

Annex:

Public Health Responses to Syria's Past Epidemics

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Overview: Past Outbreaks

Prior to the outbreak of conflict in 2011, Syria's health system was among the more advanced in the region, with a skilled and educated workforce and strong, albeit uneven, investment by authorities. Nonetheless, significant geographic and socioeconomic disparities in regional health, water, and sanitation infrastructure — in conjunction with widespread rural-to-urban migration — have historically left disadvantaged populations to bear the brunt of recurrent disease outbreaks.¹ Regrettably, a dearth of publicly available data concerning past outbreaks has complicated efforts to identify obstacles impeding health-sector support in Syria. With the onset of the COVID-19 pandemic, the value of such information has become readily apparent. Past examples of aid politicisation, access constraints, arbitrary technical barriers, service denial, and other forms of interference that have impeded programming or undermined humanitarian principles can serve as an invaluable reference for aid and development actors seeking programming entry points. This annex catalogues such impediments through case studies of past disease outbreaks in Syria. As such, this document should be viewed as a companion to COAR's detailed exploration of similar conditions as exposed by the COVID-19 pandemic response (see: Syrian Public Health after COVID-19: Entry Points and Lessons Learned from the Pandemic Response).

This annex details three major disease outbreaks in Syria that predate the COVID-19 pandemic: cutaneous leishmaniasis (chronic since the 1980s), cholera (2009 and 2015), and polio (2013). Several main themes emerge. Chief among them is the Government of Syria's readiness to view disease outbreaks through a security lense; authorities have granted or withheld access, permissions, and even public acknowledgement in service of higher-order security interests. These tendencies were evident during the cholera outbreak of 2009 — which authorities denied — and in the early denial and subsequent downplaying of the 2013 polio outbreak and 2015 cholera outbreak. Further key conditions impeding epidemic response were the military targeting of health, water, and sanitation infrastructure, and discrimination against certain communities in

the provision of aid, medication, and vaccines. Additionally, the Government of Syria has consistently restricted the ability of the World Health Organization (WHO), UN agencies, and international humanitarian actors to support such communities. For instance, a WHO/UNICEF 2012 vaccination drive failed to reach remote areas in Deir-ez-Zor governorate; this failure has been linked to the emergence of polio in the region the following year, which was attributed by some sources to the entry of foreign fighters.² The Syrian Government has similarly limited the ability of international actors and aid agencies to coordinate their response with local civil society organizations, NGOs, and the private health sector.

These constraints overlap with additional underlying factors that have undermined or impaired communities' access to health facilities, diagnosis, and treatment. These additional factors include the outward migration of skilled medical technicians and staff; inefficient surveillance and detection networks; widespread population displacement and poor living conditions (notably, overcrowding in camps); and the collapse of preventive measures and controls. It will not be lost on the reader that many of these conditions have resurfaced as key issues during the current COVID-19 pandemic response. As such, donors and aid policy thinkers should view these case studies as being indicative of the systemic fragilities, security and access barriers, deliberate and *de facto* policy decisions, and denialism on the part of authorities that will shape donor-funded initiatives and aid implementation in the future.

- ¹ This was perhaps most notably the case with Syria's longest-running currently active major disease outbreak, of cutaneous leishmaniasis. This disease, spread by insects, was prevalent in the new and hastily constructed poorer outskirts of Aleppo city and nonexistent in the city center. During the conflict, large-scale population movements and displacement have caused the spread of region-specific diseases, such as cutaneous leishmaniasis.
- ² The disease was said to originate in Pakistan, one of the few countries in the world where Polio had yet to be eradicated. See: New York Times (2014), *Polio Spreads From Syria to Iraq, Causing Worries*

Cutaneous Leishmaniasis

Cutaneous leishmaniasis is a zoonotic skin disease that is transmitted to humans via sandflies. It was first recorded in Syria by travellers in the 9th century and has been endemic for at least a millenium. Cases in Syria have traditionally been concentrated in Aleppo Governorate (and, to a lesser extent, Damascus and the banks of the Euphrates River), giving the disease its popular moniker: “Aleppo boil”. The disease was reportedly almost eradicated by Government-backed insecticide efforts from the 1950s to 1970s — which left only a few remaining reservoirs in villages in the Aleppo countryside. But the disease witnessed a resurgence from the 1980s, following a construction boom in Aleppo city. Hastily constructed housing beyond the inner ring-road boundary of Aleppo city housed waves of rural migrant workers, becoming the new epicentre of the disease. The leishmaniasis surge was attributed to environmental conditions that were conducive to sandfly breeding in these new, working-class suburbs: construction detritus, poor waste disposal, and a lack of insecticide-spraying efforts.³

According to one 1997 study, not a single case of the disease was reported within the bounds of the inner ring-road between 1975-1995 — even though a peak of 9,522 cases was reported in the wider city in 1991. Since the establishment of the National Leishmaniasis Control Programme (NLCP), in 1985, extensive Government-led vector and reservoir control efforts have managed to contain major cyclical outbreaks of the disease — but have not been able to stamp it out entirely.⁴ Surveillance and detection efforts have been estimated to record only a third to a fifth of the actual number of infections.⁵ While private clinics and dermatologists for the most part did not report cases to the Ministry of Health (MoH), the relatively low number of upper-class patients means that this oversight is unlikely to account for the bulk of underreporting.⁶

The number of reported cases doubled between 2010 and 2018. Although conflict dynamics played a key role, increases in cases had already been recorded between 2007 and 2010. This reportedly fits a long-term trend across the Middle East, whereby the disease surges for seven to 10 years, before dwindling.⁷ After 2011, there was an explosion in cases in regions where the disease had hitherto been largely absent, such as Al-Hasakeh and Ar-Raqqa governorates; the latter experienced a 40-fold increase.⁸ A peak of 7,743

cases was reported in the region in March 2015, before numbers were eventually brought down to pre-conflict levels. Despite declining case numbers in 2016 and 2017, numbers were on the rise again in 2018 — although this could be due to improved documentation after the stabilisation of control by governance authorities following the military defeat of Islamic State (especially in northeast Syria).⁹ Rising case numbers in these regions have been attributed to widespread population movements and, to a lesser extent, the impact of military operations (such as the destruction of homes) and the collapse of WASH services, providing optimal breeding conditions for sandflies.¹⁰

Cholera

2009 Outbreak

In 2009, authorities initially denied that there had been a cholera outbreak in eastern Syria (specifically, Deir-ez-Zor Governorate). They described the reported cases as being “severe” but normal (non-watery) diarrhoea, caused by the consumption of unwashed fruits and vegetables. Cases of this kind of illness typically increase in the summer months, and the outbreak was widely attributed to increased levels of industrial sewage in the Euphrates River, compounded by declining water levels as a result of upstream irrigation in Turkey; lack of investment in water infrastructure and treatment facilities, leading to a proliferation of illegal wells (exhausting groundwater resources); and general environmental decline in the region, exemplified by a long drought that prompted thousands to migrate.

- 3 A Tayeh, L Jalouk, and S Cairncross, “Twenty years of cutaneous leishmaniasis in Aleppo, Syria,” *Trans R Soc Trop Med Hyg*, November-December 1997.
- 4 Ghada Muhjazi, et al., “Cutaneous leishmaniasis in Syria: A review of available data during the war years: 2011–2018,” *PLoS Neglected Tropical Diseases*, vol. 13, 2 December 2019.
- 5 Begoña Monge-Maillo and Rogelio López-Vélez, “Therapeutic options for old world cutaneous leishmaniasis and new world cutaneous and mucocutaneous leishmaniasis,” *Drugs*, November 2013.
- 6 Albis Francesco Gabrielli in Muhjazi, et al., “Cutaneous leishmaniasis in Syria.”
- 7 Jose A. Ruiz Postigo, “Leishmaniasis in the World Health Organization Eastern Mediterranean Region,” *International Journal of Antimicrobial Agents*, vol. 36, supplement 1, 2010.
- 8 Khalid Rehman, et al., “Leishmaniasis in Northern Syria during Civil War,” *Emerging Infectious Diseases*, vol. 24, 2018.
- 9 Gabrielli in Muhjazi, et al., “Cutaneous leishmaniasis in Syria.”
- 10 Rehman, et al., “Leishmaniasis in Northern Syria during Civil War.”

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Authorities reportedly did not distribute cholera vaccines, and hospitals recorded cholera cases as “severe intestinal infection.”¹¹ The outbreak was not reported to the Program for Monitoring Emerging Diseases (ProMED), a global disease-reporting system.¹² Authorities later admitted that there had been a small number of cholera cases — they counted 30, whereas other sources suggest there had been closer to 1,000 — while denying any deaths.¹³ The Government took a series of steps to combat the outbreak, including opening emergency clinics in rural villages, sending monitors to test drinking water, and launching awareness campaigns promoting the washing of fruits and vegetables and the chlorination of water.¹⁴ The scale of the 2009 outbreak was publicly recognized by the Ministry of Health only in a WHO Cholera Epidemic Preparedness and Response Plan published in November 2015, following another outbreak.¹⁵

2015 Outbreak

The 2015 cholera outbreak was first detected in areas controlled by the armed opposition and the Islamic State: eastern Aleppo, Darayya, and Deir-ez-Zor. Again, the Syrian Government initially denied that there had been any cholera cases, refusing to report them to ProMED. The Government first acknowledged a case one month after it had first been reported, in eastern Aleppo.¹⁶ In addition to the historical neglect of water and sanitation infrastructure across northern Syria, the following factors are widely attributed to have caused a surge in cholera — as well as other waterborne diseases (WBD), such as typhoid, dysentery, and hepatitis A:

- The delay in implementing a mass vaccination campaign against cholera in Iraq and Syria, following the 2015 outbreak in Iraq.
- The extensive targeting of water infrastructure and treatment plants in northern Syria, mainly by Syrian Government and Russian airstrikes.
- The proliferation of overcrowded and unsanitary camps and precarious living conditions.
- Fuel shortages preventing the operation of undamaged water plants.
- The Syrian Government's withholding chlorine (for water decontamination) from opposition areas.¹⁷

At the time, the International Committee of the Red Cross (ICRC) predicted that half of Syria's water infrastructure was either destroyed or functionally impaired, and the supply of available safe water was between 5 and 30 percent of pre-conflict levels.¹⁸ Untreated river water was increasingly relied on, as the Syrian Government restricted the scope of assistance provided by international agencies, ensuring

that WASH support reached only 144,000 of the 4.5 million Syrians living in access-deprived areas, in coordination with the Syrian Arab Red Crescent (SARC).¹⁹

The response was reportedly undermined by the following factors:

- WHO refused to recognize diagnoses that did not have laboratory confirmations, despite the fact that testing was only available at a single laboratory in Damascus²⁰ and thus not viable for regions outside of Government control. Most WBD cases outside of Damascus were confirmed on clinical grounds and, where available (for instance, in the case of typhoid), through rapid diagnostic tests (RDTs).
- As was the case during the 2013 polio outbreak and, later, the COVID-19 pandemic, the EWARS detection and surveillance system displayed great vulnerabilities and was outperformed considerably by the comparatively independent EWARN system, in terms of timeliness and comprehensiveness of reporting and the inclusion of governorate-level data.²¹

11 Institute for War and Peace Reporting, “Cholera Epidemic Fears Rise,” 21 August 2009.

12 Annie Sparrow, et al., “Cholera in the time of war: implications of weak surveillance in Syria for the WHO's preparedness—a comparison of two monitoring systems,” *BMJ Global Health*, October 2016.

13 Institute for War and Peace Reporting, “Cholera Epidemic Fears Rise,” 21 August 2009.

14 Institute for War and Peace Reporting, “Cholera Epidemic Fears Rise.”

15 Sparrow, et al., “Cholera in the time of war.”

16 Ibid.

17 Annie Sparrow, “Syria: Death from Assad's Chlorine,” *New York Review of Books*, 7 May 2015.

18 International Committee of the Red Cross, “Bled dry: How war in the Middle East is bringing the region's water supplies to breaking point,” March 2015.

19 UN Security Council, “Report of the Secretary-General on the implementation of Security Council resolutions 2139 (2014), 2165 (2014) and 2191 (2014),” 11 December 2015.

20 Sonia Shah, “The Next Cholera Epidemic: How the Disease Could Spread from Syria,” *Foreign Affairs*, 10 November 2015.

21 Sparrow, et al., “Cholera in the time of war.”

Polio

After an almost 15-year absence, polio returned to Syria in 2013. In October of that year, more than 13 cases of wild poliovirus type 1 (WPV1) were confirmed in Deir-ez-Zor, through the EWARN system; very shortly thereafter, additional cases were confirmed in Aleppo and Rural Damascus. The outbreak was widely believed to be a direct result of the Syrian Government's refusal to include Deir-ez-Zor in the routine customary vaccination drive launched by the WHO Damascus, in conjunction with the MoH and UNICEF, in December 2012. The drive reached nearly 2.5 million children — none of whom were in Deir-ez-Zor. The WHO reportedly stated that the exclusion of the governorate was due to the relocation of most of its residents to other parts of the country.²² This was a dubious claim, given that the region's population at the time reportedly included more than 600,000 children under the age of 15.²³

According to a WHO situation report, it took nearly three months for the MoH to confirm a case of polio that was recorded in Aleppo well before the Deir-ez-Zor outbreak, in July 2013.²⁴ That confirmation was followed, some weeks later, by a nationwide vaccination drive. But the Government then reportedly denied the existence of cases in Deir-ez-Zor, refusing to investigate the outbreak and instructing the central laboratory in Damascus not to test suspected samples. The WHO subsequently impeded the testing of samples from Deir-ez-Zor that had been obtained by the opposition-affiliated Assistance Coordination Unit (ACU) and sent to a Turkish hospital. These samples were eventually confirmed as positive for polio by an independent lab in Turkey. Only after these positive results were announced did the Syrian Government and WHO declare a polio outbreak, in late October 2013. The delay reportedly led to the widespread transmission of the disease. Meanwhile, UNICEF reportedly intervened to block an attempt by Medecins Sans Frontiers (MSF) Holland to buy polio vaccines for distribution in non-Government areas.²⁵

The Syrian Government eventually launched a national campaign to respond to the polio outbreak, which involved the ministries of Health, Religious Affairs, Education, and Interior. The National Polio Outbreak Response Coordinating Committee was established; its members include MoH, WHO, UNICEF, UNHCR, and SARC, as well as a number of NGOs and government departments. This technically-oriented committee was established in Damascus

and coordinated with local partners. Local teams deployed to the country's governorates; each team, staffed mainly by MoH, WHO, and UNICEF, manages five districts. The Syrian Government relied on its early warning system EWARS to detect suspected cases. EWARS was established in 2012 by the WHO and the MoH, and was intended to operate across all of Syria's 14 governorates, including in the country's IDP shelters. All tests for polio were carried out exclusively in the MoH-run central laboratory in Damascus. Meanwhile, vaccinations in opposition-held areas of northern Syria were provided to the Turkish Ministry of Health by the WHO and UNICEF. Vaccination programmes in these areas were implemented by the Assistance Coordination Unit, which runs EWARN, in collaboration with local NGOs.

Disparities in vaccination coverage were reportedly apparent between Government-aligned "sympathetic" communities and reconciled former-opposition communities. The Syrian Government reportedly took months to admit the existence of cases within IDP communities in Homs Governorate, for instance, most of whom had been displaced from Homs city. There were also reports that the Government of Syria did not vaccinate IDPs in sufficient numbers, despite them being registered by authorities. Many IDP children were not in school, so missed out on being vaccinated. One primary source suggested that the rate of vaccination in Homs varied from 60-70 percent in opposition-aligned areas to 90 percent in Government-aligned areas. This was partially attributed by sources to the Syrian Government providing a different vaccination schedule for opposition communities.

All told, the 2013 polio response was reportedly undermined by the following factors:

- The Syrian Government denied the WHO permission to visit affected areas in Deir-ez-Zor, which prevented officials from rapidly tracing the virus to its source and allowed it to spread further.

²² Adam P. Coutts and Fouad M. Fouad, "Syria's Raging Health Crisis," *New York Times*, 1 January 2014.

²³ In general, the conflict has had a deleterious effect on vaccination rates in Syria. Sources report that routine vaccination coverage dropped from 90 percent in 2010 to below 70 percent in 2012, then to 50 percent in 2015.

²⁴ Adam P. Coutts and Fouad M. Fouad, "Syria's Raging Health Crisis," *New York Times*, 1 January 2014.

²⁵ The Syria Campaign, "Taking Sides: The United Nations' Loss Of Impartiality, Independence And Neutrality In Syria," June 2016.

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- The Syrian Government imposed restrictions on the WHO that resulted in a lack of coordination between WHO Damascus and other healthcare actors across Syria. This was a factor in the inability of the WHO and UNICEF to deliver vaccines, testing kits, and medical equipment to contested or opposition-controlled areas, and their inability to coordinate with healthcare structures or NGOs in such areas.
- In a number of Government-controlled areas, equipment needed to store and transport the oral vaccine went undelivered. Furthermore, the lack of proper documentation and health records for children who were vaccinated or tested has complicated the effort to deliver vaccines to all children and prevent double-ups.
- According to WHO and UNICEF, the Syrian Government did not publish all relevant statistics related to the vaccination campaigns. Moreover, “data on reasons for non-vaccination generated by post-SIA monitoring are not being shared systematically with governorate-level and lower-level managers in a timely manner to inform the subsequent plans of communications. Hence, governorate-level communication plans in some places were limited to activities and logistical needs.”²⁶
- The EWARS system was ineffective in detecting the first cases of polio during a second outbreak, in March 2017. Moreover, gaps in WHO surveillance performance — as well as delays in receiving laboratory results, due to difficulties transporting stool samples in the context of a complex humanitarian emergency — contributed to the failure to achieve early detection. To make matters worse, the central laboratory also reported flawed results.²⁷

²⁶ Shoubo Jalal, Rudi Tangermann, and Ahmed Haran, “External assessment of the quality of polio outbreak response in Syria,” September 2014.

²⁷ Sparrow, et al., “Cholera in the time of war.”

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