Public Health Scenarios in Yemen

Workshop Summary: part of the Medact Health through Peace Conference, November 2015. Summary produced by Sharif Ismail, Taher Qassim MBE and Kate Nevens.

Summary

Nine months since the beginning of a protracted and increasingly bloody conflict in Yemen, some 5,500 people have been killed and over 26,000 injured. The humanitarian impact of the conflict has been catastrophic, and there is no imminent end in sight to the fighting.

In autumn 2015, a consultation process was launched by the Yemen Health Network (Musāhamatna) to gather views on likely forward trajectories for the health system in Yemen and to discuss ways of supporting health system rehabilitation there after conflict. This involved a small telephone consultation with diaspora Yemenis, and a workshop convened as part of Medact’s Health through Peace conference in London in November 2015 to discuss possible trajectories for the health system in Yemen under various different scenarios to 2020, and begin to identify some priority actions to support health system rehabilitation under each scenario.

This report summarises key findings from the consultation process to date, and outlines next steps in an ongoing project on health system rehabilitation and reconstruction in Yemen.

Background

There is no imminent end in sight to the conflict in Yemen. Aid agencies are rightly focusing on immediate relief efforts, but there is an urgent need to start thinking about possible paths for the country over next few years, and plan appropriately for reconstruction once the fighting calms.

Nowhere is this need greater than in health. Even before the upsurge in violence, access to healthcare was poor, especially in rural areas, and most Yemenis paid for medical care out-of-pocket. Despite improvements against key development indicators since 1990, health outcomes were also, in global terms, poor: a maternal mortality ratio of 270 per 100,000 births; under-5 child mortality of 60 per 1,000; and limited, though improving, vaccination coverage. Since March, the capacity of an already weak health system to respond to growing need has been crippled by extensive damage to medical facilities, supply shortages and safety concerns for health workers. The World Health Organisation (WHO) now considers that the Yemeni health system has collapsed.

In November 2015, a workshop held as part of Medact’s Health through Peace conference in London brought together around 70 people to discuss health in Yemen. The group included Yemeni diaspora, Yemen analysts, and health specialists. The objectives of the workshop were to think through possible trajectories for health in Yemen under a range of scenarios over the five years to 2020, and begin to identify some priority actions that could be taken to rehabilitate the health system in each case.

This report summarises key findings from the workshop, as well as a small telephone consultation conducted with 11 people (nine of whom are Yemeni) in the immediate run-up to the Medact conference. The consultation was designed to gather individual-level feedback on the scenarios described below.

What is a health system?

The WHO’s “building blocks” provide a convenient framework for understanding health systems. There


3 WHO. Urgent support needed to provide health services for 15 million people in Yemen [online at: http://www.emro.who.int/media/news/support-needed-to-provide-health-services-in-yemen.html - accessed 23/12/2015]

4 Consultation participants included individuals with specialist health knowledge, or intimate knowledge of services in Yemeni. They include several doctors currently working in the Yemeni city of Ta’iz where fighting has been intense in recent months.

5 WHO Western Pacific Regional Office. The WHO Health Systems Framework [online at:
are six building blocks which together contribute to the establishment of a strong and resilient health system suitably able to meet the needs of the population it serves, and capable of absorbing shocks of limited impact. Taking each building block in turn:

- **Governance** describes the strategic oversight, regulation, and mechanisms of accountability that allow a health system to operate effectively – both locally and nationally.

- **Financing** describes the way in which funds to support a functioning health system are raised and distributed. It is also concerned with protecting citizens from financial catastrophe or impoverishment associated with large, on-off payments for healthcare.

- **Workforce** considerations are of critical importance for effective health systems. A strong workforce is one that is appropriately trained to serve population health needs, distributed fairly nationwide, and able to respond efficiently to ensure good health outcomes.

- No health system can function effectively without **medicines and medical technologies** that are of appropriate quality, proven clinical and cost-effectiveness, and available as and when needed.

- **Information and research** describes both the way that basic health intelligence and disease surveillance information is gathered to inform decision-making

- **Health services** should be safe, effective, and of high quality, wherever delivered. Importantly in low resource settings, they should also be tailored to meet priority needs to ensure that resource waste is kept to a minimum.

In conflict, the stresses imposed on these foundations may be severe enough to bring about wholesale health system collapse, but it is more common for health systems to be compromised or service delivery curtailed, especially in lower intensity conflicts and post-conflict settings where the degree of stability varies between geographical areas.

**The health system in Yemen before the onset of fighting**

The health system in Yemen in early 2015 was a product of both the unique development challenges facing one of the poorest countries in the world, and a complicated institutional legacy first under two separate states (North Yemen and the People's Democratic Republic of Yemen until 1990), and then as a unified country from 1990.

As in most low income countries, primary healthcare services predominated, staffed by health workers mostly recruited by local cooperatives (in rural areas) and the governorates. Support in terms of equipment, facilities and technical input came from the Ministry of Health (MOH) in Sana’a, UN agencies including WHO and UNICEF, and an assortment of international NGOs. Secondary services were predominantly located in urban areas and in general offered access to a limited range of specialist services. Those seeking access to highly specialised treatment in general either did so in the small number of foreign private hospitals in major cities, or sought care abroad. For the 70 per cent of the population that lived in rural areas, specialist services were often out of reach.

Panel 1: Maternal mortality rate (above) and diptheria, tetanus toxoid and pertussis (DTP3) immunisation coverage among 1-year-olds (below) in Yemen, the wider WHO Eastern Mediterranean Region, and low-income countries since 1990

At $71 in 2013, annual per capita health spending in Yemen was well below regional average (around $520 across WHO Eastern Mediterranean Member States). Even then, around 72 per cent of total health spending was accounted for by out-of-pocket payments.⁶

⁶ Data from WHO Regional Health Observatory Data Repository – online at: http://rho.emro.who.int/rhodata/node.main [accessed on 18/11/15]
Despite the fragmented nature of the health system in Yemen and chronic underinvestment in health, progress against key indicators was in many ways impressive. There were global reductions in under-5 mortality rates, accompanied by improving immunisation rates for key diseases (such as diphtheria, tetanus, and polio) from 1990 onwards, and stabilising maternal mortality rates (see Panel 1\(^7\)).

The impact of conflict in Yemen since March 2015: an overview

In August 2015, the head of the International Committee of the Red Cross (ICRC) described the situation in Yemen as akin to that in Syria after five years of conflict.\(^8\) Nine months into the war, the impact of conflict is such that a humanitarian catastrophe on a vast scale is unfolding.

The immediate human toll arising directly from the conflict is substantial, and rising. Confirmed casualties include 5,723 people killed (of whom 573 are children) and 26,969 injured,\(^9\) but these figures likely underestimate true numbers. A substantial proportion of deaths to date have been due to the use of explosive weapons (both conventional ordnance and Improvised Explosive Devices) in residential areas, and in the first seven months of 2015, more civilians were killed or injured as a result of explosive weapons use than in any other country in the world.\(^10\)

The conflict has also caused extensive infrastructural damage. Shops, houses, schools, factories, markets, food and water transport vehicles, and refugee camps have all been targets of airstrikes and indiscriminate shelling. There has been significant damage to medical facilities and to roads, reducing both the accessibility and availability of medical care in various parts of the country.\(^11\) There is mounting evidence that damage sustained during assaults on civilian areas amounts to war crimes by all parties.

Infrastructure degradation has contributed to increased risk of communicable disease outbreak. Over the summer there were large but localised outbreaks of dengue fever in several cities, affecting an estimated 8,000 people in the southern city of Aden alone.\(^12\) This figure is probably an underestimate because surveillance systems have been badly affected by the conflict: an electronic early warning system implemented by the WHO in Yemen has seen weekly reporting rates from surveillance sites drop to 65 per cent from a baseline of 90 per cent earlier in the year.\(^13\)

The capacity of the health system to respond to growing need has been hampered both by extensive damage to medical facilities in sometimes direct attacks, supply shortages, and concerns over the safety of health workers.\(^14\) Medical staff throughout Yemen report shortages of clinical supplies, including medication for chronic diseases, dialysis equipment, and chemotherapy agents, exacerbated by the blockade.\(^15\) Shortages are acute in urban centres where fighting and movement restrictions are worst, notably in Ta’iz in the southern uplands.\(^16\) Yemen imports much of its fuel, and it is becoming increasingly difficult both to supply power to healthcare facilities and reach affected populations in rural areas. International relief agencies including MSF and the ICRC continue to operate, but the nature of the conflict poses significant safety risks to staff and limits space for humanitarian action.\(^17\) Finally, some 2.3 million people have been displaced from their homes.\(^18\)

The formal economy in Yemen has now all but collapsed. A significant contributory factor has been the imposition of a de facto blockade by the Saudi-led coalition: prior to the conflict, Yemen imported 90 per cent of its food, mostly by sea, and already had levels of chronic malnutrition comparable to some of the poorest states in sub-Saharan Africa. But there is also evidence of deliberate restriction of basic supplies to civilians by all sides on a local level. There are now critical shortages of food and fuel in many parts of the country. In September 2015, it is estimated that only 1

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\(^{13}\) Personal communication.

\(^{14}\) Guillard A. WHO condemns attacks on healthcare workers in Yemen. BMJ 2015; 350 doi: http://dx.doi.org/10.1136/bmj.h2914


The enormous challenges involved in anticipating potential paths ahead for Yemen given high levels of political and economic uncertainty were highlighted by both workshop attendees and consultation participants. Some felt that Yemen was likely to pass through some combination of all of the scenarios in the coming years. Participants saw no imminent prospect for a comprehensive settlement and an end to the fighting.

Implications for health in Yemen, and priority areas of action

Discussions on likely implications for health and priority actions for the coming 2-5 years focused on practical considerations under conditions of ongoing insecurity. Participants were divided into six groups corresponding to the WHO building blocks outlined above; they were asked to consider likely implications of each scenario for their building block, and priority actions to consider in each case.

Group 1: Governance

Participants with knowledge of Yemen explained that effective health sector governance had broken down even before the outbreak of fighting in March, partly under the influence of an increasingly powerful private sector and professional interest groups. Even in the “better case” (scenario 2), participants felt that health governance was likely to continue to be hampered by the absence of overall structures or health leadership so long as the conflict continues. In particular, it was felt that control over the Ministry of Health in Sana’a by a group (the Houthis) who are not currently internationally recognised and would likely struggle to secure external financial support for health – especially under blockade – would impose significant constraints on governance capacity building at the centre in Yemen.

This being the case, the health system may become increasingly reliant on grass roots leadership structures (local councils, cooperatives, or perhaps tribal leaders) to fill the governance gap. However, many will lack the skills, capacity, or indeed funding to manage health services on a local level. Some participants felt that corruption in health programming was likely to become increasingly problematic in this environment, and it would be difficult to challenge the existing balance of private and public sector service provision.

Priority actions to support health system governance in the coming years should therefore focus on:

- Behaviour change and values-based leadership training: building capacity and positive culture change at local level by engaging local and
regional leaders in training schemes as security permits.

- Strengthening medical school training by building values-based leadership and governance principles into undergraduate training programmes. This has been successful elsewhere (e.g. South Africa), but the effects would take some years to be realised.

- Developing frameworks of accountability, where there may be a role for international actors in helping local communities to formulate suitable frameworks, and in supporting the development of professional bodies for health workers.

- Research to identify culturally appropriate methods to support governance capacity-building at local level in Yemen.

**Group 2: Financing**

Ongoing fighting was felt to be a major risk in terms of the funding environment for health in Yemen. Participants agreed that more risk-averse donors are likely to withdraw funding altogether (if they had not already done so) and those that remain will likely focus funding on core targets and priorities, with important implications for coordination of programming. Combined with declining central government contributions, Yemen’s health system will in all probability face a significant funding shortfall at a time when population needs are rising rapidly and infrastructure degradation means an urgent need to finance reconstruction of health facilities. Furthermore, the risk of misappropriation of funds ear-marked for health – in the absence of clear oversight and coordination – will be high. There will be a greater emphasis on communities finding new means to support health service delivery on a local level, and increasing reluctance on the part of donors to give funds directly to a MOH in Sana’a without broad-based national support.

Priority actions could include:

- Reshaping health services to emphasise prevention, through increased focus on hygiene and sanitation, given the straightened funding climate in which health providers will be operating.

- Exploring alternative national and regional level financing mechanisms to ensure that a clearer link for donors between supply of financial support and service delivery. This could involve closer partnership with the private sector given their existing role in service delivery in Yemen.

- Microfinancing to support health service delivery directly on a local level, in the absence of clear and accountable national funding flows. However, the exact form this would take needs further investigation.

**Group 3: Workforce**

Participants were of the view that, in an environment of continuing insecurity and funding constraints, working conditions for health professionals will continue to worsen and the risk of injury or even death will be high. A proportion of the small number of qualified Yemeni health workers who can afford to do so are likely to leave, and support from foreign health workers will probably be limited. Perhaps a greater threat to health service delivery will be ongoing internal displacement of qualified staff who are unable to leave the country, and resulting inequalities in access to healthcare. Training for new health professionals will continue to be disrupted. There will also be shortfalls in qualified people in important allied professions – notably engineers to support sanitation and water systems.

Priority actions from a workforce perspective include:

- Supporting the development of a community-based workforce: in recognition of the difficulties patients may have in travelling to urban centres and disruption to health services arising from the conflict, participants felt that it would be essential to maintain and develop a healthcare workforce in the community, i.e. local primary care, maternity and child health services.

- Medical training should as far as possible reflect priority health needs among the population. For the most part this would entail supporting basic training needs at local level with an emphasis on ensuring self-reliance, through first aid training (in person or by phone) and training in management of simple complications for those engaged in maternal health services. Specialist training needs may be met by sending health professionals out of Yemen for brief periods to receive training, but participants acknowledged the practical difficulties associated with this, and it was felt that a more realistic proposal might be setting up training centres in safer parts of the country to which health workers would be transported.

- Ensuring the safety, health and wellbeing of health professionals is a key concern. Participants were unanimous on the need to protect the rights of health professionals to safe passage when performing their work, and of the need to protect healthcare workers from the risks the conflict poses to their own physical and mental wellbeing.

**Group 4: Medicines and medical technologies**

Participants felt that medicine and medical technology needs – especially under profound resource constraints – are likely to centre on communicable disease prevention and treatment agents (immunisations, antibiotics, and antiviral therapies), fluids and rehydration agents, equipment to support
basic maternal health care, and specialist emergency medicine and trauma supplies.

However, there will be important variations between stable areas and conflict-affected ones, where the risk of communicable disease outbreaks will be high. An important information source may be smugglers, because of their knowledge of the market at local level. Access to medicines is also likely to be limited, however, by compromised supply chains, by storage difficulties especially during summer months (electricity supplies are irregular at best in many parts of the country), and most notably in the near-term, by ongoing blockade.

Priority actions include:

- Campaigning for an immediate end to the conflict, to help provide the conditions for transport of medicines and devices to areas of need, including lifting of movement restrictions.
- Local needs assessments driven by local healthcare professionals and conversations with community members to identify major medicines and medical technology needs. Importantly, this will need to include information gathering from actors in the informal economy – including smugglers – who may have a more immediate sense of the market for medications in various parts of the country.
- Harnessing existing logistics networks, including those used to transport perishable goods such as qat, to ensure adequate delivery of medical supplies where the need is greatest.

**Group 5: Information and research**

Information gathering was acknowledged as critical by almost all participants, but fraught with difficulty. National health information gathering systems have fragmented, and there are considerable problems with information verifiability especially in reporting of conflict-related casualties, which is a politically sensitive issue. There are also large disparities in the volume and quality of information emerging from different parts of the country; while knowledge of the situation in and around the capital is good, information from large areas of south west Yemen continues to be patchy.

In this environment, UN agencies, NGOs and iNGOs will continue to play an important role as information gatherers and independent arbiters of data quality, but their ability to operate will be dependent on the security environment and in areas of intense fighting it may well not be possible for them to operate. Tribal actors may come to assume an increasingly important role in information gathering as locally trusted agents in this case.

Although mobile phone coverage remains acceptable in most parts of the country and might feasibly support information gathering, suitably trained people on the ground to oversee this process are now few and far between. In addition, there would be major challenges in terms of data security and patient confidentiality for a system reliant on these sorts of data gathering tools. Finally, mutual distrust between local actors may lead to poor information sharing where reliable data are available.

Information sharing could be supported through:

- Judicious use of low-cost and reliable technologies, in particular mobile phone networks – which continue to operate in many parts of the country. There are challenges with the reliability of self-reported data gathered in this way.
- Recruiting civil society groups as impartial gatherers and arbiters of information on a local level – especially for basic statistics on child and maternal mortality, and nutritional markers. However, this may become untenable in areas where fighting escalates.

**Group 6: Service delivery**

In general terms, participants acknowledged the close interconnections between other health system “building blocks” and service delivery, which would be ineffective without an adequately trained workforce, suitable funding support, and access to essential medicines. All three were acknowledged to be at significant risk in an environment of ongoing fighting and political instability. Primary and secondary care providers will face ongoing challenges with service delivery without reliable water, electricity, and fuel supplies. There is also likely to be severe service over-stretch in areas of the country with high levels of displacement.

From a disease perspective, participants acknowledged that trauma-related presentations are likely to represent a substantial part of the burden on health services for the foreseeable future – both acutely and chronically (through support with prosthetics and long-term physical and psychological rehabilitation). However, the focus on emergency and relief work in the context of ongoing conflict and limited resources may lead to neglect of chronic diseases such as diabetes – and indeed there is evidence that this is already occurring.

The risk of disease outbreak is likely to rise as vaccination coverage declines, and the burden of malnutrition will increase especially in the areas worst affected by conflict. Damage to infrastructure will likely mean wider spread of diarrhoeal disease, already a major cause of mortality in Yemen especially among children, and a rising burden of vector-borne diseases such as malaria and dengue fever.

Maternity services will inevitably be disrupted, increasing poor outcomes for mothers and their babies. In addition, the usual disease surveillance systems may not operate as effectively within
unstable areas, missing opportunities for early intervention and reduction of mortality and morbidity.

Priority actions include:

- Comprehensive needs assessments to understand the burden of disease in different parts of the country, supported by rapid local needs assessments to prioritise key services and ensure most efficient use of scarce resources.
- Development of tailored basic care packages would probably be needed in conflict-affected and stable areas. This might necessitate two health service designs: one focused primarily on emergency care; and a second, more extensive service package (in more stable parts of the country) including chronic disease management and adequate obstetric care. This second package will be based on pre-conflict service structures. The choice of which package to adopt should be based on disease surveillance and the needs assessments described above. Additional adaptations to service packages may be needed in areas with large numbers of IDPs.
- Close engagement of local NGOs who are likely to be best placed to deliver service packages along these lines, with suitable international NGO support, will likely be essential. This process of engagement should also involve service-mapping, to improve coordination of activities between organisations and reduce duplication.

Looking ahead: thematic issues and challenges

This workshop summary describes the findings from the first step in a process of engagement on future trajectories for health in Yemen. Participants in the workshop identified two scenarios as probable for Yemen over the coming 2-5 years: either (1) ongoing conflict at current levels of intensity, or (2) a slightly lower intensity conflict in which pockets of stability emerge in various parts of the country.

Some important common themes emerged in terms of appropriate actions to support health system rehabilitation in Yemen. Over and above all of these, however, workshop and consultation participants agreed that an overriding objective must be to bring about an immediate end to the fighting.

In the absence of a permanent ceasefire, however, participants felt that support for local governance, information gathering, and service delivery structures through capacity building, funding support (e.g. microfinance initiatives) and direct, specialist service provision is likely to be a key factor in supporting effective health interventions in Yemen over the next 2-5 years, especially since the probability of effective, national level health governance structures being re-established in the near future is low.

Second, harnessing local social capital will be essential for effective health service delivery in the coming years. Participants acknowledged the value of local knowledge of health needs, the importance of local leadership, and the strength of supply chains (e.g. for qāīt) as potentially exploitable to support delivery of essential medical supplies.

Third, information gathering using low-cost technologies was identified as a priority by participants in various groups. There are ready opportunities for this using mobile phone networks for which coverage continues to be good in most areas, and the benefits may outweigh drawbacks associated with reliability of self-reporting.

A major, and unresolved, consideration was the role of vertical programming for health in Yemen. Many workshop and consultation participants felt that some vertical programming would be essential to maintain outcomes in key health areas. Others favoured an integrative approach supporting health system functions across the board. Determining the proper place of vertical programming in light of current instability will be a major part of our future work.

Finally, participants emphasised the critical importance of advocacy in the context of ongoing conflict, both to increase awareness of the scale and scope of the humanitarian disaster unfolding in Yemen, and to maintain pressure on warring parties to respect humanitarian space so that health professionals are able to do their jobs effectively.

Next steps in this project

This report has identified a broad range of potential implications for the health system in Yemen in the context of ongoing conflict. However, there are tremendous difficulties involved in anticipating future impacts on the health system, and an important focus for Musāhamatna’s work in the months ahead will be refining the scenarios described above. We will be running additional workshops to consult more widely on this, and on the most appropriate means for supporting health system rehabilitation in the future.
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About Musāhamatna
The Yemen Health Network (Musāhamatna) is a newly established civil society initiative bringing together diaspora Yemenis (including health specialists), health professionals, humanitarian aid workers and health practitioners, researchers and others to consider how to support health system rehabilitation and reconstruction in Yemen after conflict. Musāhamatna’s activities are focused on creating a neutral space for discussing health in Yemen, and fostering peacebuilding through this, while providing practical and evidence-based recommendations on ways of supporting health system reconstruction. For further information about Musāhamatna and its work please contact sharif.ismail15@imperial.ac.uk.

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