

Resilience of Health Systems in Conflict Affected Governorates of Iraq, 2014-2018

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Research

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Abstract

Objectives

The objective of this study was to assess the resilience of health services in four governorates affected by conflict from 2014-2018, and to convey recommendations.

Methods

Health managers from Al Anbar, Ninawa, Salah-al-din, and Kirkuk governorates assessed resilience factors of Primary Health Care services affected by the 2014-2017 ISIS insurgency. Additional information was gathered from key informants and a health facility Unicef survey. Three specific aspects were examined: 1) meeting health needs in the immediate crisis response, 2) adaptation of services, 3) restructuring and recovery measures. Data from and MoH/UNICEF national health facility survey were 2017-2019 analyzed for functionality.

Findings

There were many common themes across the four governorates, with local variations.

- 1. Absorption.** The shock to the public sector health services by the invasion by ISIS caught the in the four governorates unprepared, with limited abilities to continue to provide services. Pharmacies and private clinics sometimes withstood the initial shock better.
- 2. Adaptation.** After the initial shock, many health facilities adapted by focused on urgent needs for injury and communicable disease care. In most locations, maternal, neonatal, and child health (MNCH) preventive and promotive services stopped. Ill persons would sometimes consult health workers in their houses at night for security reasons.
- 3. Restructuring or transformative activities.** In most areas, health services restructuring was continuing in 2020. Some heavily damaged facilities are still functioning below pre-crisis level, with reduced service availability. Rebuilding lost community trust in the public sector is proving difficult, though in some communities, trust remained strong.

Conclusion

Health services generally had little preparation and limited resilience to the ISIS influx. Governorates are, in places, still restructuring services after the liberation from ISIS in 2017. Disaster planning was identified by all participants as a missing component, as managers anticipated future emergencies.

Background

In January 2014, fighters of the Islamic State of Iraq and Syria (ISIS) seized Ramadi, capital of Iraq's Al Anbar governorate and soon after that, Fallujah, Al-Anbar's principal city.[1] In June 2014, control of Mosul, Iraq's second city was seized and soon afterwards most of the Ninewa governorate. During the next months, the invasion of two other areas, Salah-al-Din, and parts of Kirkuk occurred. (Fig. 1). ISIS control in Iraq effectively ended with the recapture of west Mosul by Iraqi government forces June 2017. The conflict displaced nearly 6 million people. In 2020, 1.4 million people remain internally displaced, mainly in the north and west of the country, while 4.7 million have returned to their place of origin.[2] The impact of ISIS on a health system already weakened by years of conflict and underfunding was great.[3,4] Many health workers fled. Some facilities continued to function under ISIS control, but in other cases facilities were abandoned or destroyed, sometimes by military action.[5] In Salah-al-Din, 36% of health facilities were destroyed and by 2020, only half of health facilities in Ninewa were functioning.[6] Facilities in these areas often had difficulty with the supply of medicines and vaccines, as well as retaining and paying staff. There is a widespread perception that recovery of health services has stalled in the four governorates.[7]

Some health facilities adapted to functioning under changed circumstances, while others did not. To better understand the resilience of health facilities to provide services in the four conflict-affected governorates, this study was carried out.

Resilience analysis has become recognized as an important process to assess the capacity of populations exposed to insecurity and conflict. The term resilience is often used in general terms to include governance issues, imbalances of power, the political economy of violence and inequality. These elements of resilience are seen as an important consideration for development programs.[8] Mitchel defined resilience capacity more specifically as the ability to absorb and recover from shocks whilst positively adapting and transforming services to retain some control over its structure and function in the face of long-term change and uncertainty (Fig 2).[9]

The Organization for Economic Co-operation and Development (OECD) developed a systems analysis approach defining resilience according to the health system level and the phases of a crisis or instability.[10] Common resilience terminology define three strata. *Absorptive capacity* is the ability of a health system to continue to deliver services in the face of a shock to the system. *Adaptive capacities* are those abilities of the health system to modify or change in order to minimize damage and take advantages of opportunities to meet population health needs. *Transformative capacities* describe the ability to reorganize health services to deliver effective services with new realities. Resilience strata can be defined according to the levels of a system from individual and community through to the executive or ministerial level.

The concept of health systems resilience in disasters became a topic of interest after the 2014 Ebola outbreak in West Africa.[11] Subsequently, resilience analysis has been applied to health systems affected by conflict. A 2019 qualitative analysis examined the capacity of the United Nations Relief and Works Agency (UNRWA) to accommodate the needs of a sudden influx of Palestinian refugees and also the capacity to provide services inside Syria.[12, 13] A data-driven approach was used by Odhiambo *et al* to measure health systems resilience in South Sudan.[14] A systems dynamics approach was used by Ager and colleagues to assess health service resilience in Yobe state, Nigeria, in the context of the Boko Haram insurgency.[15] Increasingly, health systems resilience is not seen as an isolated characteristic, but a product of interactions between various the complex systems which interact to influence the function of health services.

These findings have recognized a capacity-orientation for health system resilience as valuable in understanding management of health systems in adverse circumstances. The goal of health systems resilience analysis is to develop the abilities to strengthen health services to face potential instability and shock. These are important considerations for Iraq which has endured an almost continuous series of shocks to health systems from 40 years of conflict.

We set out to assess the resilience of primary health care (PHC) services in the four Iraqi governorates which had endured conflict from 2014–2018. The objectives were to pinpoint specific failures and positive resilience examples with the intent of conveying specific governorate-level recommendations for improving resilience for future crises.

Methods

During a November 2019, Erbil workshop, focus groups discussed factors and forces affecting PHC and maternal, neonatal and child health (MNCH) services during the 2014–2017 ISIS conflict. This meeting engaged 30 participants from health directorates and management teams in the conflict-affected governorates of Al Anbar, Ninewa, Salah-al-din, and Kirkuk as well as various health program managers. The agenda provided participants an opportunity to reflect on health system resilience in their governorates during the ISIS conflict and to suggest systems changes to improve health system resilience. Four separate focus group discussions were held, followed by summaries, discussions and queries from the various health directorates and the research team. These meetings were followed up with additional information from key informants and review of health systems data.

Discussions of resilience were centered around the following areas and general categories of questions.

1. **Immediate response to conflict in meeting health needs.** In this the emphasis was on the community, public sector PHC facilities and health staff. Questions included the private sector and support by the governorate's Directorate of Health (DoH).
2. **Adaptation and accommodation.** This discussion probed how communities and health services adapted to changes brought on by conflict. The capacity to improvise and create alternatives approaches during the conflict years was queried.
3. **Restructure and recovery measures post-ISIS.** Discussions focused on how community structures emerged post-ISIS. Actions that transformed and re-oriented facility-level services were discussed. A key topic was preparation of re-oriented services for future shocks. Health managers discussed the roles of central Ministry of Health (MoH) and the DoH in restructuring.

Discussions were in English and Arabic. Comments were transcribed by three note takers, two of whom were bilingual Iraqis. Notes were reviewed with other observers attending and edited for additional comments.

For comparisons of service availability following liberation from ISIS control, datasets from MoH/UNICEF national surveys of health facilities in selected districts in each of Iraq's 19 governorates were analyzed.

Results

1. Absorption. The consensus of health managers was that the conflict caught health services in four governorates unprepared. The ISIS assaults on Erbil (Sept 2013) and seizure of Ramadi (Jan 2014) raised little initial concern among the other governorates. Health facilities were caught by surprise as ISIS enveloped the other governorates. The central MoH provided little guidance or support in preparation for conflict at clinics and hospitals. Many people, including health workers, fled the ISIS offensive. The initial response in most places was a struggle for any continuity of basic services, with a reduced health work force and limited supplies. Roads were impassable in many locations, blocking supplies and hospital referrals. The PHC facilities which did manage to absorb the initial shock while continuing some services did so largely as the result of work by individual health workers and community members. In this initial stage, pharmacies and private clinics played an important role as alternatives to the public sector. The Al Anbar team believed its coping capacity was stronger because of strategies developed during the earlier (2004–2007) Al Qaeda (AQI) occupation. Al Anbar may also have been helped by a tribal cohesion developed during the Al Anbar awakening (2004–2009).

2. Adaptation. The communities and health services developed alternative approaches to provide various levels of health care. The extent of adaptation varied greatly among locations. In most locations, MNCH preventive and promotive programming stopped. Health facilities would adapt to meet primarily urgent situations such as injuries or communicable diseases. At some hospitals from where health workers fled the threat of ISIS, health workers from outlying PHCCs were moved to staff the hospitals where they remained in government control. In Ninawa, the ISIS caliphate created a health directorate and fee-for-services in occupied areas. Hospitals were a priority for ISIS to care for injured ISIS fighters. Residents hesitated visiting PHC clinics, fearing the religious police. Ill persons consulted health workers in their houses at night for security reasons which built cohesion between health workers and the community.

In areas under government control, some NGOs or UN organizations were able to support health worker salaries to sustain services. Many health workers remaining in contested or insecure areas were not regularly paid. During ISIS occupation, salaries for government employees were deposited in adjacent governorates for eventual health worker payment.

Overall, trust in the public sector health services deteriorated substantially as health facilities were unable to adapt to meet health needs. Private pharmacies managed to function in some areas and some even flourished by being able to acquire medicines through irregular supply routes. A few private clinics also functioned, run by public sector doctors working on the side, but most households could not afford private care.

In governorates partially occupied by ISIS, those areas under government control received large numbers of Internally Displaced Persons (IDPs). These governorates were struggling to provide services both for the IDPs and the resident population. Some international NGOs and UN agencies, especially UNICEF and WHO, were able to provide IDPs with MNCH care, greatly relieving stress on local health structures. During this time, many health workers as well as the population developed persisting anxiety and depression, with minimal if any mental health services available.

MOH relocated the DOHs offices to Baghdad for Al Anbar and Sala al-din, while for Ninewa backup offices were established in Erbil and Dohouk (Kurdistan) to provide remote management support.

UN Agencies could, at times, negotiate with ISIS for some services, through facilitators and the tribal leaders, allowing the health teams to conduct vaccination outreach services. Initially ISIS permitted the vaccination services in the mosques and schools and later they accepted the house-to-house vaccination campaigns. During ISIS control of Ninewa, workshops to facilitate changing to bivalent oral polio (OPV) vaccination were not possible; however, ISIS did permit online training.

3. Restructuring services. In many areas, health services restructuring was still going in 2020. Over 1.4 million Iraqis remain displaced within Iraq.[16] There are barriers for many IDPs preventing their return home. Some health care once provided to IDPs has eroded as international agencies closed programs, leaving IDPs in a precarious situation. Community members in many areas worked with health workers to carry out structural and clean-up actions needed, allowing PHC services to restart, providing MNCH services such as nutrition and EPI services. UNICEF was active in supporting the MoH in the restoration of MNCH services.

Hospitals were heavily damaged in some places with the number of functional hospital beds in 2020 below pre-crisis level. Other hospitals are functioning in temporary facilities. There is a widespread perception that the recovery in these four governorates has stalled. Many hospital specialists have left, though some were returning to work, while maintaining their residence elsewhere. In some areas of Kirkuk, local ethnic or tribal conflict continue, causing health workers to decline postings to these areas. Rebuilding the trust proves difficult, as many persons felt let down during the crisis. However, some facilities where there had been good community connections continued to enjoy community trust.

From 2017–2019, the MoH with UNICEF support, assessed the status of health facilities from selected districts in all governorates of Iraq including those in areas newly reclaimed from ISIS. Assessments of availability, functionality and provision of Maternal, Neonatal and Child health (MNCH) services are shown in Table 1. Data was compiled from different sources, including a nationally administered survey and national health information data. [17] Some facilities in these four governorates may not have been under ISIS control at all, or only for a brief time, making the data not fully comparable.

Table 1
Status and services availability in primary healthcare facilities located in four conflicted-affected governorates compared with non-conflict areas within Iraq that offer MNCH services

	Anbar	Ninawa	Kirkuk	Salah-al-din	Non-Conflict
Total Facilities	N = 171	n = 186	n = 113	n = 86	n = 2699
Functioning	137 (80.1%)	155 (83.3%)	86 (76.1%)	83 (96.5%)	2687 (96.2%)
Nonfunctioning	34 (19.9%)	31 (16.7%)	27 (23.9%)	3 (3.5%)	82 (3.8%)
Proportion of facilities that offer Primary Health Care Services					
Immunization	102 (59.6%)	97 (52.2%)	76 (63.7%)	52 (60.5%)	1365 (63.7%)
FP services	22 (12.9%)	36 (19.4%)	45 (39.8%)	10 (11.6%)	688 (32.1%)
ANC	44 (25.7%)	67 (36.0%)	63 (55.8%)	27 (31.4%)	1111 (51.8%)
PNC	42 (24.6%)	55 (29.6%)	61 (54.0%)	26 (30.2%)	1000 (46.7%)
Basic lab testing	63 (36.8%)	64 (34.4%)	63 (55.8%)	38. (44.2%)	1147 (53.5%)
Blood Grouping	42 (24.6%)	50 (26.9%)	40 (35.4%)	27 (31.4%)	978 (45.6%)

Differences among governorates

There were many common themes experienced across all four governorates such as health workers who felt isolated from central government assistance, leaving them ill prepared to absorb the impact of conflict. But there were also differences among governorates which determined adaptive and restructuring approaches. Some areas had more opportunity to develop adaptive measures from experiences of the 2003 invasion and the succeeding waves of conflict. Tribal tensions affected Kirkuk particularly, whereas tribal traditions were an adaptive strength in parts of Al Anbar. Mosul's sophisticated health facilities adapted to a much lower functional level after ISIS invasion, yet the restructuring continues to prove difficult due to major infrastructural damage. From some governorates, large proportions of the population fled to neighboring governorates, straining services in the host governorates. In Al Anbar and Kirkuk many were displaced within government-controlled areas, placing a heavy demand on functional services for these governorates, especially as the health status of the displaced was often poor. In places within Kirkuk and Salah-al-Din, international organizations were able to ease some of the demands on the directorate of health. Differing levels of compensation of health staff for salaries lost during conflict years has resulted in a limited numbers of health workers willing to work in some governorates. The extent of mental health and psychosocial problems as well as physical injuries among health workers varied with the local context but were frequently cited reasons for limited staffing available for restructure services. In some areas, ISIS deliberately targeted health workers leaving lasting trauma [5].

Discussion

This assessment of health systems resilience in the four governorates of Iraq controlled by ISIS from 2014–2017, found a devastating impact on health services. In the face of the initial shock health facilities had limited capacity to continue providing services. Adaptation to functioning under ISIS did not fare much better, although some facilities in Al Anbar had learned adaptation workarounds from earlier incursions by Al Qaeda. The transformative process to function effectively in the post-conflict environment is not yet a completed process in many locations, limited by insufficient funds, and human resources. Support by UNICEF has hastened restructuring of MNCH services in some locations.

Despite a 40-year history of almost continuous conflict, Iraq had not developed robust emergency management plans either at facility or DoH level. At the central MoH level, disaster preparedness was not prioritized. Although the MoH had earlier announced a reorientation toward primary health care, the public sector has retained a centralized hospital-oriented function, flirting only briefly with concepts of decentralization [4]

The initial shock of seizure by ISIS fell most heavily on the PHC clinics (PHCC). Hospitals falling under ISIS control tended to remain more functional, as they were expected to care for injured ISIS fighters. Many health workers fled, effectively halting MNCH services. Supply chains were interrupted. Some people hesitated to attend the remaining functional PHCCs as they doubted medicines they might need would be present, or feared encounters with *Al Hesba* the religious police.[18] Where services were able to adapt, there was usually a strong cohesion between communities and health facilities and committed health staff. Some patient consultations took place in the evenings at the homes of health workers, where people felt safer. In places, private clinics and pharmacies could meet some basic needs when the public sector could not.

In discussions with health care managers from the four governorates there were common recurring themes which form these recommendations:

1. *Building community cohesion.* Where community support was present, health facilities and health systems functioned better during shock and adaptation. The involvement of religious and tribal leaders helped to open a humanitarian corridor, access negotiation, protect health facilities and could sustain them through access to community power sources and provide warning of potential threats. Community cohesion could start with closer involvement of local councils in health facility support, especially at the PHCC level. A recurring theme was that difficulty in restoring community trust which was lost from the collapse of health services during insecure times.
2. *Developing disaster plans.* Health managers felt local insecurity threats persist and planning for seemingly inevitable future shocks was urgently needed. This should start with convening health system leadership to share experiences and successful strategies as a basis of disaster planning. Plans should be developed at different levels but with community participation, and health staff helping develop community emergency plans. Plans for people in the community with special needs should be made. Training is needed for health leaders and workforce to respond and adapt effectively in emergencies.
3. *Developing DoH (governorate) based disaster strategies.* Creation of an Emergency Operations Center (EOC) at governorate level could coordinate a disaster response. Early warnings could be provided, additional human resources and supplies deployed for a rapid response. The need for stronger communications between different levels was seen during the conflict time. Increasing buffer or reserve stocks of medicines and supplies would help sustain services following initial shocks. Reserve funding to sustain services in crises should be available. Health managers felt that the central MoH should take the responsibility to coordinate disaster management planning at different levels.
4. *Cross-sector coordination.* Development of DoH emergency management capacities should be developed or strengthened in conjunction with other sectors at governorate and district level. Resilience of the health sector depends on support from other sectors. Public-private partnerships are increasingly important strategies for adaptation of services, but not well developed in Iraq. There are many public-private options for access to transportation, pharmaceuticals and human resources.
5. *Rebuilding the heavily damaged health sector.* Both ISIS control and the military liberation seriously damaged the health sector. Restructuring health services requires a planned approach with adequate resources and human capital, which are presently insufficient. Resources for health infrastructure restructuring so far have largely come from individuals, communities or international organizations and little from central government. Prompt restoration of infrastructural losses can contribute to building population perceptions of government legitimacy and help restore trust.

Contribution from international organization such as UNICEF continue to play a pivotal role in adaptation and restructuring of clinics and vaccine distribution depots. During conflict years, UNICEF played an important role in vaccine supply and transport, reaching even into ISIS controlled areas.

Development of measures to promote resilience

Building Capacity of Care Providers. Resilience capacity for care providers is essential but largely neglected. Erbil workshop participants felt health facility staff need skills in developing community support and linkage with local leadership. Particularly, the need to develop plans for continuity of care during crises was identified. Building health worker capacities to plan, respond and adapt to crisis was mentioned frequently.

Strengthening health management capacities. Resilience of systems is linked to strong management processes which contribute to robust governance.[19, 20] Among those particularly relevant to resilience of the Iraq health sector are participation, deliberation, knowledge and management of uncertainty. Decentralization of health services could facilitate development of DoH emergency operations crisis management for deliberation, discussion and management of uncertainty. Sharing successful strategies among the four conflict-affected

governorates can help identify vulnerabilities and successful approaches. Initial efforts at decentralization were set out in 2014, but were subsequently put on hold.[21, 22]

Building community engagement. The importance of participatory engagement with community leadership has clearly been identified as critical for developing trust, a key ingredient in health system resilience. Community-based care was shown to be an essential component for resilient health systems during the West African Ebola outbreak.[23] There have been a number of models of successful community-health facility processes.[24, 25] The Health Visitors program, which exists in parts of Iraq, could be an important asset for building engagement.[4] Community care programs can be an important component in downward accountability and support participatory engagement.

Limitations

This report is based on separate focus group discussions with DoH health managers from each of the four ISIS-affected governorates and key informants. Thus, the focus is on resilience as seen from governorate level, although many managers had served in health facilities during the ISIS years. As such, the study lacked representatives from affected communities and reflects the community only through accounts from health workers. Two representatives from the central MoH attended and reflected views from Baghdad. Although all parts of Iraq have been affected by conflict in the past 40 years, and anecdotal information on resilience does exist elsewhere, we concentrated on these four governorates where experiences are still fresh in the mind of managers who lived through ISIS conflict times. The MoH/UNICEF health facility survey data cited may not have fully captured information from facilities under ISIS control.

Conclusion

The 2014 ISIS invasion of four Iraqi governorates revealed health services with little crisis preparation and limited absorptive or adaptive capacities. Health services struggled to maintain essential PHC services during crisis years, although private services could sometimes supplement the public sector. Many facilities were reduced to supplying services only for communicable diseases and injuries. The health system transformative phase following the ISIS defeat seems stalled, although most of invaded areas were liberated in 2017. Building a more resilient system at local governorate level, with capacity to better withstand different forms of stress and shocks need to be prioritized in national health planning. Health managers from the four governorates felt that experiences during the ISIS years need to be consolidated as a basis for crisis planning at the facility and governorate levels before they were lost from organizational memory.

Declarations

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Availability of supporting data

Data is available from web/ftp address (UNICEF address to be established) on application.

Ethical approval and consent to participate

This study was deemed not human studies research by the Institutional Review Board of the Johns Hopkins Bloomberg School of Public Health.

Competing interests

No authors have declared any competing interest. Opinion expressed in this paper are of the authors and not the organization they represent.

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Authors' contributions

SI, GB, AB, FL and MH conceived of the study. SI, TA, FL and GB facilitated workshop discussions. SA helped with transcript and writing. GB, SI, TA, SA, FL, AB and MH participated in the writing & reviewing.

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Figures



Figure 1

Approximate extent of ISIS control in Iraq. Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. This map has been provided by the authors.

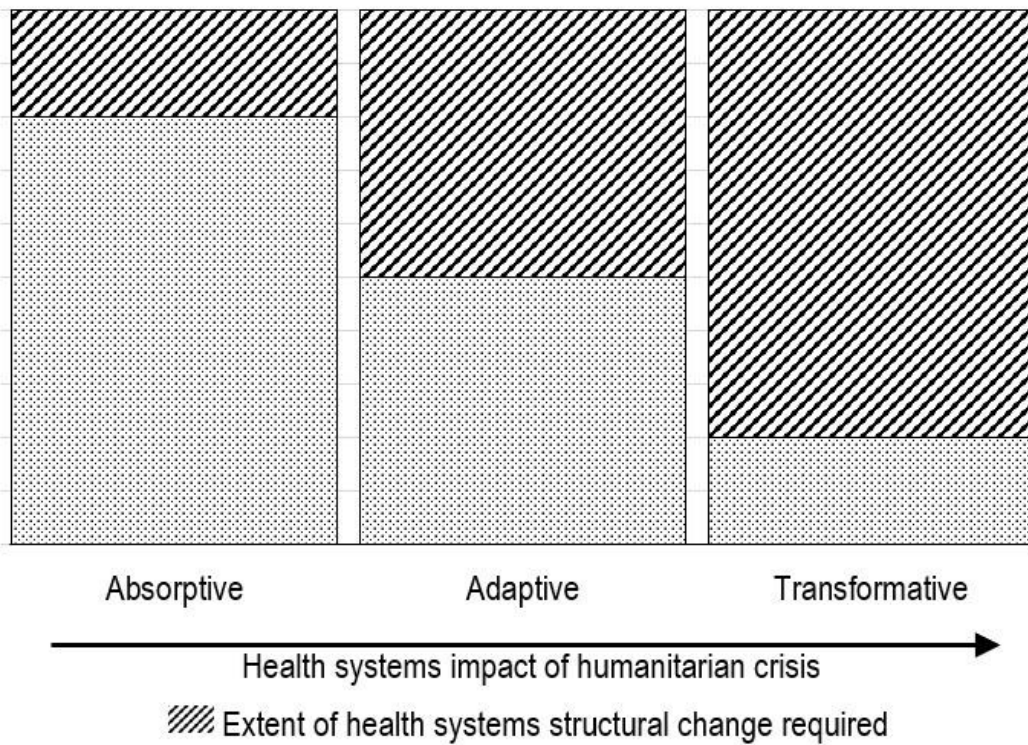


Figure 2

Resilience capacities needed in response to humanitarian crises. (After Blanchet, et al, 2017)