Health Sector in Yemen – Policy Note

Executive summary[1]

This policy brief describes the current status Yemen's health sector, which is suffering from the consequences of prolonged and ongoing armed conflict, economic decline, and institutional collapse. Availability of functioning health infrastructure, such as hospitals and primary care centers, has dwindled under the weight of conflict, with a significant share of the population having challenges with access to health care. Currently, only 50% of health facilities are fully functional, and over 80% of the population faces significant challenges in reaching food, drinking water and access to health care services. Shortages of human resources, equipment, and supplies are severely hindering healthcare provision. Furthermore, conflict has exacerbated health challenges and resulted in weak governance for the healthcare sector.

Difficulties in the provision of health service are reflected through worsening health outcomes. Reporting on the health status of Yemenis points to deteriorating health conditions amidst the ongoing conflict. These include high levels of child malnutrition, low immunization rates and outbreaks of communicable diseases. Maternal and child health are particularly affected by the worsening situation, with latest estimates pointing to one mother and six newborns dying every two hours. Additionally, conflict has also taken a direct toll on the health the population and is now estimated to the third main cause of death in Yemen, following ischemic heart disease and neonatal disorders.

Decreased external funding for health, coupled with unprecedented challenges such as COVID-19, raise uncertainty about the future of health services in Yemen. Yemen's health system is extremely reliant on external funding and the provision of health services is primarily done through implementing organizations, with a weak health system and an overreliance on development partners executing vertical health programs. External financing for health has dropped drastically from previous years, leaving Yemen's health system exposed to looming threats such as COVID-19.

Introduction

Yemen is currently suffering from the repercussions of a destructive conflict , with human development set back more than 20 years.[i] Even prior to the most recent escalation of the conflict, Yemen was one of the poorest countries in the world, with the lowest human development indicators in the Middle East and North Africa.[ii] Conflict and instability have pushed Yemen to the brink of socioeconomic ruin.[iii] A particularly destructive phase for Yemen began in 2014 and escalated in 2015 onwards. It is estimated that approximately 100,000 people died from combat and 130,000 from lack of food, health and infrastructure, including as many as 3,000 children. 45% of children who are dying are severely malnourished, and 50% of the victims of the conflict are women and children. The economy has collapsed, with GDP declined by 50% and 58% of Yemenis living in extreme poverty, as opposed to 19% before the conflict. Currently, about 24.4 million people—80% of the population—need humanitarian assistance and face significant challenges in reaching food or health care.[iv] Despite ongoing humanitarian

[1] This brief has been written by Toni Joe Lebbos and Denizhan Duran to inform World Bank HNP operations in Yemen. Contributions from Moustafa Abdalla, Kent David Garber, Takahiro Hasumi and Miyuki Parris, and comments from Rekha Menon and Yashodhan Ghorpade are gratefully acknowledged. This note has been finalized in July 2020, and updated in April 2021 with additional available data.

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assistance, 16.2 million Yemenis are food insecure. Pockets of famine-like conditions have returned to Yemen for the first time in two years in Hajjah, Amran and Al Jawf. Malnutrition rates among women and children in Yemen remain among the highest in the world, with 1.2 million pregnant or breastfeeding women and 2.3 million children under 5 requiring treatment for acute malnutrition.[v] **The conflict has led to the virtual collapse of basic social services, including Yemen's fragile health care system, and COVID-19 exacerbated the situation in Yemen**.[vi] Health facilities have been damaged or destroyed, and health care workers have often been targeted throughout the conflict, decreasing availability of infrastructure and human resources for health service provision. The COVID-19 outbreak, flooding, locust infestation and climate-related hazards have further compounded the impacts of the conflict on people and country systems and underscored their vulnerability to shocks. In recent years, the already dire humanitarian situation in Yemen has been exacerbated by multiple and overlapping infectious disease outbreaks such as cholera and dengue. The COVID-19 pandemic has further strained an already weak health system. Its mortality rate is high, estimated around 25 percent, and COVID-19 has reduced demand for routine health services such as immunization and maternal care.[vii] Flight suspensions due to COVID-19 have also interrupted the regular movement of humanitarian staff. This will be impacted both by regulations in Yemen and in UN Humanitarian Air Service-Yemen departure countries (Jordan, Djibouti). Yemen is ranked 193 out of 195 countries for its ability to manage an epidemic.[viii] Furthermore, since the onset of COVID-19 and the resulting contraction of the global economy, major donors have reduced and suspended aid in northern Yemen which created great uncertainty for health service delivery.[ix,x] In addition, funding gaps are also likely to pose a significant challenge, as more than 30 UN programs – including some health activities – are set to start reducing or closing down due to lack of funds. In addition to COVID-19 specific-risks, there are also important bottlenecks with regards to the humanitarian space, including restrictions in imports, military checkpoints for humanitarian tracks, as well as bureaucratic restrictions in the front lines hindering the delivery of assistance.

Yemen remains highly vulnerable to COVID-19. As of mid-April 2021, there have been nearly 5,300 confirmed cases of COVID-19 in Yemen, with more than 1,100 confirmed deaths. However, these official figures are likely severe underestimates, given that testing in Yemen remains limited (per WHO, only 26,000 tests have been conducted, less than 1 per 1,000 people, well below the rate of other countries in the region), and case numbers are regularly reported from only certain parts of the country. Recent studies have shed light on the magnitude of underreporting; researchers from the UK estimated more than 2,100 deaths attributable to COVID-19 in the Aden region alone from April-September 2020, based on analysis of satellite imagery from grave sites.[xi] In addition, COVID-19 has dramatically impacted access to care and service utilization on the ground, and healthcare facilities are widely underprepared to handle the pandemic, leaving the Yemeni population more vulnerable.[xii]Due to the pandemic, certain non-pharmaceutical interventions have been adopted, including social distancing rules, city and regional lockdowns, masking policies, and movement restrictions among governorates, but enforcement and compliance have been weak.[xiii] Additionally, some health facilities have been repurposed as COVID-19 isolation units caring exclusively for COVID positive patients, which may further increase challenges with access to care for other essential health services.

This policy note utilizes all available evidence to provide a snapshot of the current situation with regards to the health system context, service delivery, physical and human resources, and financing in Yemen. Although the toll of armed conflict on Yemen is well-recognized, little knowledge and data exists on how the current health system is functioning amidst chronic instability and insecurity. This

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is partly because of challenges to conducting robust systems research in dynamic and unstable environments where reliable data may be in short supply, and because of an understandable focus among actors on the ground on prioritizing immediate population health interventions. This note highlights the main health systems gaps, mainly in terms of poor health outcomes particularly for maternal and child health and communicable diseases; limited and externally financed health financing; significant damage to service delivery and physical and human resources capacity of the health system; and weak governance. Any future improvements to scaling up the capacity of the health system are contingent upon political and conflict-related developments.

Health sector context and epidemiological profile

While recent data on health indicators and demographic trends in Yemen is scarce, an analysis of pre-crisis trends already demonstrates a weak health system, particularly in terms of maternal and child health. Because of the prolonged conflict, there has been no official reporting on health indicators such as life expectancy, fertility, maternal mortality, and infant mortality since the years 2014/2015. Almost all recent health indicator figures and demographic numbers are based on estimation and projection made consistently with trends before the escalation of the conflict in 2015.[xiv] The following summary indicators provide a snapshot of the health situation in Yemen, even though exact health outcome data is not available due to the difficulty of collecting data on the ground. Yet, the existing data points to low coverage of essential services including immunization, antiretroviral coverage, maternal health and sanitation, as well as a high fertility rate and a high maternal mortality rate.[xv]

TABLE 1: KEY HEALTH INDICATORS[xvi]

Indicator	Figure	Year
HiB (HiB3) immunization coverage among 1-year-olds (%)	65	2018
Neonates protected at birth against neonatal tetanus (PAB) (%)	70	2018
Rotavirus vaccines completed dose (RotaC) immunization coverage among 1-year-olds (%)	64	2018
Estimated antiretroviral therapy coverage among people living with HIV (%)	21	2018
Tuberculosis effective treatment coverage (%)	62	2016
Antenatal care coverage - at least four visits (%)	25	2008-2013
Measles-containing-vaccine second dose (MCV2) immunization coverage by the nationally recommended age (%)	46	2018
Population using at least basic sanitation services (%)	59.05	2017
Pneumococcal conjugate vaccine (PCV3) immunization coverage among 1-year-olds (%)	64	2018
Population spending more than 10% of household consumption or income on out-of-pocket health care expenditure (%)	15.83	2014

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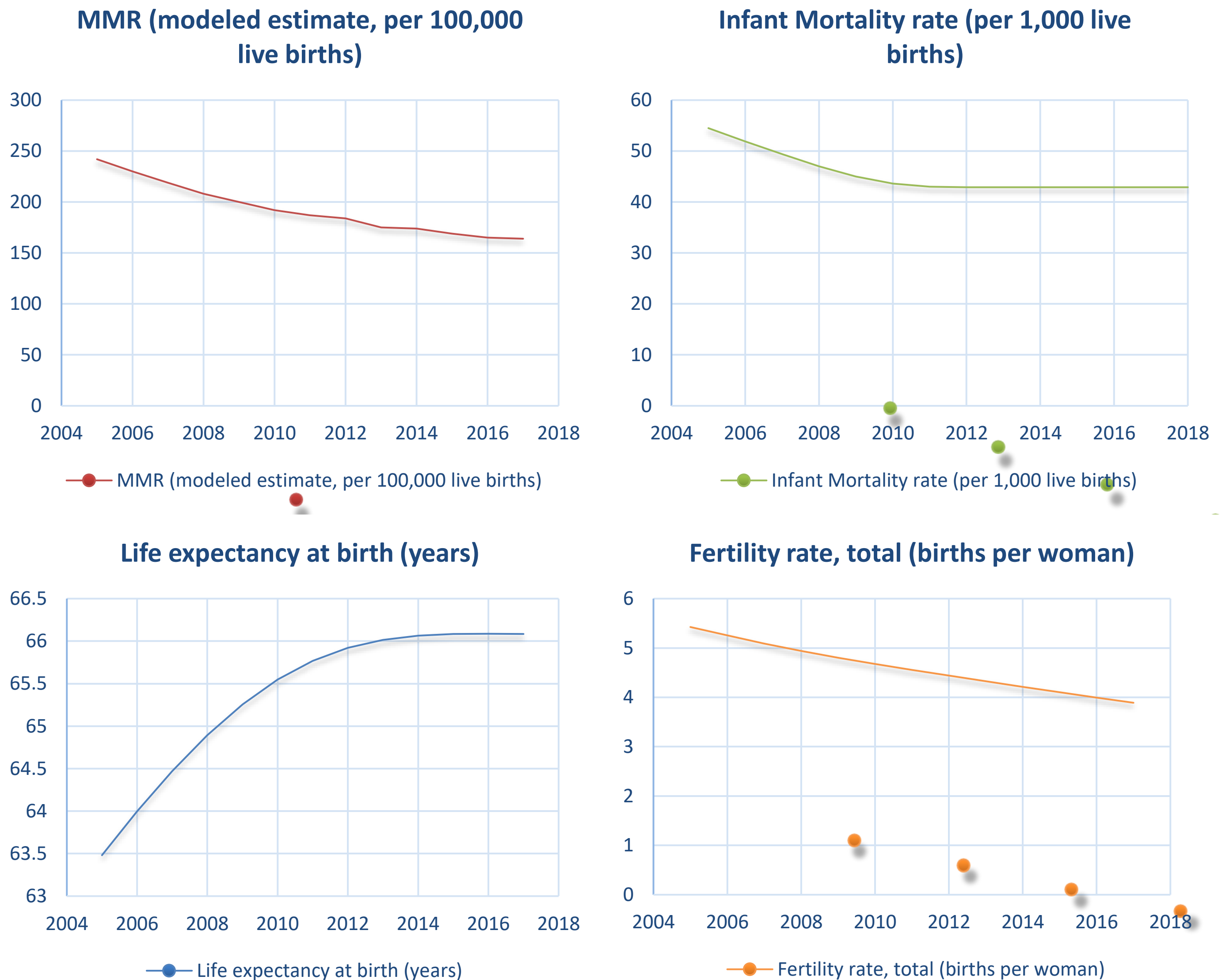
FIGURE 1: YEMEN HEALTH INDICATORS, WDI

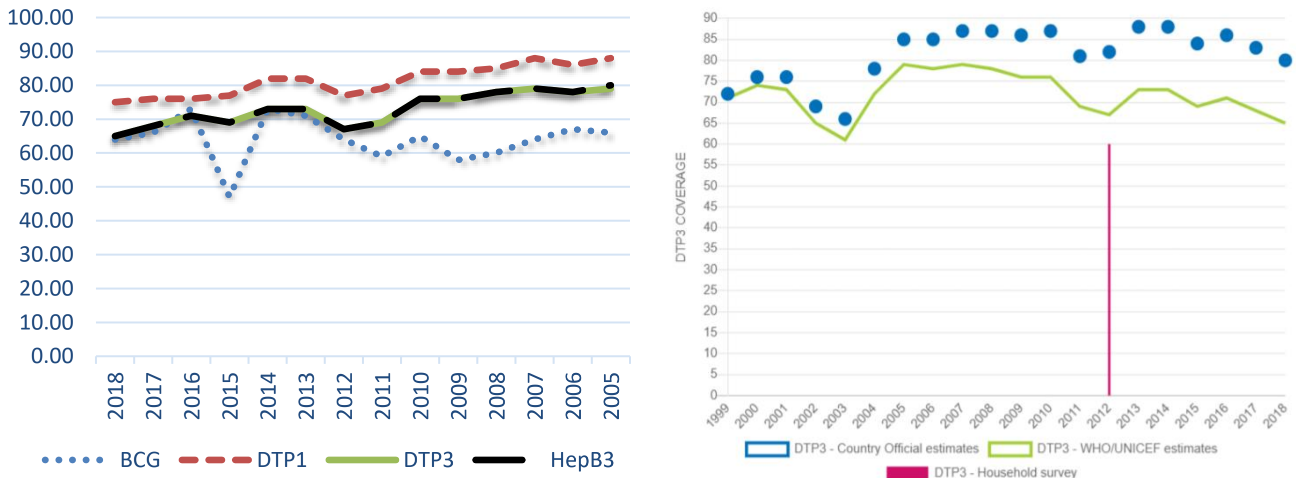


Source: World Development Indictors, accessed April 2020

The conflict has resulted in significant outbreaks of communicable diseases such as cholera, diphtheria, dengue and measles. Over one third of children are malnourished[xvii] and vaccination rates remain low.[xviii] Further, outbreaks of communicable diseases, including diphtheria and cholera, are affecting a large number of Yemenis, amplified by a conflict-linked breakdown in the country's water and sanitation systems. In 2019, there were 860,000 suspected cases of cholera and more than 56,000 suspected cases have already been recorded in the first seven weeks of 2020.[xix] A severe flooding in early 2020 impacting southern communities has further exacerbated the prevalence of communicable diseases.[xx] Currently, cholera impacts 93% of Yemen's 333 districts, and a total of over 4,000 people have died of cholera since 2017, with over a million impacted by the disease since 2017. This is largely due to the fact

that water and sanitation grids have been destroyed across the country. Oral cholera vaccination campaigns have distributed over 4.3 million doses. There have also been significant measles and diphtheria outbreaks, due to low immunization rates.[xxi]

FIGURE 2: VACCINATION COVERAGE WHO/UNICEF (GRAPH 1) AND COMPARISON WITH OFFICIAL AND HOUSEHOLD SURVEY ESTIATES (GRAPH 2)[xxii]

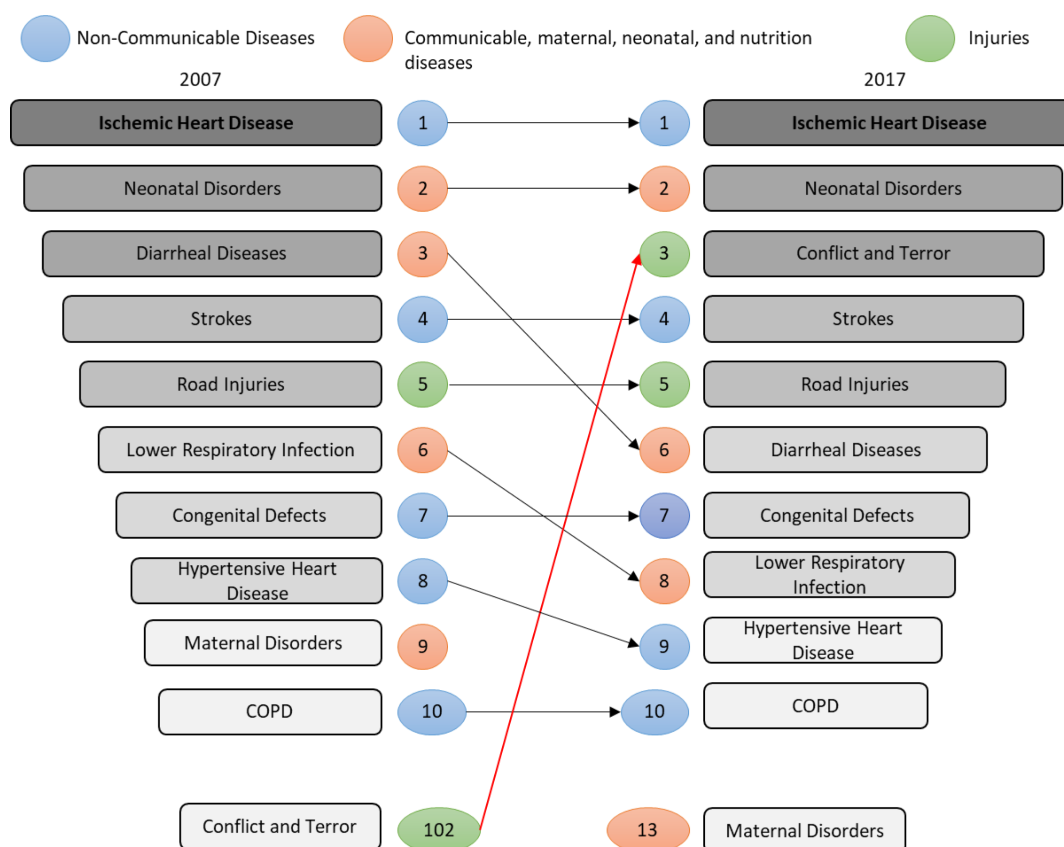


Conflict is now the third main cause of death and the second main cause of premature death in Yemen.[xxiii] Deaths caused by conflict rose by approximately 70% between the years 2007 and 2017 spewing conflict and terror to the be the third main causes of death and the second main cause of premature death in Yemen. The two top causes of death between 2007 and 2017 remain ischemic heart disease and neonatal mortality, attributed to a poor healthcare system. While there is scarce data on communicable diseases, there is even scarcer data on non-communicable conditions, the outcomes for which are undoubtedly negatively impacted by the conflict and the significant damage on health infrastructure.

Maternal and child health have been the affected by the conflict in Yemen. UNICEF's latest estimates for Yemen categorize mothers and babies as highly vulnerable, with one mother and six newborns dying every two hours because of complications during pregnancy or birth.[xxiv] The increased vulnerability of mothers and children has been linked to failures in conducting routine pre- and post-natal care due to an overcrowding of the health system with conflict-linked outbreaks such as cholera, as well as a rise in home births without skilled attendance instigated by the poorer economic conditions of households and difficulties in access, as described in the next section.[xxv]

Enduring malnutrition is exacerbating the health conditions of Yemenis, especially mothers and children. Twenty-five percent of the population in Yemen is estimated to suffer from either moderate or severe malnutrition. This includes 2.1 million children and 1.2 million pregnant and lactating women. Two out of every 3 Yemenis are hungry and half do not know when they will be able to eat next.[xxvi] Development partners have been operating to curb malnutrition, such as UNICEF implementing nutrition interventions to prevent and treat severe acute malnutrition in children in existing health facilities, and using Mobile Teams to access hard to reach areas.[xxvii] However, further efforts and funding are required to address a growing need for urgent nutrition care.

FIGURE 3: TOP CAUSES OF DEATH IN YEMEN, 2007-2017



Source: Authors' elaboration based on IHME. (2017). Global Burden of Disease Data.

Across all indicators, there are significant inequalities in service access and delivery. The inequalities were reflected in weak indicator performance for access to reproductive health services and immunization between regions in Yemen[xxviii]. 30 percent of the rural population did not have access to any health services in 2013[xxix]. There were significant differences, with a 17% difference in stunting rates between urban and rural children (51.4 rural, and 33.7 urban), and only 22.6% of deliveries in rural areas occurred in health facilities (as opposed to 49.1 in urban areas) (Table 3)[xxx].

TABLE 2: URBAN VS. RURAL CONTRAST, YEMEN 2015[xxxi]

Variable	Total	Urban	Rural
Place of delivery: health facility	29.8	49.1	22.6
Households using an improved water source	58.8	78.7	49.7
Households with improved. non-shared toilet facilities	44.8	83.4	27.2
Households with electricity	75.6	98.5	65.2

Displaced people living in crowded informal sites or dense peri-urban neighborhoods are particularly at risk for infectious disease outbreaks and other health challenges. Currently, about 3.6 million people remain displaced across Yemen, including more than 700,000 people who live in more than 1,700 informal sites scattered across the country with little or no services.[xxxii] People with underlying health conditions are also at grave risk, particularly as treatment for chronic conditions has deteriorated significantly over the course of the conflict. This puts a significant proportion of the population at grave risk for infectious disease outbreaks, including COVID-19. Health system

Governance and information systems

Yemen's health sector prior to the conflict was plagued with governance weaknesses and corruption. The health sector in Yemen prior to the conflict suffered from widespread governance weaknesses and that corruption was a significant problem down to facility level[xxxiii]. Global governance assessments persistently ranked Yemen near the bottom among 168 countries measured on public sector corruption.[xxxiv] Health care is guaranteed by the state of Yemen as a right to all citizens under the Yemeni constitution and has been historically overseen by the Ministry of Public Health and Population (MoPHP). The MoPHP was responsible for supervising delivery of health care across Yemen's 22 Governorates which held autonomy in managing local service delivery.[xxxv] Governorate health offices (GHOs) were responsible for health at Governorate level. Health care in Yemen prior to the conflict was therefore governed at three levels: centrally by the MoPHP, at governorate level by the GHOs, and locally by District Health Offices. Centrally, the MoPHP's governance remit extended across four sectors: primary health care, population health, curative care and planning and development.

Core health system governance functions in Yemen have deteriorated further since the onset of conflict and central governance over healthcare is divided, but district and governorate health offices (DHO/GHO) continue supervision functions, and improvements have been seen in information systems. The conflict has divided the country into two main regions, and already crumbling health system is therefore divided with no clear governance mechanisms in place. Health delivery programs seem to be mainly ensured and led by international humanitarian and development organization including the World Bank, UNICEF, USAID, and other donors, particularly in the northern regions. About half of the population of Yemen relies on humanitarian assistance on a monthly basis: assistance has reached an average of 11.6 million people every month in 2019, a significant increase from 2018, particularly focusing on cholera, vaccinations, and famine. Despite the fragmentation, certain governance mechanisms have been working effectively, such as the integrated supervision capacity of DHO and GHO to coordinate investments across different partners, even though variation remains with regards to the implementation capacity of different DHO/GHO. These supervision functions are a key lever in integration and in bridging the humanitarian/development divide. In addition to supervision functions, recently there have been improvements in the availability of data, through the piloting of DHIS2 in 700 facilities and with the increased reporting rates for early surveillance systems.

Institutional capacity building lays a strong ground for a resilient and responsive health system against shocks, such as COVID-19. World Bank support has focused on institutional strengthening through capacity building of healthcare workers, investments into a strong public health system (e.g. disease surveillance system) and information system (e.g. facility-based monitoring). In case of emergencies, use of existing infrastructure and capacity is critical to provide rapid response to meet surge needs. Thus, investing in institutions and its capacity remains high priority for a stronger health system for future pandemics and disasters.

Service delivery, infrastructure, and human resources

Yemen's health service delivery system has been fragmented and reliant on external funding even before the conflict. Health services in Yemen before the start of the conflict were organized at primary, secondary and tertiary health care levels with a small number of specialized centers in urban areas. Yemen's district health system, which spans across 333 districts, was also accompanied by vertical programs that focused on disease prevention and control. These programs were primarily supported by international organizations and donors including WHO, Gavi and the Food and Agriculture Organization (FAO) and include the expanded program on immunization, national roll-back malaria program and nutrition programs. Besides centers run by the Ministry of Public Health, curative health services were also provided by third parties such as the Military and Police. There was also a noteworthy presence for unregulated private sector curative care providers in urban areas. [xxxvi] The private health sector has expanded since the early 1990s, encouraged by the government and the table below highlights differences in services and personnel numbers between the private and the public sector in Yemen[xxxvii]. Furthermore, in rural areas it was common for health staff to work in public health facilities in the morning and then to work in their own private practice in the afternoon and evening. Thus 'free' healthcare is only available for a limited time every day and even then informal fees often apply[xxxviii].

TABLE 3: HEALTH SERVICES AND HEALTH PERSONNEL PUBLIC VS PRIVATE, 2014[xxxix]

Type of service/personnel	Number/10 000 population	
	Public Sector	Private Sector
Hospitals	0.1	0.2
Health Centers	2	0.18
Doctors	3	0.95
Dentists	0.2	0.2
Pharmacists	1	2.1

Challenges to service provision particularly in rural areas included sporadic access to essential medicines, shortages of equipment and lack of access to basic utilities including electricity especially in rural areas. Prior to the conflict, distance to facilities was a significant problem: 59% of women surveyed in two studies in 2013 cited this as a barrier to accessing reproductive care[xl]. Finally, although the literature on quality of care in Yemen is sparse, available evidence suggests that curative care services were of generally poor quality [xli] (measured through patient perceptions of care) and were neither readily available nor accessible across the country, especially in rural areas[xlii]. According to the IHME Healthcare Access and Quality Index (HAQ), which ranks countries in terms of the incidence of morbidity and mortality that should not occur in access to quality health care (e.g. amenable mortality), on a 0-100 scale, Yemen has one of the highest rates of amenable mortality in the world.[xliii] A recent study by the World Bank's Emergency Health and Nutrition Project (EHNP) assessed quality of care for antenatal care (ANC) visits, looking at the effective coverage for ANC through the availability of key clinical practices, availability of tracer medications, and availability of key supplies, demonstrating that in every governorate, the effective coverage of ANC interventions is lower than the coverage of ANC interventions, and in certain governorates the difference was more than 50% and that effective coverage of ANC remained below 30%, highlighting the significant quality gaps that are potentially evident in other health services as well.

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Attacks on health infrastructure (and infrastructure upon which health service delivery depend on such as roads, electricity, and water), coupled with shortages in HRH and supplies, have led to severe reductions in health access and quality. Most recent reports indicate that only 51% of health facilities are still fully functional and two-thirds of the population cannot access healthcare.[xliv] Over 274 health facilities have been damaged or destroyed[xlv]. One report estimates that there were 120 attacks on health facilities and medical personnel in Yemen over a 45-month period (with 50 percent of all documented attacks taking place in 2015, 16 percent in 2016, 21 percent in 2017, and 13 percent in 2018).[xlvi] In 2020, despite consensus on a ceasefire to allow for humanitarian response to the COVID-19 pandemic, factions in Yemen have continued to fight causing civilian causalities and damaging infrastructure[xlvii]. Furthermore, many health care facilities have shut down due to a lack of funding, medicine, and staff.[xlviii,xlix] Health facilities that have remained operational lack specialists, essential equipment, and medicines.[l] The 2016 HeRAMS survey noted large shortfalls in service availability by domain even within those health facilities still operational, with trauma management (of any form) available at 34% of those surveyed, and maternal and new-born health at 35%. Noncommunicable and mental health services were the least available (in 18% of the health facilities).[li] Only 43% of health facilities could diagnose and treat tuberculosis, malaria and other infectious diseases.[lii] Furthermore, Yemen has only 3 doctors and 7 hospital beds per 10,000 people, according to WHO.[liii] This ratio is far below what WHO considers a minimum of 22 health workers per 10,000 people necessary to provide the most basic health coverage.[liv] 18% of the districts across the country do not have doctors, and most health personnel have not received salaries in over 2 years, which has also resulted in a significant amount of brain drain coupled with unfavorable working conditions.[lv] Even though WHO and other partners pay health workers incentive payments, these are not done on a regular basis, and as such health workforce remains a significant bottleneck to service delivery.[lvi] A rudimentary indication of access restrictions can be seen through the total number of consultations reported through the electronic Disease Early Warning System (eDEWS), which dropped by more than half in the first 3 months of the conflict in 2015.[lvii]

Recent data and analysis from the World Bank Yemen Emergency Health and Nutrition Project (EHNP) highlights further gaps in physical access to health facilities. While up-to-date and administrative data is not readily available, as part of the EHNP, a geospatial mapping exercise has been implemented, finding that 30% of the population (or 8.8 million people) lived more than 30 minutes driving time from the nearest functional primary care facility, and more than 42% (or 12.1 million) lived more than one hour from the nearest hospital.[lviii] Most patients (82%) walk to the nearest facility, but nearly half of the population is further than a 30 minute walk from a primary care facility, highlighting the need to increase investments at this level particularly to cover emergency interventions. Analysis focusing on accessibility to key services revealed that 40% of the population lived over 2 hours of a drive away from the nearest comprehensive emergency obstetric and surgical care, and a third of the population lived more than an hour drive away from nearest antenatal care, which provides a significant risk for maternal and newborn health outcomes. Accessibility was particularly limited in frontline districts, and bypassing primary care facilities was rare, highlighting the need to strengthen capacity at these frontline facilities as well as scaling up community health workforce coverage. Tables 5 and 6 demonstrate the access constraints.

TABLE 4: ACCESS TO SPECIFIC HEALTH SERVICES, BY DRIVE TIMES

Service	% within 30 minutes	% within 60 minutes	% within 120 minutes

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Antenatal Care	45.4%	68.0%	85.7%
Treatment of Under 5 illnesses	53.8%	77.0%	92.0%
Malnutrition treatment	62.5%	85.4%	95.4%
Immunizations	62.5%	85.1%	95.7%
Basic Emergency Obstetric Care	34.3%	53.1%	75.8%
Comprehensive Emergency Obstetric Care	29.2%	41.8%	62.3%
Emergency Surgery	27.6%	40.1%	61.5%

Source: World Bank Yemen Emergency Health and Nutrition Project (EHNP), 2020[lix]

TABLE 5: % POPULATION LIVING WITHIN SPECIFIED TIME OF NEAREST HEALTH FACILITY, BY TYPE

Travel time	Nearest PHC with vehicle access	Nearest PHC by foot	Nearest Hospital with vehicle	Nearest hospital by foot
< 30 minutes	69.4%	55%	37.4%	17%
< 60 minutes	90.9%	82%	57.6%	32%
< 120 minutes	98.4%	97%	80.5%	52%

Source: World Bank Yemen Emergency Health and Nutrition Project (EHNP), 2020

In order to close some of the service delivery gaps and to bridge the humanitarian-development gap, a Minimum Service Package (MSP) has been launched and implemented in over 40 districts. Given the fact that service delivery has been significantly interrupted and that many development partners have been supporting service delivery in a fragmented manner, it has been essential to transition towards an integrated service delivery modality. In order to facilitate this transition, an integrated Minimum Service Package (MSP) has been launched as part of the World Bank, WHO and UNICEF's EHNP, including most critical interventions at each level of care pertaining to general services and trauma care, child care, nutrition, communicable and non-communicable diseases, and WASH interventions, from the community and mobile level up to the district and inter-district hospitals. The MSP has been piloted in 2017 and scaled up further in 2018, and there have been recent efforts to scale up its implementation further as well as integrate its implementation with financing and information systems. The MSP is currently implemented in about 42 districts and is in the process of being scaled up further.[lx] In addition to World Bank, WHO and UNICEF, various other partners, such as the European Union and Saudi Arabia, also support the implementation of the MSP.

There is a need to transition towards more flexible and integrated service delivery mechanisms, particularly considering the significant level of destruction at all levels of the health system and the limited access to primary care. Even prior to the conflict, service delivery suffered from low outpatient utilization rates, underutilization due to access and quality, and lack of provision of health services and

essential drugs in public facilities. These trends have been exacerbated with the conflict, which has destroyed 50% of health capacity thus far. In addition to the fixed nature of the health system, current service delivery systems remain verticalized, with different vertical programs providing different interventions; this is further exacerbated by the humanitarian-development gap, as well as the overly fragmented governance structures across all stakeholders in the health sector. The combination of community-based mechanisms together with fixed and mobile facilities can serve to close the gaps in coverage and provide flexible service delivery.[lxi]

Health financing

The health financing system in Yemen prior to the conflict relied heavily on private out-of-pocket spending with relatively low public expenditures on health (only 2% of general government expenditures in 2015).[lxii] Public expenditure on health as a percentage of GDP decreased from 1.16 percent to a mere 0.43 percent in the years leading up to the conflict (between 2005 and 2015) and public expenditure on health as a percentage of general government expenditures saw a similar fall from 3.84 percent to 2.22 percent (Figure 4).[lxiii] During that same period, public health expenditures as a percentage of total health expenditure decreased from 22.5 percent to only 10.2 percent and OOP expenditures increased from 74 to 81 percent (Figure 5).[lxiv] Health spending per capita in 2015 was $72, an extremely low figure compared to other low income countries, 80% of which was financed directly by households at the point of care. Out-of-pocket contributions in Yemen before the conflict were generally in the form of flat-rate user charges for inpatient and outpatient services with 6% and 4% of the population incurring catastrophic and impoverishing expenditures on health.[lxv] Furthermore, escalating treatment fees coupled with heavy transport costs for patients (particularly patients from rural areas), formed significant access barrier.[lxvi] 16% of the population was spending more than 10% of their household consumption or income on out-of-pocket health care expenditures and 4 percent of the population was spending more than 25% of their household consumption or income on out-of-pocket health care expenditures. While there is a scarcity of data following the conflict, a survey conducted by EHNP indicates that 63% of patients paid out of pocket for hospital and 15% paid out of pocket for primary health care, with the median OOP at hospitals at 6,000 YER (USD 24) and mean OOP at primary health facilities being at 1,200 YER (USD 5). OOP was particularly driven by medicine and lab procedures. Further analysis is needed to better understand the drivers in the variation of OOP, as well as the impact of this spending on catastrophic health spending, but these trends as well as the baseline status of health financing in Yemen point to the importance of containing out of pocket expenditures, which are set to constrain demand even as the supply side remains constrained.

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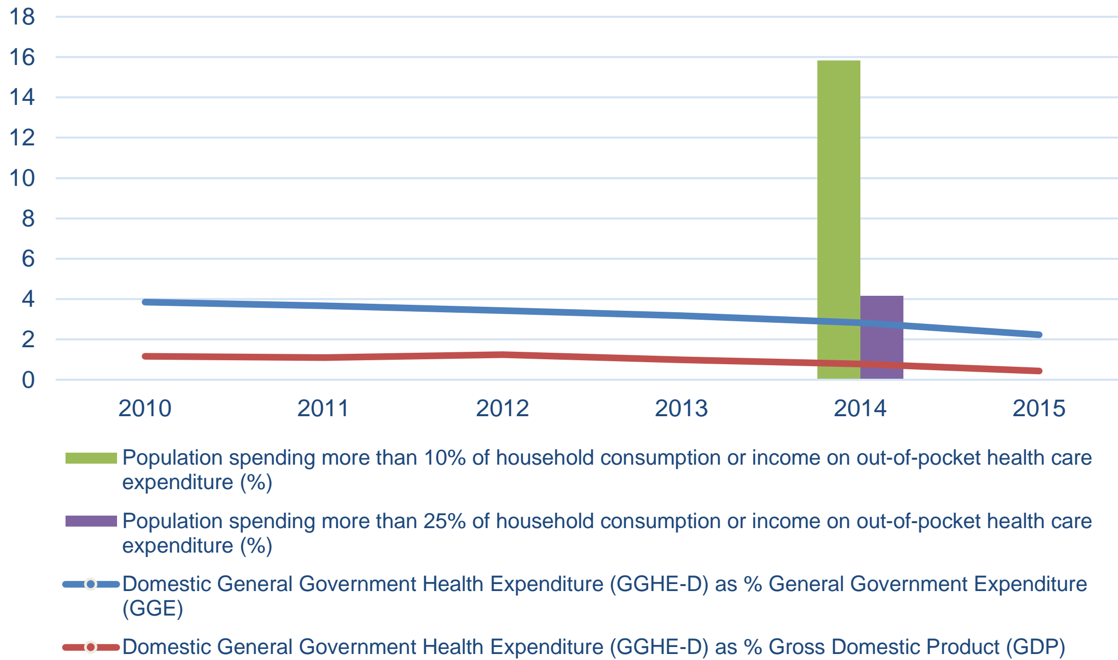
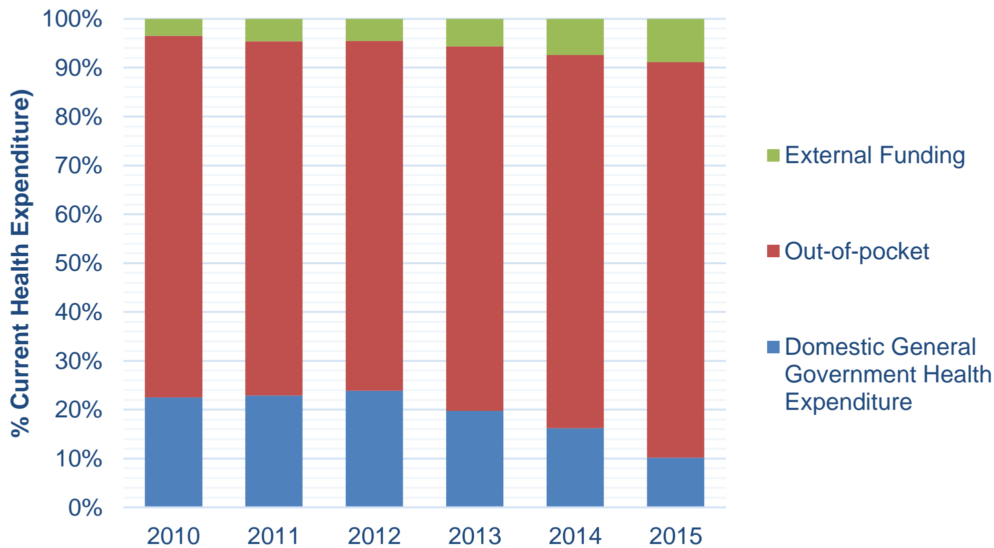
FIGURE 4: PUBLIC HEALTH EXPENDITURES (% OF GDP AND % TOTAL GOVERNMENT EXPENDITURE) AND CATASTROPHIC AND IMPOVERISHING SPENDING ON HEALTH



Source: Graph produced using WHO health expenditure data, 2010- 2015

FIGURE 5: % CURRENT HEALTH EXPENDITURE BY SOURCE (GOVERNMENT, OOP, EXTERNAL)

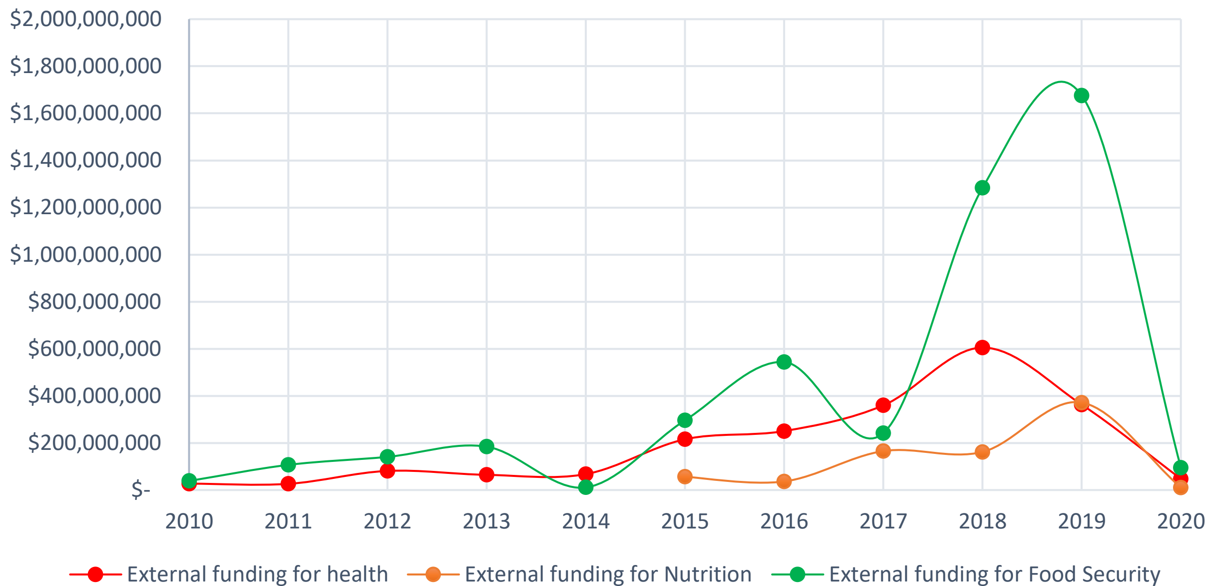


Source: Graph produced using WHO health expenditure data, 2010- 2015

Currently, the health system in Yemen relies primarily on external funding to deliver basic services, leaving it vulnerable to fluctuations. With the Yemeni economy severely contracted and the public administration functions heavily hindered with conflict, public spending on health is reported to be

virtually non-existent[lxvii]. The delivery of health services is therefore heavily reliant on funding from external partners and donors. Over the last decade, external financing for health increased steadily, peaking in 2018 at approximately 605 million USD and have shown a decline in the last 2 years, declining to about 370 million USD in 2019[lxviii]. Figure 6 below illustrates the latest estimation of total external funding for health in Yemen while paralleling the trends with external funding for nutrition and food security.

FIGURE 6: EXTERNAL FUNDING FOR HEALTH, NUTRITION, AND FOOD SECURITY, 2010-2020

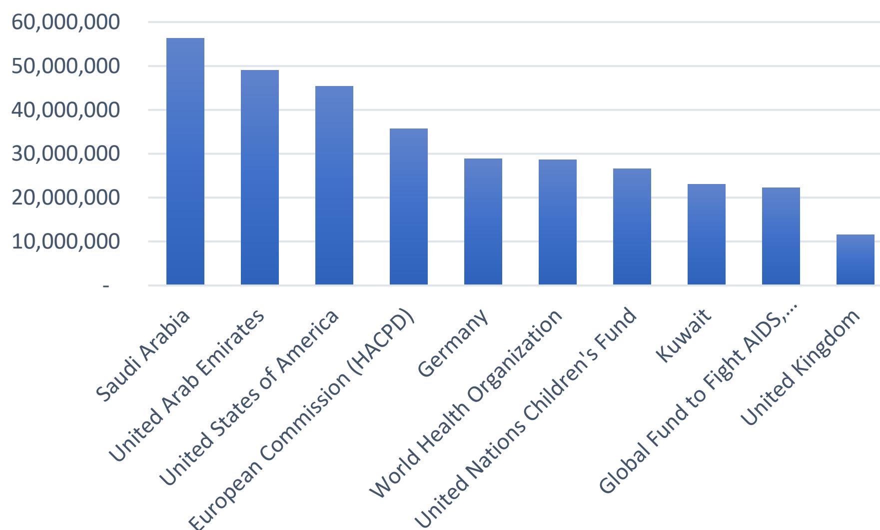


External partners and donors channel funds through international and local NGOs, as well as WHO, to provide services, and funding has been decreasing drastically. A detailed resource mapping tracking the main contributors to the health and nutrition sectors in Yemen as well as their respective activities does not exist. Figure 7 however attempts to fill this gap based on publicly disclosed expenditure reports and budgets for 2019 with the Kingdom of Saudi Arabia, the United Arab Emirates, and the United States being the main bilateral funders of health services.[lxix] Throughout the last months, several announcements have been made by major donors indicating that financial support for the health sector in Yemen will be decreasing.[lxx,lxxi] Since mid-April, more than 30 core UN programs were downsized and some closed. Early numbers from 2020 indicate that the number of people reached with assistance each month had decreased from an average of 15.2 million people per month in the last quarter of 2019 to 13.5 million in the first two months of 2020. The decrease in assistance was reported in 155 districts in 21 governorates with Sana'a, Dhamar, Ibb governorates, and Sana'a City among the worst affected.[lxxii] Decrease in funding, coupled with increased demand because of COVID-19, evoke uncertainty about the future of health services in Yemen.[lxxiii] [lxxiv] The five largest recipients of external funding operating in Yemen in 2019 are the World Health Organization, the International Organization for Migration, the United Nations Children's Fund, the government of Yemen, and the United Nations Population Fund (Figure 8).[lxxv] In addition to Saudi Arabia and the United Arab Emirates, USAID is one of the largest funders, providing funding to improve maternal and child health, increase access to reproductive health services, and prevent and combat outbreaks of communicable diseases, including polio, with funding channeled

through JSI, Save the Children and WHO. The funding focuses on a multipronged approach including building the capacity of health facility staff and community midwives to deliver quality care; encouraging community engagement with the formal health system to build trust; improving management of district health authorities; exploring and piloting innovative financing mechanisms; and, strengthening Yemen's health management information system to support effective health service management.[lxxvi]

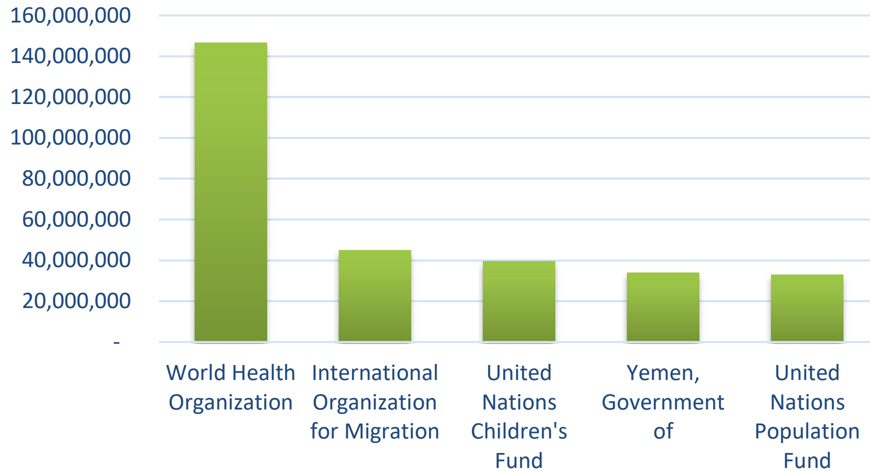
In this context, World Bank funding plays a key role. The Bank finances the EHNP project, with funding channeled through UNICEF and the World Health Organization, and works with local institutions to support about 1,970 primary health care facilities and 72 hospitals across Yemen. The $680 million project focusing on the provision of basic health and essential nutrition services across the country, with the goal of reaching 7 million Yemenis with essential services, covering 100,000 beneficiaries with essential drugs for non-communicable diseases, training 4,000 health personnel, establishing disease surveillance and early warning for cholera, and assisting in cholera case management. The project was restructured in 2017, and as of December 2019, the project had reached more than 16 million Yemenis with essential health and nutrition services, and provided around 2 million with access to improved water sources. EHNP has provided antenatal care to 33% of pregnant women in Yemen in 2018-19, and covered about 22% of deliveries at health facilities. It also provided coverage for about 43% of Penta 3 coverage.

FIGURE 7: SOURCES OF EXTERNAL FUNDING FOR HEALTH, YEMEN 2019



Source: OCHA. (2020). Yemen Humanitarian Response Plan

FIGURE 8: RECIPIENTS OF EXTERNAL HEALTH FINANCING, 2019



Source: OCHA. (2020). Yemen Humanitarian Response Plan

Conclusion and moving forward

This note has demonstrated the situation of Yemen's health sector, which is suffering from the cumulative impact of more than half a decade of conflict, economic recession, and institutional collapse. Currently, only about half of health facilities are functioning, and the system suffers from a severe shortage of human resources and supplies. Health indicators are among the worst globally, with malnutrition impacting a large portion of the population, and maternal and child health being disproportionally affected. Communicable diseases such as cholera, diphtheria, dengue and measles have exploited poor water and sanitation conditions to proliferate and cause further morbidity and mortality. Even more worryingly, the weak health system has also left the country vulnerable to pandemics such as COVID-19, with the virus is now spreading rapidly and exacerbating the humanitarian situation. While governance and service delivery arrangement rely predominantly on partners, there remain significant funding gaps, which raises further uncertainty regarding the provision of health services. Despite encouraging attempts to close the humanitarian-development gap through focusing on integrated service delivery and governance, conflict and COVID-19 are expected to stall progress made. Moving forward, stakeholders will need to emphasize work on both the emergency COVID-19 response, as well as closing significant access gaps across the health sector, with a focus on communicable and non-communicable disease control.

The World Bank's future assistance will address both immediate and medium-term gaps in the health sector. This includes: supporting the provision of essential services; supporting core public health and population-based interventions, including responses to emergencies and disease outbreaks; and building national and local capacities/institutions for resilient health service delivery and system management in Yemen. In particular, the World Bank's assistance will adapt a balanced approach on following fronts: (i) providing a package of essential health services based on the principle of continuum of care throughout the life cycle (childhood, adolescence/adulthood, pregnancy, childbirth, postnatal period), and among models of service delivery (including clinical care settings, outreach, and household communities); and (ii) supporting the primary healthcare facilities and first level referral centers with basic

inputs for maintaining their operational capacity, and keeping the design flexible enough to respond to the fast-paced changing context during emergencies. In addition, Yemen remains vulnerable to COVID-19 pandemic and requires further system strengthening in COVID-19 response. The World Bank's future assistance should focus on strengthening early detection and clinical case management for COVID-19 cases through provision of life-saving medical equipment and systems strengthening (e.g. rapid response and surveillance systems). In particular, Yemen needs financial and technical assistance to bring immunization systems and service delivery capacity to the level required to successfully deliver COVID-19 vaccines at scale.

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[i] The majority of the context in this paragraph is excerpted from a presentation by WHO, World Bank and UNICEF in January 2020 titled "Humanitarian Context: Yemen – Emergency Health and Nutrition Project" . Other sources includes UN OCHA's YEMEN Situation Reports.
[ii] UNDP. (2020). Human Development Reports. http://hdr.undp.org/en/countries/profiles/yem.
[iii] World Bank Group, "Yemen Economic Monitoring Brief," Winter 2019, https://reliefweb.int/sites/reliefweb.int/files/resources/135266-YemEconDevBrief-Winter-2019-English-12-Mar-19.pdf.
[iv] International Rescue Committee. (2020). Covid-19 in humanitarian crises: A double emergency. https://www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf ; https://www.icrc.org/en/where-we-work/middle-east/yemen/health-crisis-yemen
[v] United Nations World Food Programme. (2021). Yemen emergency
[vi]Health system in Yemen close to collapse," World Health Organization, 2015, http://origin.who.int/bulletin/volumes/93/10/15-021015/en/ ; "IRC report: Failed public health system 'quiet killer' in Yemen," International Rescue Committee (IRC), 2018
[vii] https://news.un.org/en/story/2020/06/1065202
[viii] International Rescue Committee. (2020). Covid-19 in humanitarian crises: A double emergency. https://www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf
[ix] International Rescue Committee. (2020). Covid-19 in humanitarian crises: A double emergency. https://www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf
[x] New York Times. (March 2020). U.S. Cuts Health Care Aid to Yemen Despite Worries About Coronavirus. https://www.nytimes.com/2020/03/27/world/middleeast/yemen-health-care-aid-coronavirus.html
[xi] Koum-Besson et al. Excess mortality during the COVID-19 pandemic in Aden governorate, Yemen: a geospatial and statistical analysis.2020. Available at https://reliefweb.int/sites/reliefweb.int/files/resources/41866.pdf.
[xii] Zawiah et al. Assessment of Healthcare System Capabilities and Preparedness in Yemen to Confront the Novel Coronavirus 2019 (COVID-19) Outbreak: A Perspective of Healthcare Workers. Front Public Health. 2020;8:419. Published 2020 Jul 28. doi:10.3389/fpubh.2020.00419. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7399068/.
[xiii] Noushad & Al-Saqqaf. COVID-19 case fatality rates can be highly misleading in resource-poor and fragile nations: the case of Yemen [published online ahead of print, 2021 Jan 8]. Clin Microbiol Infect. 2021;S1198-743X(21)00004-5. doi:10.1016/j.cmi.2021.01.002. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7836539/.
[xiv] UN World Population Prospects 2019, World Development Indicators, and WHO data is not available post 2015.
[xv] World Bank. 2017. *Yemen : immediate priorities for post-conflict recovery of the health sector* . Yemen policy note, no. 4. Washington, D.C. : World Bank Group. https://hubs.worldbank.org/docs/imagebank/pages/docprofile.aspx?nodeid=28091446
[xvi] WHO. (2020). The global health observatory – Yemen. https://www.who.int/data/gho/data/countries/country-details/GHO/yemen?countryProfileId=662ad2cd-d045-4d4b-8fc9-bf7913de9350
[xvii] International Rescue Committee. (2020). Covid-19 in humanitarian crises: A double emergency. https://www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf
[xviii] WHO/UNICEF. (2019). WHO vaccine-preventable diseases: monitoring system 2019.

Confidential

[xix] Oxfam. (March 2020). Rainy season threatens huge cholera spike in Yemen. https://reliefweb.int/report/yemen/rainy-season-threatens-huge-cholera-spike-yemen
[xx] UN OCHA. (June 2020). Yemen humanitarian response plan. https://reliefweb.int/sites/reliefweb.int/files/resources/Extension%20Yemen%20HRP%202020_Final%20%281%29.pdf
[xxi] UN OCHA. (June 2020). Yemen humanitarian response plan. https://reliefweb.int/sites/reliefweb.int/files/resources/Extension%20Yemen%20HRP%202020_Final%20%281%29.pdf
[xxii] WHO/UNICEF vaccine-preventable diseases: monitoring system 2019 and GAVI 2019
[xxiii] IHME. (2017). Global Burden of Disease Data.
[xxiv] UNICEF. (2019). Yemen: Parenting in a war zone series. https://www.unicef.org/yemen/reports/yemen-parenting-war-zone-series
[xxv] UNICEF. (2019). Yemen: Parenting in a war zone – Crossroads at child birth. https://www.unicef.org/yemen/media/2701/file/Yemen-parenting-in-a-war-zone-1-2019-en.pdf.pdf
[xxvi] UN OCHA. (June 2020). Yemen Humanitarian response plan. https://reliefweb.int/sites/reliefweb.int/files/resources/Extension%20Yemen%20HRP%202020_Final%20%281%29.pdf
[xxvii] UNICEF. (2019). UNICEF Yemen. https://www.unicef.org/yemen/nutrition
[xxviii] WHO vaccine-preventable disease monitoring system (2016); EMR, Eastern Mediterranean Region; MCV1, measles containing vaccine 1 (first dose); MCV2, measles containing vaccine 2; WHO. (2016a). Global Health Observatory data repository. http://apps.who.int/gho/data/node.main
[xxix] World Bank. (2014). Maternal and Newborn Voucher Project (P144522). Project information document.
[xxx]Fullman, N., Yearwood, J., et al, 2018. Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: a systematic analysis from the Global Burden of Disease Study 2016. The Lancet 391, 2236–2271. https://doi.org/10.1016/S0140-6736(18)30994-2
[xxxi] Sharaf and Rashad Health Economics Review (2016). Regional inequalities in child malnutrition in Egypt, Jordan, and Yemen: a Blinder Oaxaca decomposition analysis 6:23 DOI 10.1186/s13561-016-0097-3
[xxxii] United Nations Office for the Coordination of Humanitarian Affairs (OCHA). (April 2020). Global Humanitarian Response Plan Covid-19. https://www.unocha.org/sites/unocha/files/Global-Humanitarian-Response-Plan-COVID-19.pdf
[xxxiii] Qirbi, V and Ismail, S. (2017). Health system functionality in a low-income country in the midst of conflict: the case of Yemen. Health Policy and Planning, 32, 2017, 911–922 doi: 10.1093/heapol/czx031
[xxxiv] Transparency International. (2015). Corruption Perceptions Index 2015. http://www.transparency.org/cpi2015
[xxxv] UN DPADM. (2004). Republic of Yemen: Public Administration Country Profile. United Nations Division for Public Administration and Development Management (DPADM) and Department of Economic and Social Affairs (DESA).
[xxxvi] Aulaqi A. (2014). On the Edge: the challenges of Yemen's healthcare system. Chapter 12. In: Lackner H (ed). Why Yemen Matters. London: SAQI books
[xxxvii] WHO EMRO. (2014). Assessing the Regulation of the Private Health Sector in the Eastern Mediterranean Region: Yemen. Cairo: WHO Regional Office for the Eastern Mediterranean.
[xxxviii] World Bank. (2014). Maternal and Newborn Voucher Project (P144522). Project information document.
[xxxix] WHO EMRO. (2014). Assessing the Regulation of the Private Health Sector in the Eastern Mediterranean Region: Yemen. Cairo: WHO Regional Office for the Eastern Mediterranean.
[xl] Bawazir AA, Bin Hawail TS, Al-Sakkaf KA et al. 2013. Distribution and utilization of curative primary healthcare services in Lahej, Yemen. Public Health 127: 867–71.; Republic of Yemen. (2013). National Health and Demographic Survey for Yemen 2013. http://dhsprogram.com/pubs/pdf/FR296/FR296.pdf
[xli] Webair HH, Al-Assani SS, Al-Haddad RH et al. 2015. Assessment of patient safety culture in primary care setting, Al-Mukala, Yemen. BMC Family Practice 16: 1.; Anbori A, Ghani SN, Yadav H et al. (2010). Patient satisfaction and loyalty to the private hospitals in Sana'a, Yemen. International Journal for Quality in Health Care.

[xlii] Bawazir AA, Bin Hawail TS, Al-Sakkaf KA et al. 2013. Distribution and utilization of curative primary healthcare services in Lahej, Yemen. Public Health 127: 867–71.; Republic of Yemen. (2013). National Health and Demographic Survey for Yemen 2013. http://dhsprogram.com/pubs/pdf/FR296/FR296.pdf
[xliii]Fullman, N., Yearwood, J., et al, 2018. Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: a systematic analysis from the Global Burden of Disease Study 2016. The Lancet 391, 2236–2271. https://doi.org/10.1016/S0140-6736(18)30994-2
[xliv] UNOCHA. (2019). Yemen Humanitarian Need Overview. https://yemen.un.org/sites/default/files/2019-08/2019_Yemen_HNO_FINAL.pdf
[xlv] United Nations Office of the Resident Coordinator and Humanitarian Coordinator for Yemen. (18 March 2020). Second attack on Al Thawra Hospital in 10 days threatens health services for hundreds of thousands of people in Taizz City. https://reliefweb.int/sites/reliefweb.int/files/resources/HC%20statement-18%20March%202020-final.pdf; https://www.who.int/hac/crises/yem/sitreps/en/
[xlvi] Physicians for Human Rights (2020). I ripped the IV out of my arm and started running": Attacks on Health Care in Yemen. https://phr.org/our-work/resources/i-ripped-the-iv-out-of-my-arm-and-started-running-attacks-on-health-care-in-yemen/
[xlvii] UN OCHA. (June 3, 2020). Yemen situation report. https://reports.unocha.org/en/country/yemen
[xlviii] Safeguarding Health in Conflict, "Impunity Remains: Attacks on Health Care in 23 Countries in Conflict, 2018," https://www.safeguardinghealth.org/sites/shcc/files/SHCC2019final.pdf ; Yemeni Archive, "Attacks against Hospitals," Observation Database, https://yemeniarchive.org/en/database?collection=Attacks%20against%20hospitals.
[xlix] World Health Organization, "WHO Annual Report 2017: Yemen," https://www.who.int/emergencies/crises/yem/yemen-annualreport-2017.pdf?ua=1 , pg. 23.
[l] World Health Organization. (2019). Yemen Health Cluster Bulletin, February 2019.
[li] WHO EMRO. (2016c). Health facilities functionality and service availability: presentation based on preliminary findings of HeRAMS in 16 governorates, February-June 2016. Sana'a, 5th September.
[lii] WHO EMRO. (2016c). Health facilities functionality and service availability: presentation based on preliminary findings of HeRAMS in 16 governorates, February-June 2016. Sana'a, 5th September.
[liii] International Rescue Committee. (2020). Covid-19 in humanitarian crises: A double emergency. https://www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf
[liv]"Global key messages," Global Health Workforce Alliance, 2014, https://www.who.int/workforcealliance/media/key_messages_2014.pdf.
[lv] http://www.emro.who.int/yem/yemen-news/the-looming-spectre-of-covid-19-in-yemen.html
[lvi] http://www.emro.who.int/yem/yemen-news/the-minimum-service-package-a-lifeline-for-the-vulnerable-in-remote-areas.html#:~:text=The%20MSP%20is%20a%20health,of%20health%20care%20services%20therefore
[lvii] Yemen MoPHP/WHO EMRO (2016a). Weekly Epidemiological Bulletin 3: 28 December 2015–3 January 2016. http://reliefweb.int/sites/reliefweb.int/files/resources/Weekly%20Epidemiological%20Bulletin%20Volume%2003b%20Issue%2053%20Epi%20week%2053%2028%20Dec%202015_3%20Jan%202016.pdf
[lviii] Garber K, Fox C, Abdalla M et al, 2019. « Mapping Access to Healthcare in Yemen: A novel geospatial approach for strengthening humanitarian-development operations in protracted complex emergencies" Draft working paper.
[lix] Also published as Garber K, Fox C, Abdalla M, Tatem A, Qirbi N, Lloyd-Braff L, Al-Shabi K, Ongwae K, Dyson M, Hassen K. Estimating access to health care in Yemen, a complex humanitarian emergency setting: a descriptive applied geospatial analysis. Lancet Glob Health. 2020 Nov;8(11):e1435-e1443.
[lx] "Minimum Service Package (MSP): Strategy, Review Process, and Next Steps" EHNP Implementation Mission, 25 January 2020
[lxi] World Bank. 2017. *Yemen : immediate priorities for post-conflict recovery of the health sector* . Yemen policy note,no. 4. Washington, D.C. : World Bank Group.
[lxii] WHO. (2016a). Global Health Observatory data repository. http://apps.who.int/gho/data/node.main
[lxiii] World Health Organization Data
[lxiv] World Health Organization Data

[lxv] Holst J, Gericke CA. 2012. Healthcare financing in Yemen. International Journal of Health Planning and Management 27: 198–225.
[lxvi] Anderson de Cuevas RM, Al-Sonboli N, Al-Aghbari N et al. 2014. Barriers to completing TB diagnosis in Yemen: services should respond to patients' needs. PLoS One 9: e105194.
[lxvii] World Bank Yemen Emergency Health and Nutrition Project (EHNP), 2020
[lxviii] OCHA financial Tracking Services. (2020). Yemen Humanitarian Response Plan. https://fts.unocha.org/
[lxix] OCHA financial Tracking Services. (2020). Yemen Humanitarian Response Plan. https://fts.unocha.org/
[lxx] OCHA Reliefweb. (May 9, 2020). COVID-19 strikes Yemen as humanitarian funding dries up. https://reliefweb.int/report/yemen/covid-19-strikes-yemen-humanitarian-funding-dries
[lxxi] New York Times. (March 2020). U.S. Cuts Health Care Aid to Yemen Despite Worries About Coronavirus. https://www.nytimes.com/2020/03/27/world/middleeast/yemen-health-care-aid-coronavirus.html
[lxxii] UN OCHA. (June 3, 2020). Yemen situation report. https://reports.unocha.org/en/country/yemen
[lxxiii] USAID. (2020). USAID Yemen Health Fact Sheet. https://www.usaid.gov/crisis/yemen
[lxxiv] USAID. (2020). USAID Yemen Health Fact Sheet. https://www.usaid.gov/crisis/yemen
[lxxv] OCHA financial Tracking Services. (2019). Yemen Humanitarian Response Plan. https://fts.unocha.org/countries/248/recipients/2019?f%5B0%5D=destinationGlobalClusterIdName%3A%227%3AHealth%22&order=total_funding&sort=desc
[lxxvi] USAID. (2020). USAID Yemen Health Fact Sheet. https://www.usaid.gov/crisis/yemen

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