Polio Emergency Operations Centers

By Nellie Bristol & Isra Hussain | JULY 2018

This first installment in our series on U.S. support for global polio eradication discusses the role of Emergency Operations Centers in eradication efforts and their potential for establishing emergency public health response capabilities.

What They Are

Emergency Operations Centers (EOCs) provide a central location from which to coordinate data collection and response to a public health threat. They allow staff from different offices, sectors, and organizations to work directly and collaboratively, share information in real time, and formulate a joint plan of action. EOC leaders have a direct line of communication with government officials, allowing for more immediate access to needed staffing and funding. With these advantages, EOCs generate quicker, better synchronized, and more effective emergency responses.

As an example, the United States has a state-of-the-art EOC housed in Atlanta, Georgia, at the Centers for Disease Control and Prevention (CDC). Since its inception in 2001, the EOC has been activated for more than 60 incidents, ranging from the Flint, Michigan, water contamination in 2016 to the Ebola Outbreak in 2014 to Hurricane Dean in 2007.1 When the EOC is
activated, staff relevant to the incident (for example, epidemiologists, logisticians, sanitation experts) from across CDC move into the EOC to organize activities. The center uses the National Incident Command System to coordinate multiple groups working on the same response. The system not only allows CDC to communicate better among its own staff, but also with outside organizations using the same protocols. Under the guidance of an incident manager to whom other staff become subordinate during activation, responders track data and mobilize resources, meeting regularly to keep everyone involved up to date. Ideally, as is the case with CDC’s center, EOCs should have a dedicated staff that is supplemented by subject experts based on the incident at hand.

While many EOCs in developing countries do not have the same level of technology and expertise available to them, they offer the government a central command post where disparate groups can coordinate and develop consensus around appropriate actions. Developing EOCs is one of the “action packages” under the Global Health Security Agenda (GHSA), a global collaboration to improve responses to public health threats. EOCs established in Nigeria, Afghanistan, and Pakistan to reenergize polio eradication activities were among the first centers initiated in developing countries and offer many lessons for similar projects.

Building an Emergency Mentality for Polio Eradication

While the number of polio cases fell rapidly through the 1990s, progress slowed as the remaining endemic countries—India, Pakistan, Afghanistan, and Nigeria—struggled with weak health infrastructure, management problems, vaccine refusals, and areas of insecurity. Though India overcame the issues facing its program, seeing its last case of polio in January 2011, progress was spottier in the other three countries. To push the program toward a higher level of urgency, the polio program’s Independent Monitoring Board (IMB)\(^2\) recommended in 2011 that the World Health Assembly declare polio eradication a public health emergency:

> We now call upon each of them to lend this the global backing that it needs and deserves. To eradicate polio from the world would be a triumph. To fail now would be a disaster.... We recommend: That the World Health Assembly in May 2011 considers a resolution to declare the persistence of polio a global health emergency.\(^3\)
The assembly, composed of the 194-member states, complied in May 2012.

The sixty-fifth World Health Assembly...DECLARES the completion of poliovirus eradication a programmatic emergency for global public health, requiring the full implementation of current and new eradication strategies, the institution of strong national oversight and accountability mechanisms for all areas affected by poliovirus, and the application of appropriate vaccination recommendations for all travellers to and from areas affected with poliovirus. 

Building on the emergency theme to spur greater focus and energy toward polio eradication, then-CDC director Tom Frieden activated the U.S. EOC for the program. The move provided additional capacity for in-country technical expertise and signaled to the rest of the world that the United States was strongly dedicated to polio eradication. In addition to developing emergency action plans to address polio eradication, remaining endemic countries, backed by financing and technical support from the Global Polio Eradication Initiative (GPEI), began to develop their own polio EOCs.

Establishing EOCs

Nigeria was the first to move forward with the project, establishing its national center in Abuja in 2012 with technical support from CDC and financing from the Bill & Melinda Gates Foundation. It later developed subnational centers in eight states. Pakistan started its national center in 2014 and five regional centers later (across the four provinces of Pakistan and the Federally Administered Tribal Areas). Afghanistan established four centers in 2016. All were established with GPEI aid.

Partners and country officials involved with the EOCs said government leaders were immediately on board with the idea since the approach put them solidly in charge of a more coordinated effort. Some of the other organizations involved were less enthusiastic since the move required them to relinquish offices, change coworkers, and accept new leadership, but they soon became convinced of the centers’ value. After some adjustment time, the centers turned a fragmented operation with multiple partners all following their own work plans into a cohesive unit acting on a unified plan under the government’s leadership.

The EOCs helped immensely in tracking in real time both disease outbreaks and the resources being put toward them. Data collected from the field was transmitted to a central location...
and the actions of local responders were closely watched, providing direct accountability for vaccinations and surveillance and ensuring funding flows got to where they were supposed to go.

“Before the EOC was in place, the program didn’t have this idea of partnership and collaboration. There were many quality issues within the program. There was no strong leadership to really bring everyone together to work as a team. Once the EOC was set up, the program could face these problems head on.”
—Andrew Etsano, former incident manager, Nigeria EOC

While direct cause and effect is difficult to establish, the polio EOCs were part of an erratic but ultimately marked reduction in cases that culminated in Nigeria being taken off the list of endemic countries. Unfortunately, additional cases were discovered in summer 2016 in areas where insecurity had made surveillance inadequate. The EOC was ratcheted up again to respond to those outbreaks, and as of July 2018, Nigeria has reported no cases since those initial four.

EOCs and Other Health Threats

“The rapid containment of Ebola transmission in Nigeria provided clear evidence of the wider application of the polio EOC model, a potent reminder of the legacy of the national polio program.”
—Faisal Shuaib, Bill & Melinda Gates Foundation

The polio EOCs have been used to address other public health threats. Most famously, the Nigeria EOC organized a quick and successful response to a potentially catastrophic Ebola outbreak. Shortly after the first case of Ebola was identified in Lagos in July 2014, the Federal Ministry of Health and Lagos state government activated an Ebola EOC and Incident Management System...
modeled after the polio program’s emergency response infrastructure. Nigeria was declared Ebola-free within three months of the outbreak.

In addition, Nigeria has expanded EOC operations to oversee other disease outbreaks and vaccine delivery. This Polio EOC was expanded to allow the Measles Outbreak Team to work efficiently. They now have access to the EOC’s electricity, internet, and printing capabilities 24/7 which have been critical for tracking measles outbreak response in the field.

**Challenges**

“EOCs are more than simply a relocation and assembling of partners under one roof, but a remolding of approach towards collaboration. It took almost a year to get all the stakeholders into this frame of mind. The main thing was to convince everyone, to genuinely convince, to change not their area of work, but the modality of their work, something that they’ve been following for years.”
—Zubair Mufti Wadood, MD, Technical Officer, World Health Organization

The challenges to setting up a successful EOC are both tangible and intangible. One of the biggest obstacles cited is convincing staff to give up their offices, buildings, and even organizational loyalties and cultures to come together as a newly defined unit. Ensuring involvement of staff that is not only qualified but willing to collaborate is critical to an EOC’s success.

But just finding staff with the appropriate skills is difficult in many developing countries. Key areas of expertise include data management, logistics, communications, disease control, epidemiology, field operations, and computer and management skills, all of which are in short supply in many resource-poor countries. In addition to staffing requirements, the center must be supported by the political leadership and through legislative and/or regulatory authority.
Retention and expansion of the polio EOCs to other health activities will require transforming them from their current ad hoc, polio-specific roles into integrated sustainable elements of national, state, and provincial public health systems ultimately supported through domestic resources.

Another critical component of EOC establishment is instituting an Incident Command System that establishes a workable hierarchy and allows all partners to communicate using the same language. The system needs to be tailored to each context to ensure it is understandable to and actionable for all responders.

Tangible needs for an EOC also may be difficult to acquire and make sustainable in low-resource settings. Ideally, a center should have generators, information technology support, fuel, vehicles, and 24/7 connectivity. While having a separate building for the center is preferred by some, the center also can be set up within an existing structure.

Ensuring adequate funding for the centers is another challenge. The Nigeria, Pakistan, and Afghanistan EOCs all were supported by the GPEI, which has not only dedicated funding but top notch technical expertise. Those involved with the polio EOCs say they are valuable assets that should be sustained, and they note that the centers now are being used to support other immunization efforts, including measles. However, the centers’ futures could be in jeopardy as polio is eradicated and funding declines.

“One thing that all of us must try and strive for is not to let these EOCs vanish away with polio eradication. I think that would be a big missed opportunity…”

—Zubair Mufti Wadood, MD, Technical Officer, World Health Organization

EOCs and the Global Health Security Agenda

EOCs are one of the key assets called for by the Global Health Security Agenda (GHSA) under the first action package related to “respond:”

Five-Year Target: Every country will have a public health Emergency Operations Center (EOC) functioning according to minimum common
standards; maintaining trained, functioning, multi-sectoral rapid response teams (RRTs) and “real-time” biosurveillance laboratory networks and information systems; and trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

As Measured by: Documentation that a public health EOC meeting the above criteria is functioning.

Desired National Impact: Effective coordination and improved control of outbreaks as evidenced by shorter times from detection to response and smaller numbers of cases and deaths.

Progress toward capacities under the GHSA are judged via a Joint External Evaluation (JEE). Under the JEE, countries invite a group of international experts to evaluate on a scale of 1 to 5 the readiness of tools needed to respond to a public health threat. Of the 26 countries that have been examined so far, only three, Saudi Arabia, the United Arab Emirates, and the United States, received the highest score (5) for their capacity to activate emergency operations. Thirteen countries received a score of 1 or 2 on their EOC operating procedures and plans. Though EOCs are one of the key assets under the GHSA, more resources must be allotted to countries ranking lower in preparedness to help the world respond to public health emergencies.

The Way Forward

The polio EOCs are valuable assets from which important lessons can be learned for establishing emergency public health response capabilities in developing country settings. The services EOCs provide not only improve the health and safety of their own countries, but they combat disease on a global scale by containing it more quickly at its source. Countries other than Nigeria, Pakistan, and Afghanistan will not have the advantage of GPEI funding and technical leadership and will have to drive the establishment of EOCs themselves. Meanwhile, the current polio EOCs are facing a precipitous drop in funding as the GPEI winds down. To sustain and expand them, the three governments will have to make concerted efforts to integrate the EOCs into their government operations and to find funding for them.
Countries have resources to draw on in building EOCs through the GHSA and other partners. For example, CDC has several programs that train staff in epidemiology, data collection, communications, and health systems management that can continue to build capacity in developing countries, and it runs an EOC management program in Atlanta. The program provides four months of hands-on experience at the CDC/EOC. Trained staff then is activated immediately in their home countries. In addition, the international focus on global health security provides additional funding, focus, and expertise. Using lessons from the polio EOCs combined with momentum toward the GHSA provides countries with new resources to put toward development of a constructive platform for improving response to public health threats.

About the Authors

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Endnotes


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