Towards an effective poliovirus laboratory containment strategy in Nigeria

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In May 1999, the World Health Assembly urged Member States to begin the process leading to laboratory containment of the wild poliovirus (WPV). On 25th May 2015, all World Health Organization (WHO) member countries endorsed the World Health Assembly resolution 68.3 on full implementation of the Polio Eradication and Endgame Strategic Plan 2013–2018 and with it the third Global Action Plan to minimize poliovirus facility-associated risk (GAP III) [1]. The Endgame Plan sets the goal of a polio-free world by 2018 [2]. On(set)-14.07451.07843.6cswoand

These questionnaires were directed towards the identification of sample types, their sources, quantification, storage conditions including temperature, date of collection and methods of destruction once not more needed in the laboratory.

the North Central zone (Table 2) compared with the other five zones.

A total of 189 (2%), 1946 (20.3%) and 7440 (77.3%) of the 9575 laboratories surveyed were classified as high, medium, and low risk respectively. These high-risk laboratories were mostly found in the South-East zone of the country (67/189, or 35.4%). A total of 6 (20%) of the 30 laboratories with inventory had Biosafety Level-2 (BSL-2) standards. These included the National Influenza Laboratory in Abuja, the WHO national polio laboratories in Ibadan and Maiduguri, Lagos University Teaching Hospital, University of Nigeria Enugu (bacteriology unit) and the University of Nigeria, Enugu (Nigeria Centre for Disease Control) (Table 3).

Among the infectious materials found in the laboratories; were 11,291 stools samples located in 16 laboratories, 15,801 throat swab samples seen in 3 laboratories and 5221 stool suspensions in 1 laboratory.

The two most common samples found in the laboratories were stool (in 60%) and blood (in 16.7%) of laboratories. All of these infectious materials were destroyed during the survey under the supervision of the NTF members and consultants (Table 3).

As per WHO guidelines on containment, the 4th of February 2016 was the dateline set for all countries in the Africa region to destroy all poliovirus or potentially infectious materials that accumulated after the ones destroyed during phase 1a exercise. Thus, 646 VDPV2 and 3256 Sabin 2 from AFP stools were destroyed in both Ibadan and Maiduguri polio laboratories. Secondly, 775 mixtures of Sabin2 and VDPV2 from sewage water were destroyed in Ibadan laboratory on the same day. (Table 4).

In alignment with the WHO containment guidelines, Nigeria had to continue to destroy all poliovirus or potentially infectious materials or transfer them to an essential facility with BSL-3 for polio. Nigeria has no such essential facility and thus the only option was to destroy it’s infectious or potentially infectious materials (Tables 4 and 5).

Discussion

We found that 30 (0.3%) of laboratories in Nigeria had poliovirus or potentially infectious materials. Six (20%) of the 30 laboratories had biosafety level-2 standards for polio. In 2004, Sneyers et al. in Belgium found poliovirus or potentially infectious materials in 8 (1.9%) of the 411 facilities surveyed

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[illegible]	[illegible]	5	20/04/15	2
[illegible]	[illegible]	2226	2010–2015	−60
[illegible]	[illegible]	400	01/01/12	−60
[illegible]	[illegible]	8	09/01/15	2 8
[illegible]	[illegible]	110	2011–2012	− 20
[illegible]	[illegible]	100	19/06/15	−60
[illegible]	[illegible]	20	10/02/15	−32
[illegible]	[illegible]	5	10/06/15	− 20
[illegible]	[illegible]	1	17/06/15	−20
[illegible]	[illegible]	10	01/02/15	2 8
[illegible]	[illegible]	2	2015	−20

and all of them (100%) had BSL-2 [11]. Mpabalwamni et al. in 2012 reported that of the 170 bio-