

Stalked by polio, Gaza faces another siege

The United Nations Office for Disarmament Affairs describes biological weapons as those that “disseminate disease-causing organisms or toxins to harm or kill humans, animals or plants”.

War itself is a nasty thing during which humans, animals, and plants are killed en masse. We often contend today with the death of animals and plants in the context of climate change – mindful of the role of animals in maintaining ecosystem services and the carbon sequestration potential of plants – and know that the remains of incendiary explosives and building debris drive toxic effects, often entrenched enough for their effects to last for generations. This is separate from the large carbon footprints of armies in motion plus the operations required to equip them.

Climate change can also create environments conducive to the spread of some disease-causing microbes. The chemically toxic outcomes of war can diminish people's and the beleaguered state's ability to respond optimally to this challenge, allowing these dysfunctional environments to persist and sow more threats. The operations of the conflict itself can finally strike a killing blow by bombing hospitals, blocking medical aid, and cutting off water and electricity supplies – such as what Israel has been doing in Gaza.

Israel's statement

In the third week of July, Israel's Health Ministry said it had found poliovirus particles in the sewage flowing out of Gaza. Haaretz reported that the Israel Defense Forces (IDF) responded by initiating a campaign to vaccinate its soldiers in Gaza and those slated to enter the territory. As of July 21, the IDF reportedly said it had not recorded any clinical cases of poliomyelitis but expected there to be an outbreak.

This is a debatable statement for two reasons. First, according to the UN, as of May 21, 2024,



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“only around one-third of Gaza's 36 hospitals still function, leaving critical health care facilities inaccessible to patients and healthcare workers impacted by the violence or evacuation orders.” As Israeli bombs have devastated hospitals and civilian shelters and ground forces have restricted access to medical aid, a Gazan is not likely to be diagnosed with a poliovirus infection except by aid workers at shelters, which are also grossly overcrowded, or in areas outside the conflict zone.

Second, the poliovirus is an obligate human pathogen, meaning it can replicate only inside cells of the human body. This virus has no other known animal reservoirs. So, if Israeli researchers have detected poliovirus in Gaza's sewage, the virus must already have infected some residents of Gaza. On July 29, Gaza's Health Ministry declared a polio “epidemic” in the Gaza Strip.

The severity of infections is of course unknown. But equally, allowing the virus to spread is irreconcilable with the efforts of most of the rest of the world to eradicate polio, which – after three decades of intense efforts – is currently limited to cases of wild poliovirus type 1 in rural Pakistan and Afghanistan. The virus circulating in Gaza is believed to be vaccine-derived poliovirus type 2.

The danger of spread

If medical conditions in Gaza do not improve post haste, the infectious poliovirus may win back one more territory for itself and endanger the Israeli population as well. According to the Global Polio Eradication Initiative's Global Polio Surveillance Action Plan (GPSAP) 2022-2024, “The capacity to consistently detect and respond to poliovirus detection is ultimately dependent on existing within-country capacity – and fragile states, especially those with ongoing conflict, are especially vulnerable.” The virus itself is unforgiving: by 2022, Malawi and Mozambique in

Africa had reported their first cases of wild poliovirus infections in three decades after the COVID-19 pandemic dented local childhood immunisation drives for a year. In late 2023, the World Health Organization had recorded Gaza's immunisation rates to have declined to 89% from 99% a year earlier. But while Israel has claimed to have delivered 0.3 million vaccines to the Palestinians in Gaza since its offensive began in October 2023, according to the BBC, the IDF also plans to continue its military operations and has instructed its soldiers to steer clear of consuming water in Gaza. They will be supplied with millions of units of bottled water instead.

Damaged infrastructure

On the other hand, Israel has damaged or destroyed water infrastructure in the embattled parts of Gaza such that they no longer have the ability to treat wastewater. Marwa Daoudy, the Seif Ghobash Chair in Arab Studies at Georgetown University, told *The Hindu* last year that as a result, “raw sewage water [flows] straight into the sea”. “I saw the line going down to the sea and children bathing not far away from it,” she added. Note that the poliovirus may also spread through contaminated water.

Some public health experts in Israel have already called for a ceasefire to prevent what they have dubbed a “polio epidemic among Gazan and Israeli babies”. So did WHO Director-General Tedros Adhanom Ghebreyesus, who on July 26, added that the organisation is sending more than one million polio vaccines to the region. Should Israel continue to deny these pleas and sustain harmful living conditions for the millions of Gazans, and deny them access to health care and better standards of living, the outcomes of its actions will be indistinguishable from the outcomes of biological warfare.

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Question -1) What can be inferred about the health conditions in Gaza based on the passage?

- A. Gaza's healthcare infrastructure is fully operational.
- B. The majority of Gaza's hospitals are currently non-functional.
- C. Gaza's population is receiving adequate medical aid.
- D. Gaza has a low risk of infectious disease spread.

Question -2) Which assumption is implicit in the statement that the IDF plans to vaccinate its soldiers in Gaza?

- A. Polio cannot be spread through human contact.
- B. The IDF believes there is no risk of poliovirus infection in Gaza.
- C. The IDF believes there is a potential risk of poliovirus infection among its soldiers.
- D. The IDF does not prioritize the health of its soldiers.

Question -3) What can be inferred about the environmental conditions in Gaza from the passage?

- A. Gaza has effective wastewater treatment facilities.
- B. Gaza's environment is conducive to the spread of disease-causing microbes.
- C. There is no issue with water contamination in Gaza.
- D. The climate in Gaza does not affect disease spread.

Question -4) What is the underlying assumption behind the statement that the spread of poliovirus in Gaza could endanger the Israeli population?

- A. There is no possibility of diseases spreading from Gaza to Israel.
- B. The Israeli population is immune to poliovirus.
- C. The movement of people between Gaza and Israel could facilitate the spread of poliovirus.
- D. The poliovirus cannot survive outside human bodies.

Question -5) What can be inferred about the impact of Israel's military operations on Gaza's public health?

- A. Israel's military operations have improved Gaza's public health.
- B. Israel's military operations have had no impact on Gaza's public health.
- C. Israel's military operations have severely impacted Gaza's public health.
- D. Gaza's public health has remained stable despite Israel's military operations.

Question -6) What assumption is made about the international efforts to eradicate polio in the context of the situation in Gaza?

- A. International efforts to eradicate polio are unaffected by local conflicts.
- B. Local conflicts do not hinder polio vaccination campaigns.
- C. Ongoing conflicts like the one in Gaza can undermine international polio eradication efforts.
- D. Polio eradication is not a global priority.

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