in 1992 have been of great public health importance in the present decade, the epidemic in Africa since 1994 has been a catastrophe. In 1994, the largest proportion of all cholera cases globally and 42% of all cholera deaths, were in Africa. This was largely due to the explosive epidemic in Rwandan refugees displaced to eastern Zaire, where over a 6-week period, there were an estimated 70 000 cases and up to 12 000 deaths (Goma Epidemiology Group, 1995). A pandemic situation has continued in this central area of Africa, with both extensive endemic spread and explosive localized epidemics in Zaire, Burundi, Tanzania and Congo (Brazzaville) (World Health Organization, 1998). In West Africa, a major epidemic in Guinea-Bissau that began in 1994 has continued, with over 20 000 cases reported in

1997. In East Africa, excessive rains and flooding in 1997 were followed by extensive outbreaks of cholera in Somalia and Kenya (Beeching et al., 2000).

IMPLICATIONS OF CONFLICTS

No nation can develop and provide the good life for its citizens without peace, security and stability. Unfortunately, these three crucial variables have eluded most African countries due to recurring violence and wars, for instance, Sudan especially since independence in 1956 (Nwolise OBC., 2006). All over the world today, most individual deaths by guns of varying shapes and sizes remain private tragedies unknown to humanity, but their cumulative social and health effects are displayed in the ravages of war, in the millions of refugees and the internally displaced persons, who have fled their homes and communities to escape similar fates in the emergency rooms of city hospitals and in the massive humanitarian relief operations worldwide (Project PloughShare, 2004; Cheo, 2006).

Deaths, inflicting pain and humiliation

The suffering resulting from violent armed conflicts has become more devastating, as modern armed conflicts are becoming more complex and brutal in their prosecution. Systematic and widespread rape and other forms of sexual violence were hallmarks of the conflict in Sierra Leone and were committed with almost invariably great cruelty (Development Peace Foundation (DPF), 2000). The combination of devastating counter-insurgency tactics employed by the government in waging the war and the wanton savagery of the Janjaweed aided in turning Darfur to become scene of the worst humanitarian disaster witnessed in the annals of conflict on the continent of Africa (UNHCFP, 2005; Omede and Luqman, 2005). Unlike in the past, today's weapons are not regulated. The new types of conflicts no longer aim at defeating the opponent's armies but at inflicting pain and humiliation on civilians, most especially, women and children (Cheo, 2006). Sierra Leone among other war torn countries, gives a view of armed conflicts in Africa that have left indelible marks in the collective memories of the people. The decade-long conflict was marked by an extraordinary level of brutal human rights abuses against the entire population, mostly women and children. Reports by researchers, international organizations, civil society and human rights groups on the armed conflict in Sierra Leone are reminiscent of shocking, horrendous, debasing and barbaric acts of manslaughter, sexual abuse, amputations, forced labour, forced conscription and other forms of torture committed against women and children (Cheo, 2006). The level of horror and terror is out of this world. The destruction of private and public property is

incalculable and the cost in human lives and human dignity, particularly women and children, unimaginable (Cheo, 2006).

Nowadays, the civil populations in any conflict constitute 90% of the total casualties with women and children being the worst victims (Oguntomisin, 2004; Aun, 2007). Although, the rebel forces raped indiscriminately irrespective of age, they targeted girls presumed to be virgins. Sexual violence was committed on a much larger scale than other human rights abuses. Radhika (2002) estimated that 72% of Sierra Leonean women and girls experienced human rights abuses during the war in Sierra Leone and over 50% were victims of sexual violence. Women and girls were raped, gang-raped, raped with objects such as weapons, umbrella sticks, pestles, knives, burning coal, hot oil and broken pieces of bottles. Many suffered irreparable vaginal tears, prolapsed wombs and will never have children again due to the brutal rapes. Many of the girls who could not survive the rapes bled to death, while survivors risk having future complications, including uterine problems and scarring, infertility risk, miscarriage and other health problems such as Vaso-Vaginal Fistulae (VVF) and Vaso-Anal Fistulae (VAF) (Sesay, 2005; Cheo, 2006).

In 1989, war effects and famine led to the death of over 1,000,000 people in Sudan (Nwolise OBC., 2006). Rwanda presented the world with a very agonizing case of genocide in 1994 when over 1,000,000 citizens were decimated within 100 days. Today, what is going on Sudan's Darfur region is far worse than what happened in Rwanda. At the end of 2001, there were 170,000 persons aged between 15- 49 living with HIV/AIDS in Sierra Leone. Meanwhile more than 50% of the figures (90,000) were women and girls (Cheo, 2006; Nwolise, 2006; JUNP, 2002). In June 2004, up to 5000 Sierra Leonean women fell victims to fistulae due to unsafe obstetrics and early pregnancy. About 86% of pregnant women in Sierra Leone were severely anemic resulting from war rapes (Cheo, 2006; BC News, 2004; UNICEF, 2005). From February 2003, the crisis in Sudan took a genocidal dimension, as the Arab Janjaweds with the support of the government and the national army began a systematic decimation of the Black population in Darfur. Despite the presence of 7000 African Union peacekeepers, the killing and crisis have continued, leading to the death of over 300,000 people and displacement of over 2,000,000 others (mainly black Africans). There is no doubt that the Janjaweds have wiped out several villages with fire and gunpowder, burning and killing (Nwolise, 2006; The Punch Newspaper, Lagos, 2006).

Forced migration

Forced migration is currently one of the most pressing challenges facing the international community today. It is a common problem shared by both the developed and developing countries alike (Eselebor, 2008). Identified

problems of forced migration, refugees, asylum seekers, human trafficking, economic migration, internal war and disaster displaced persons are traceable to colonial past, intractable conflicts, food crisis, economic globalization, disruption of traditional economics and uneven development. A country may have the best armed forces in terms of training and equipment, the most efficient military, naval, air force and police force, the most efficient custom men, the most active secret agents and best quality prisons, but yet be the most insecure nation in the world as a result of defense and security problems such as conflict and forced migrations within bad governments, alienated and suffering masses, ignorance, food shortages, poverty and hunger, diseases, crisis, war victims, natural disaster, unemployment, or even activities of foreign residents or companies (Nwolise, 1985). Any society that seeks to achieve adequate military security against the background of acute food shortages, population explosion, low level of productivity and per capita income, low technological development, inadequate and inefficient public utilities and chronic problems of unemployment has a false sense of security (McNamara, 1968).

All these have become a potential threat to state, global and enlarged human security and public health. Even HIV/AIDS pandemic cannot be divorced from conflict and forced migration trends (Eselebor, 2008). According to Eselebor (2008), the terror in the Niger Delta, insecurities in the major cities, energy crisis, unemployment, HIV/AIDS and escalating food crisis cannot be contained by increased armaments or security build-up, except the underlying causes are effectively tackled. Environmental degradation, struggles for control of scarce resources, bad governance and even energy appears to be a major push factor resulting in forced migration. There is also a hypothetical possibility that aid workers returning from a containment zone of an emerging infectious disease, such as novel pandemic influenza, may introduce the virus causing this pandemic into conflict settings. This introduction may reduce the time for preparedness, which can lead to increased illness, death and social disruption in these already vulnerable populations (Gayer et al., 2007).

Poverty

It is true that though Nigeria is blessed with both human and material resources, absolute poverty still exist in a scale which is unacceptable in the 21st century (Odumosu, 1999; Enaikelé, 2007). Poverty is hunger. Poverty is lack of shelter. Poverty is being sick and not being able to see a doctor. Poverty is not having access to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom. Poverty has many faces, chang-

ing from place to place and across time and has been described in many ways. Most often, poverty is a situation people want to escape. So poverty is a call to action for the poor and the wealthy alike, a call to change the world so that many more may have enough to eat, adequate shelter, access to education and health, protection from violence and a voice in what happens in their communities. Poverty is also the state of living in a family with income below the federally defined poverty line (Connectsi, 2008). A person is “poor” or “in poverty” if they reside in a household with income below the US poverty threshold, as defined by the US Office of Management and Budget. Poverty thresholds differ by family size and are updated annually for inflation using the Consumer Price Index. It is the state of living on less than \$2 a day, according to the World Bank. Poverty can also represent a lack of opportunity and empowerment and bad quality of life in general (Think Quest, 2008).

Europe, history of urban poverty posed the biggest threat to governments. The situation became worst (Britannica, 2008) given in November 2002 and also on November 2003 by the National Population Congress (Wikipilipinas, 2008). As of 2002, but no longer the case, India was home to the largest number of people living under two dollars a day (approx 25% of the population living under the poverty line) (Workplace Basics, 1988). Poverty also begets child labour (Cassiopeia, 2008). Many terrorists come from relatively impoverished backgrounds. For example, the 7 July London suicide bombers came from a relatively deprived area of Leeds (Encyclopedia Live Press, 2008).

In Sub-Saharan Africa, the \$1.25 a day poverty rate has shown no sustained decline over the whole period since 1981, starting and ending at around 50%. In absolute terms, the number of poor people has nearly doubled, from 200 million in 1981 to 380 million in 2005. However, there have been signs of recent progress; the poverty rate fell from 58% in 1996 to 50% in 2005. In middle-income countries, the median poverty line for the developing world—\$2 a day in 2005 prices—is more relevant. By this standard, the poverty rate has fallen since 1981 in Latin America and the Middle East and North Africa, but not enough to reduce the total number of poor. The \$2 a day poverty rate has risen in Eastern Europe and Central Asia since 1981, though with signs of progress since the late 1990s (World Development Report (WDR), 2000). Nigeria cannot be wallowing in abject poverty and still be willing to prosecute every skirmishes of conflicts around the world. After all, there is no need of carrying the national pride of being the giant of Africa to the point of sacrificing our brilliant soldiers in the theatre of wars of other nations (Enaikele, 2007).

Insurgence of environmental degradation

Over the years, the experience of neglect, exploitation and environmental degradation has offered a perfect

excuse for the youths in Niger Delta to engage in violent agitations. These violent agitations have manifested in the damage, bombing and seizure of oil installations, abductions, hostage taking, kidnapping, extortion, extra-judicial killings, suicide and warring mission of the armed militants. These are dangerous terrorist dimension to the conflict in Niger Delta (Enaikele, 2008). The growing insurgence in the impoverished Niger Delta is no doubt connected with environmental degradation. Environmental degradation associated with oil in the Niger Delta is a matter of concern (Enaikele, 2008). Similarly, unsanitary environmental conditions led to the proliferation of rats in postwar Kosovo and resulted in a tularemia outbreak among the displaced population from August 1999 through April 2000, with 327 serologically confirmed cases in 21 of 29 municipalities (Khan et al., 1999; Reintjes et al., 2002). The population had fled their villages because of bombings and on their return several weeks later, they found destroyed buildings, contaminated food stores and wells and a greatly increased rodent population. Control measures included appropriate case management, improving water and waste management, health education on hygiene and protection of food and water sources from rats (Gayer et al., 2007).

Impeded access to populations

According to Gayer et al. (2007) ongoing conflict can hamper access to populations for timely delivery of supplies and implementation of control measures during an outbreak. Several outbreaks of pneumonic plague have been documented in Oriental Province in north-eastern DRC, where war has hampered control efforts. Outbreaks occurred in a camp for mine workers in the Bas-Uele District (134 cases, CFR 43%) from December 2004 through March 2005 (Gayer et al., 2007; Bertherat et al., 2005) and in the Ituri District (100 cases, CFR 19%) from May through June 2006 (Gayer et al., 2007; World Health Organization., 2006b). In these outbreaks, achieving humanitarian access to relevant sites was difficult because of security problems, which delayed travel by response teams for investigation and implementation of control (Gayer et al., 2007; Bertherat et al., 2005; World Health Organization, 2006b). Access of populations to conduct vaccination campaigns may also be interrupted for months to years during protracted conflict due to long-term inadequacies in cold chain and logistics or ongoing insecurity. Low vaccine coverage has played the major role in reemergence of poliomyelitis in conflict-affected countries and has also pushed back global polio eradication targets (Gayer et al., 2007; Bertherat et al., 2005; World Health Organization, 2006b).

Development of drug resistance

Pathogen resistance to drugs can contribute to disease

emergence. Resistance may develop more rapidly in conflict situations because of inappropriate diagnoses or inappropriate drug regimens and outdated drugs. Treatment compliance may be poor because of purchase of insufficient quantities of drugs, selling or saving of them by patients, or interrupted treatment with sudden displacement or irregular access to healthcare facilities. In addition, private pharmacies, which can flourish in conflict situations because of no regulation, can compound this problem with drugs of unknown quality and acceptance of prescriptions from unqualified prescribers (Gayer et al., 2007; Bertherat et al., 2005; World Health Organization, 2006b). In an outbreak of *Shigella dysenteriae* type 1 infection in a Rwandan camp for Burundian refugees fleeing civil war in 1993, <50% of patients complied with their 5-day antimicrobial drug treatment (Gayer et al., 2007; Bertherat et al., 2005; World Health Organization, 2006b). A high attack rate of 32% was observed among 20,000 people in that camp, with a CFR of 4%. *S. dysenteriae* type 1 isolated from 3 of 7 stool samples was resistant to nalidixic acid (Paquet et al., 1995). Refugee populations had higher anti-tuberculosis (TB) drug resistance rates than nonrefugee populations in northeastern Kenya. Drug resistance to ≥ 1 drug was observed in 18% of newly diagnosed sputum-positive TB patients (with multidrug resistance in 3%) in refugee populations compared with 5% (and no multidrug resistance) in nonrefugee populations (Githui et al., 2000). A study of patients receiving short-course therapy for TB in an active war zone in Somalia during 1994 – 1995 showed that although treatment completion or cure was achieved in 70% of pulmonary TB patients, 14.5% of patients defaulted treatment (Agutu, 1997), which almost double the acceptable default rate limit for TB control programs in such settings (Gayer and Connolly, 2006).

Breakdown in infection control

Poor infection control practices in healthcare facilities have enabled amplification of outbreaks of viral hemorrhagic fevers (Fisher-Hoch, 2005). Medical settings have been the foci for several outbreaks of Ebola hemorrhagic fever (EHF) in Yambuku, DRC, in 1976, in Sudan in 1976 and 1979, in Kikwit, DRC, in 1995, and in Gulu, Uganda, in 2000 (Fisher-Hoch, 2005). Compared with other resource-poor settings, conflict situations, because of disrupted health services, may have even more sub-standard infection control, insufficient trained staff and personal protective equipment (PPE), which make EHF containment difficult. The natural reservoir for this disease is present in countries affected by prolonged civil strife and 11 of the 17 EHF outbreaks from 1976 through 2006 occurred in conflict-affected countries (World Health Organization, 2007). Before infection control procedures were instituted in the hospital, 79 healthcare workers were infected compared with only 1 afterwards. These

procedures included establishing an isolation facility; ensuring safe water, sanitation and waste disposal and providing PPE for staff (Khan et al., 1999).

Breakdown of surveillance and early warning and response systems

Surveillance systems are often weak in conflict situations, which results in delays in detection and reporting of epidemics. Limited laboratory facilities and lack of expertise in specimen collection may delay confirmation of the causative organism. Outbreak investigation and implementation of control measures may be hampered by fighting, impeded access to populations, destroyed infrastructure, limited coverage of healthcare services, poorly trained health staff and difficult logistics that prevent delivery of drugs (Gayer et al., 2007).

SPREAD OF NEW, EMERGING AND REEMERGING INFECTIOUS DISEASES

Many factors contribute to the ability of viruses to cross species and their dissemination in humans. Fifty percent of known human pathogens and nearly 75% of all emerging infectious diseases are zoonotic in origin. Many of these pathogens have spilled over from natural wildlife reservoirs into human populations, either directly or through contact with domestic or peridomestic animals. Viruses evolve quickly and many disease-causing agents already exist in nature (Webster et al., 2005). Human activities, including migration and travel, may disseminate a localized outbreak. During the 1990s, >5,000 airports had regularly scheduled international flights and ≈ 2 million persons crossed international borders daily. The World Tourism Organization anticipates 1.6 billion international tourists by 2020 (Mary Wilson, Harvard School of Public Health, Boston, MA, USA) (Webster et al., 2005).

For example, cholera, which is closely linked to a country's social and economic development, ceased to be of concern in Europe, for example, when access to potable water and sanitation improved although its cause was still unknown and antimicrobial drugs were not yet available (World Health Organization., 2007; Anbarci et al., 2006; Gayer and Legros, 2008). Today, renewed interest from the international public health community is urgently warranted and strong initiatives are needed to help developing countries (conflict-affected or not) fight against cholera and control this easily preventable disease on a global level (Gayer and Legros, 2008).

Detection and control of emerging infectious diseases in conflict situations are major challenging due to multiple risk factors known to enhance emergence and transmission of infectious diseases. These include inadequate surveillance and response systems, destroyed infrastructure, collapsed health systems and disruption of disease control programs and infection control practices even

more inadequate than those in resource-poor settings, as well as ongoing insecurity and poor coordination among humanitarian agencies (Gayer et al., 2007). Although there have been a few spectacular success stories, such as the eradication of smallpox, many diseases amenable to control by vaccination are still prevalent due to failure of the infrastructures necessary to deliver supplies to the populations at risk. Initial success in the control of malaria was followed by resurgence, aided by the emergence of insecticide-resistant vectors and drug resistant parasites (Hart, 1999, 2000). Duncan's major contribution was his recognition that the control of infections such as cholera, tuberculosis and diphtheria required a robust approach to improving the squalid housing conditions that prevailed in Liverpool at the time. Although his methods had considerable success, there still remained the threat of infections imported from elsewhere by the many travellers passing through the thriving port. The end of the nineteenth century heralded a new era of scientific understanding about the pathogenesis and transmission of infections, with a steady stream of newly described bacteria, parasites and their vectors, paving the way for control strategies based on ecological principles and with the potential for vaccine development (Hart, 1999, 2000; Beeching et al., 2000).

International spread of infectious diseases from conflict situations may also occur through movement of refugees, relief workers, animals, goods and private sector employees working in mining, oil, logging, or construction industries. A prolonged outbreak of hepatitis E virus in a camp in Darfur, Sudan, in May 2004 had >2,600 cases in 6 months, an attack rate of 3.3% and a CFR of 1.7% (Guthmann et al., 2006). The outbreak occurred during an acute conflict in a setting with >1 million displaced persons crowded into camps with little access to safe water because of drought and inadequate sanitation. The outbreak subsequently spread into neighboring eastern Chad in June 2004 because of movement of Sudanese refugees fleeing Darfur (Gayer et al., 2007). Rebuilding and rehabilitation efforts in post-conflict Sierra Leone have placed aid workers, United Nations peacekeeping forces and businessmen at risk for contracting Lassa fever and enabled importation of cases to industrialized countries (Gayer et al., 2007). Deaths from Lassa fever occurred in humanitarian workers in 2000, including United Nations peacekeepers (World Health Organization, 2000; ter Meulen et al., 2001). Also, changes in living conditions, including urbanization, encroachment on forested areas and changes in animal husbandry all encourage the emergence of new pathogens. Natural disasters, war and other pressures causing movements of displaced persons also contribute to the emergence of pathogens in new areas and re-emergence of old ones. The exponential increase in both volume and distance of air travel means that Britons are at increasing risk of encountering and importing infections from abroad (Hart, 1999, 2000).

CURRENT TRENDS

The emergence of the United Nations as a source of maintaining peace and security in the world and the dynamic measures that are now being put in place by regional bodies are pointers in the right direction in pursuit of measures for the attainment of sustainable peace and development especially in Africa (Yakubu, 2005). In countries with limited healthcare resources, providing routine medical care for other conditions may become difficult during a pandemic. For example, the treatment for tuberculosis or the antiretroviral treatment for AIDS patients may not be provided because of disruption in healthcare systems. Maintaining other public health programs, such as vaccination, may also be difficult when most of public health resources are spent for the response to a pandemic.

Military forces are increasingly implementing aid programs for conflict-affected populations. These programs have a crucial role and are a valuable resource. However, military aid can affect the neutrality of humanitarian aid. A consistent and transparent policy is needed for military humanitarian interventions, as well as extensive civil-military liaisons and close cooperation with other humanitarian agencies (Sharp et al., 2001). Data on disease incidence and trends are essential for prioritizing risks and planning interventions and should be obtained through disease surveillance and early warning and response systems. Several of these systems have been implemented in conflict situations. These systems include those in Southern Sudan and for Kosovar refugees in Albania in 1999, in Darfur, Sudan, in 2004 and in Basrah Governorate, Iraq, in 2003 and resulted in early detection and response to outbreaks of EHF in Yambio in Southern Sudan in 2005, hepatitis E in Darfur in 2004 and cholera in Basrah in 2003 (Gayer et al., 2007).

Given that healthcare in conflict situations is delivered by a wide range of national and international agencies, extensive collaboration between relevant health authorities and implementing partners should be encouraged. During an international response to an outbreak, coordination between partners and national authorities is usually ensured by WHO, which can also mobilize international experts from various institutions belonging to its Global Outbreak Alert and Response Network (Gayer et al., 2007). It is imperative that the technical capacity of all humanitarian health partners and ministries of health regarding disease surveillance, prevention and control in conflict-affected countries be enhanced to ensure effective implementation of infectious disease interventions. This implementation can be achieved through availability of internationally accepted standards, guidelines and tools adapted to conflict situations, which can be supported by specific training of health planners and health facility staff and rapid mobilization of international experts to provide technical field support as required. As in resource-poor settings, building the capacity of national

staff must be an integral part of program implementation, especially in times of heightened insecurity, when staff often remain behind in areas and continue working (Gayer et al., 2007).

FUTURE DIMENSIONS

Detection and control of many new, emerging and re-emerging infectious diseases in conflict situations primarily require a functional healthcare system. This system involves investment in primary healthcare infrastructure, human resources, training and provision of essential drugs, supplies, vaccines and equipment. Non-governmental organizations (NGOs), United Nations agencies and international organizations are providing crucial humanitarian assistance to many conflict-affected populations in coordination with relevant authorities. In such settings, good hygiene and standard infection control precautions in health facilities are needed to reduce the potential for nosocomial transmission and amplification of disease (Gayer et al., 2007).

There is an urgent need to understand the dynamics of the challenges of conflicts and spread of infectious diseases. These challenges are better managed and resolved if the nature and goals of the conflicts are well understood. Understanding the nature and goals of such conflicts notwithstanding, only the knowledge of appropriate strategies to adopt makes managers of conflicts better equipped than ever. Strategies such as, collective security, peace making, peace building and preventative diplomacy are therefore expedient in conflict management and resolution (Umaru, 2005).

The global body, the United Nations, as an institution of hope in the pursuit of global peace, the aberrations the super-power nations or members of the Security Council will need to be contained. Regional institutions are becoming institutions of hope as the African Nations, Organization of African Unity (OAU), ECOWAS impetus in containing the conflicts and wars in Liberia and Sierra Leone have been proven. According to Yakubu (2005), since most of the wars are internally induced, it will be necessary to put in place viable national measures for the purpose containing discontent. It should be emphasized that the time to re-configure the Euro-created African nations has come. A new Africa that will be more peaceful and workable should emerge. Nations emerge along the lines of homogeneity of ethos, values and ethnic compatibility. A continental discourse for the purpose of having sustainable peace and conflict resolution, which is very vital for sustainable development in Africa and the control of spread of infectious diseases will be much desired.

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