The Effect of the Conflict on Syria's Health System and Human Resources for Health

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Abstract

Prior to the conflict, Syria's health system was comparable with that of other middle-income countries; however, the prolonged conflict has led to significant destruction of the health infrastructure. The lack of security and the direct targeting of health workers and health facilities have led to an exodus of trained staff leaving junior health workers to work beyond their capabilities in increasingly difficult circumstances. This exodus together with the destruction of the health infrastructure has contributed to the increase in communicable and non-communicable diseases and the rising morbidity and mortality of the Syrian population. Strengthening the health system in the current and post-conflict phase requires the retention of the remaining health workers, incentives for health workers who have left to return as well as engagement with the expatriate Syrian and international medical communities.

Introduction

The conflict in Syria, which began in 2011, has resulted in a complex humanitarian emergency, with 7.6 million internally displaced people and 4 million refugees out of a total estimated population of 22.5 million (UNOCHA 2015). The conflict and the resultant destruction of the health infrastructure have led to a severe public health crisis, which has further impacted the health of the population (Cousins 2015).

Recent papers present detailed reviews of particular health issues relating to the Syrian conflict, including public health (Ben-Taleb et al. 2015), infectious diseases (Sharara and Kanj 2014), non-communicable diseases (NCDs) (Coutts and Fouad 2013) and mental health (EMRO 2013). The present paper compares the state of Syria's health system and public health profile before and after the conflict and its effect on the retention of health workers; it concludes with policy recommendations for meeting population health needs and the retention of human resources for health (HRH) both in the current and post-conflict period.

Section 1: Syria's Health System

Syria's Health System before the Conflict

Before the conflict that started in March 2011, Syria's health system was comparable with other middle-income countries; it consisted of a mix of government-run hospitals and primary care facilities, with advanced medical care concentrated in major cities such as Damascus and Aleppo (Sharara and Kanj 2014). However, the health infrastructure was suboptimal, particularly outside of major cities, with insufficient facilities and inadequate equipment. The Ministry of Health (MOH) was the main provider for primary healthcare, but other medical services including secondary care were also supported by other major ministries, including that of education, defence, interior and social affairs and labour (Ahmad 2014). The Syrian constitution stated that the provision of healthcare was the responsibility of the state and this was mostly implemented through the 14 governorates; however, state funding had been declining, with only 2.9% of government expenditure dedicated to health (Kherallah 2012).

Attempts to increase the autonomy of private-sector providers led to increasing inequality in access to care, with a particular impact on those living in rural areas (Ben Taleb et al. 2015; Kherallah 2012). Public–private partnerships in the hospital sector grew, and up to 20% of major public hospitals became "autonomous organizations" with some independence from the MOH. The private sector was focused in major urban

areas, particularly Damascus and Aleppo, leaving rural areas under-resourced (Ahmad 2014).

Childhood and adult mortality rates were declining between 2000 and 2010 (World Bank 2012), with an epidemiological transition from communicable diseases to NCDs (WHO 2011, 2012). Life expectancy at birth in 2010 was 75.9 years (UNRWA 2015). In 2012, child mortality was 15 per 1,000 live births and Syria was on track to meet the Millennium Development Goal 4 target; this was owing to the high vaccination rate for children and the universal coverage of skilled birth attendants and availability of institutional deliveries (Save the Children 2014).

Coronary heart diseases accounted for at least half of all-cause mortality (Ben-Taleb et al. 2015), and Syria had the highest proportion of cigarette smokers in the Arab region with a high prevalence of chronic obstructive pulmonary diseases (Coutts et al. 2015). Pre-conflict, mental healthcare in Syria was neglected, with 70 psychiatrists and 2 public psychiatric hospitals serving the entire population, and there was extensive stigma towards mental illness (EMRO 2013).

There are little robust data from either public or private hospitals before the conflict owing to a number of factors, including lack of accountability, poor morale, poor health information systems (HIS) and lack of trained staff to use existing HIS (Ahmad 2014).

Syria's Health System after the Conflict and the Destruction of Health Infrastructure

Since the conflict began in March 2011, there has been a health system collapse with closures of medical facilities; this has contributed to rising morbidity and mortality both as a direct and indirect result of the prolonged conflict (UNRWA 2015). Only 50% of primary health centres that were present before the war were functional at the end of 2014. The impact on hospital infrastructure is greater with, until March 2015, 233

deliberate or indiscriminate attacks on 183 medical facilities with the Syrian government responsible for 88% of the recorded attacks (Baker and Brown 2015). Given the suboptimal nature of the health infrastructure before the conflict, there was no cushioning effect once the crisis began (Cousins 2015).

Damage to health facilities has led to restructuring of health facilities inside Syria to meet the medical and humanitarian needs of the affected populations; these new facilities include "field hospitals". These facilities have been set up in factories, farms, houses, cultural centres and caves (Alahdab 2014), but often lack the required equipment to be effective at dealing with massive casualties (Alahdab 2014). They have become more developed with time; however, given the exodus of trained physicians, these facilities now not only lack equipment but also trained staff. Although attacks against medical facilities are against International Humanitarian Law and the Geneva conventions (Baker and Brown 2015; PHR 2014), these underground health facilities have been constantly targeted by armed forces. In 2014, a health worker was, on average, killed every other day (Baker and Brown 2015; PHR 2014).

Life expectancy at birth has fallen to 55.7 years at the end of 2014 (UNRWA 2015). Estimated direct mortality as of March 2015 is 210,000 (UNRWA 2015) and the number of wounded is 840,000, putting a strain on an already damaged Syrian health system and on countries hosting the Syrian refugees (UNHCR 2015).

Communicable Diseases and NCDs

The prioritization of trauma and immediate life-threatening conditions has led to neglect for the provision of primary healthcare, public health and immunization services. Outbreaks of infections that were previously well-controlled, including measles, hepatitis A, leishmaniasis, poliomyelitis, meningitis and scabies (Sharara and Kanj 2014), have increased in prevalence and further strained

the health service and vulnerable populations. The WHO estimates that routine immunization coverage has fallen from 90% before 2011 to 52% in March 2014 (SMSNA 2014). The spread of infectious diseases has been further affected by the lack of clean water in conflict-affected areas leading to a lack of sanitation and hygiene; water pumping in some areas has decreased by up to 90% compared with the pre-war state (PHR 2014).

Accurate data for NCDs since 2011 are scarce, though some estimates exist. The International Diabetes Federation estimate that 7.4% of the adult population in Syria is diabetic, with an estimated case load of 875,700 in 2014 (IDF 2014); projected estimates suggest that this is likely to increase significantly over the next decade (Al Ali 2013).

The management of complex medical conditions, including cancer and end-stage renal diseases (ESRD), has presented further challenges to the Syrian healthcare among internally displaced persons (IDPs) and refugees. Due to the lack of data, cancer prevalence among refugees is difficult to quantify (Coutts et al. 2015; Spiegel et al. 2014). The UNHCR has set up Exceptional Care Committees for decisions on registered refugees who may require particular treatments; 25.6% of the 1989 applications in Jordan between 2010 and 2012 were for cancer (Spiegel et al. 2014).

The management of ESRD requiring haemodialysis requires a stable health system that can dependably supply specialist equipment and highly trained staff for patients to continue with treatment. Pre-conflict, it was estimated that there were 226 patients per million requiring dialysis in Aleppo (Sekkarie et al. 2015). In conflict-affected areas, there has been a decentralization of dialysis services, with smaller units run by staff who are not always medically trained, receiving only on-the-job training (Sekkarie et al. 2015). This, alongside movement restrictions, violence and the inability to maintain the equipment, has contributed to the mortality of these patients (Sekkarie et al. 2015).

There are no current estimates of child mortality; however, the war has directly resulted in 10,000 child deaths, though many more have been injured or affected by the breakdown of health services (Save the Children 2014). Before the conflict, 96% of mothers received medical assistance when giving birth; it is now estimated that less than a quarter have access to reproductive services. The violence, roadblocks and destruction of services have meant that antenatal and post-natal maternal healthcare is significantly compromised, with an increased number opting for elective caesarian sections; these have increased from 19% in 2011 to 45% in 2013 (Save the Children 2014).

Supporting the mental health needs of Syrians is vital for other interventions to succeed. As a result of the conflict, it is estimated that more than 350,000 people suffer from severe mental health disorders and over 2 million are affected by mild-to-moderate mental health problems, including anxiety and depression (UNHCR 2014); however, there is insufficient mental health and psychosocial support clinicians to provide care.

Addressing the current and future health needs of these populations is hampered by the lack of sound epidemiological data such as population surveys to determine the current burden of illness. Without these collection strategies in place, the effectiveness of interventions is also very hard to evaluate (Cousins 2015; Coutts et al. 2015).

Section 2: Human Resources for Health

Flight of Health Workers and the Impact on Remaining Health Workers

Health workers have directly suffered the effect of the war, both personally and professionally, and have often been targets themselves (Ascheim 2015). Health facilities have not been respected as areas of neutrality or safety, leaving health workers at risk while

treating patients. All parties have been accused of attacks on hospitals or of using them as bases, with incidents of torture in military hospitals and "discriminatory denial" of healthcare as a "weapon of war" (Rubenstein et al. 2015; UNRIC 2013).

An estimated 610 doctors have been killed during the war, including 129 who were tortured or executed (PHR 2015). Providing medical care in areas controlled by the opposition was declared a criminal offense by the Syrian authorities (Rubenstein et al. 2015), a declaration that is in contravention of the Geneva Conventions. By 2013, 70% of the workforce had left the country (PHR 2014), and this number has dwindled further since then. For example, the east of Aleppo is among the hardest hit areas by barrel bombs; however, as of late 2014, there were only two vascular surgeons and one plastic surgeon. In this area (Rubenstein et al. 2015), pre-conflict, Aleppo's population was 2.5 million, with 6,000 doctors; now less than 20 doctors remain (Cousins 2014). In Eastern Ghouta, an area under siege, up to 90% of the medical staff have left; the resulting lack of surgeons significantly worsens patient outcomes and puts further pressure on the few overstretched remaining health workers (Szybala et al. 2015).

The nature of injuries seen as a result of the war from shrapnel, barrel bombs, burns, building collapses and incendiary weapons is far removed from what was seen before the war (Rubenstein et al. 2015). These catastrophic injuries would be challenging even in a functioning health system. However, on account of the destruction to hospital buildings and equipment, unpredictable water and electricity supplies and a lack of medicines and consumables caused by fragile or absent supply chains, health workers currently work in very challenging environments where they are unable to provide the standard of care to patients that they were able to provide before the war. These challenging settings, combined with the exodus of skilled doctors, have led to pressure on junior staff to act beyond their

capabilities and significant psychological strain. For instance, medical students, nurses or pharmacists are forced to work as trauma surgeons or anaesthetic technicians to take sole responsibility for anaesthetizing patients (Rubenstein et al. 2015).

Health workers have been imprisoned and tortured and, as they are arguably at greater risk due to their profession, many have left not only for their own safety but also for that of their families. Many have lost their livelihoods, status and thriving practices inside Syria, leading to an uncertain future for them and their families as refugees.

The high levels of trauma witnessed, together with the inadequate resources to hand and the inability to provide for their families, have resulted in secondary trauma to health staff working inside Syria (Rubenstein et al. 2015). In addition, health workers report intimidation from armed groups so that injured fighters are prioritized for treatment (Rubenstein et al. 2015). The needs of Syrian health workers, who have worked under extreme conditions for over four years (Attar 2013) and subject to stress and traumatic experiences that lead to anxiety, depression and exhaustion, need to be addressed with active efforts to provide effective support and training interventions, as these health workers are fundamental to the health system.

Section 3: Policy Recommendations Going Forward for Population Health Needs, Rebuilding and Retaining Health Workers

A number of measures are required to address the population health needs both inside Syria and for refugees outside the country, and a concerted effort must be made to retain and train health workers in both the current and post-conflict period. The ongoing and complex nature of the conflict further undermines the health of the population and delays the rebuilding of the health infrastructure. As long as it is unsafe for refugees and IDPs to return to their homes, it will be

difficult to persuade health workers to remain in Syria or to return. As such, efforts to end the conflict, protect civilians and enforce medical neutrality will have the greatest impact on the health of IDPs and refugees. All these factors are affected by the uncertain security situation inside Syria, particularly in besieged or "hard to reach" areas.

Population Health Needs

A policy of integration of health services for refugees and IDPs with the health services of host communities should be considered rather than the running of parallel health services; this would reduce costs and optimize resources (Hopkins 2007). This requires identifying barriers to access, availability and sustainability of services accessed by Syrians, so that redundancy is reduced (Hopkins 2007). This can be supported through improved coordination and cooperation in the humanitarian sector either under the umbrella of UNOCHA (United National Office for the Coordination of Humanitarian Affairs) or through other networks.

A harmonized approach to the collection and sharing of data should be actively sought, as health information systems (HIS) are required for real-time assessments of disease prevalence and population health needs (Ben-Taleb et al. 2015; Coutts et al. 2015). A functioning HIS would help identify new health needs as they arise. For instance, there is an increased need for psychological support, rehabilitation of those with war-related injuries and the optimization of child and maternal health services. Increased utilization of "m-technology," mobile devices to collect epidemiological data in focused efforts by individuals trained in collecting epidemiological data, or indeed by healthcare providers themselves, may prove increasingly important for real-time data (Free 2013).

Syria was a middle income country with aligned health system and services and complex population health. As such,

coordinated efforts are needed to continue to manage complex medical issues and unstable patient conditions.

As the conflict continues, population-level screening for cancer and other preventable diseases, education on smoking cessation and other preventative health measures are important aspects of care that may be cost-effective in the long term (Cousins 2015; Spiegel et al. 2014). Identifying community members and volunteers will be important factors in addressing these conditions.

On an individual level, the uncertain security situation inside Syria makes it difficult for IDPs to seek treatment, and in host countries, a lack of finances, a lack of familiarity with the health system and a lack of acceptance by the host community contribute to delays and suboptimal medical care for refugees (Spiegel et al. 2014). This can be addressed by including Syrian community leaders and leaders of host communities in the assessment, design and implementation of interventions.

Since the start of the conflict, a number of UN resolutions have been passed to address issues related to the medical neutrality, but they have not yielded a significant effect. They have addressed issues related to the lifting of sieges, humanitarian access, an end to attacks on civilians, respect for medical neutrality and an end to the deliberate withholding or delay of humanitarian relief (Szybala and Fallon 2014). Resolution 2165 was passed in July 2014 by the United Nations Security Council and called for the implementation of cross-border aid; this has resulted in some improvement in the UN's ability to deliver to parts of northern and southern Syria, though this remains a small proportion of the aid reaching Syria (Szybala and Fallon 2014). The resolutions embody what is required, but there is poor acceptance and little enforcement for them to be effective. A concerted effort to ensure that any further resolutions achieve acceptance and implementation is required.

Human Resources for Health

HRH are fundamental to the success of a health system. Supporting those who remain and identifying the barriers preventing those who have left to return are key to the development of a successful health service. Identifying the most needed specialties and providing training and salaries are important. Such specialties are likely to include maternal and paediatric services, trauma, plastics and rehabilitation (Ben-Taleb et al. 2015). However, health workers, as with many other displaced Syrians, may not seek to return if there is ongoing violence. Given that the conflict is unlikely to reach a swift, peaceful transition, a flexible, encompassing, humanitarian relief and healthcare program would be more effective (Ben-Taleb et al. 2015).

Given that there is likely to be an ongoing shortage of healthcare workers in the current and post-conflict period, innovative ways to support and build the capacity of the current health workers, volunteers and community members, will be increasingly important. This may be a part of telemedicine programs that have been successfully established (Soguel 2014) or through the training of community health workers (CHWs). Hand in Hand for Syria (HIH 2014) has already established an initiative to train CHWs to fill the void left by health workers who have fled (HIH). Alongside this, ongoing engagement of the expatriate Syrian medical community in the education, training and psychological support of health workers in the current and in the post-conflict period is vital. Organizations including the Syrian American Medical Society have initiated programs including regular intensive care and surgical skills teaching in Turkey, allowing doctors and health workers from Syria access to potentially life-saving skills. Skill shifting and training staff for particular skills are fundamental in this conflict.

Health Infrastructure

The construction of a foundation for primary and secondary health services is based on good nutrition, clean water and sanitation, immunization, vector control and good maternal and child health (USIP 2009). Other important aspects that impact on health are the provision of shelter, psychological support for the population as well as provision of essential medicines to treat infectious diseases and NCDs (Ben-Taleb et al. 2015; Coutts et al. 2015).

The recovery and post-conflict period will present numerous challenges but also opportunities to establish health systems that can reduce excess mortality and mortality. The aims should be to establish community-based, integrated basic health services, perhaps including mobile clinics to reach areas in need. These services are being partly achieved by Syrian non-governmental organizations in the current crisis; however, the lack of safety, staffing and equipment currently hampers these efforts, which require more development and expansion.

Maintaining a supply chain for medical equipment, vaccines and medication is essential, and resources such as the WHO's guides to the stability of medicines in non-refrigerated conditions may help donors to provide medications that are not as vulnerable to electricity and, therefore, refrigeration outages (Pitts-Tucker 2012).

Re-establishing the health infrastructure in the current and post-conflict period could be a way of establishing peaceful co-existence and promoting the rights of marginalized groups, allowing for civil society participation and government accountability (USIP 2009). As such, the health system could enhance the legitimacy of the emerging government, particularly if based on principles of equity of access, non-discrimination and transparency. This can be seen as an opportunity to build a strong health system that serves the current and future needs of the population.

Conclusion

Rebuilding Syria's shattered health system requires a holistic approach that addresses a number of issues. Among the most important are focusing on the retention of health workers, providing support and training, and establishing incentives for those who have left to return. Encouraging innovative approaches including the harnessing of technology will aid the remaining health workers, and task shifting will allow for the training of enough health workers to support the health needs of the population. Policies that uphold medical neutrality and the safety of medical workers and prohibit attacks on medical facilities are key to protecting the remaining health workers. Given the protracted nature of the conflict and the funding shortage, engagement with the expatriate Syrian and international medical communities is key in supporting the health needs of the Syrians both inside and outside of Syria.

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