



***TECHNICAL ADVISORY GROUP ON
POLIO ERADICATION IN THE
HORN OF AFRICA COUNTRIES
18TH MEETING REPORT***

**27th to 29th of November 2018
Nairobi, Kenya**

POLIO | GLOBAL
ERADICATION
INITIATIVE

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List of Acronyms

AFP	Acute flaccid paralysis
AVADAR	Auto-Visual AFP Detection and Reporting
bOPV	Bivalent oral polio vaccine
CDC	Centers for Disease Control and Prevention
cVDPV2	Circulating Vaccine Derived Polio Virus type 2
cVDPV3	Circulating Vaccine Derived Polio Virus type 3
ES	Environmental Sampling
GPEI	Global Polio Eradication Initiative
GPLN	Global Polio Lab Network
HF	Health Facility
HoA	Horn of Africa
ICC	Interagency Coordination Committee
IPV	Inactivated poliovirus vaccine
IGAD	Inter Governmental Authority on Development
IM	Independent Monitoring
ISS	Integrated Supportive Supervision
IST	Intercountry Support Team
LQAS	Lot Quality Assurance Sampling
NGO	Non-governmental organization
NID	National Immunization Days
NPEV	Non Polio Enterovirus
ODK	Open data kit
OBRA	Outbreak Response Assessment
POSE	Polio Outbreak Simulation Exercise
RI	Routine immunization
SIA	Supplementary immunization activity
SNID	Sub-National Immunization Days
SOP	Standard operating procedure
TAG	Technical Advisory Group
UNICEF	United Nations Children’s Fund
VDPV	Vaccine Derived Polio Virus
WHO	World Health Organization
WPV	Wild Polio Virus

EXECUTIVE SUMMARY

The 18th meeting of the HoA TAG was held from the 27 – 29 November 2018, in Nairobi, Kenya under the chairmanship of Dr. Jean-Marc Olivé.

Since the last TAG in May 2018, the HoA implemented the response to ongoing outbreaks of circulating Vaccine Derived Poliovirus Type 2 (cVDPV2) and Type 3 (cVDPV3). Since the start of the outbreak in November 2017, at the time of this report, HoA has notified a total of five cVDPV2, six cVDPV3 cases and one cVDPV2/cVDPV3 co-infected case (all from Somalia). Moreover, cVDPV2 was isolated in 21 environmental samples (20 Somalia, 1 Kenya) and 10 environmental samples yielded cVDPV3 (all from Somalia) since the start of the outbreak. The last cVDPV2 case had onset of paralysis on 02 September 2018, while the last cVDPV3 case had onset of paralysis on 07 September 2018. The last cVDPV2 positive environmental sample was collected on 11 October 2018 (Waberi Banadir, Somalia), while the last cVDPV3 positive sample was collected on 23 August 2018 (Waberi Banadir, Somalia). It is important to note that genetic sequencing indicates these viruses have been circulating for several years, before detection last year.

The TAG considers that the outbreaks affecting Somalia, Kenya and Ethiopia should be considered as ongoing until there is clear evidence that they have been stopped.

Findings

The TAG noted with appreciation the efforts of the HoA polio eradication team to implement the recommendations from its meeting in May 2018 (only two recommendations could not be implemented). TAG also acknowledged key steps taken to strengthen oversight and coordination for the outbreak response; these include the declaration of the outbreak as national public health emergency by all three affected countries, classification of the outbreak as “grade-2” by WHO Emergencies (WHE) and the ongoing close liaison among the WHO and UNICEF regional offices. However, the TAG still notes room for improvement in “one team” approach and inter-agency coordination.

The TAG appreciated the outbreak response assessment (OBRA) desk review performed by a GPEI mission in November 2018, in the absence of full field assessment. The TAG found the findings of the desk review helpful during its deliberations.

The TAG noted with serious concern the ongoing sub-optimal routine immunization across the Horn of Africa leading to occurrence of cVDPV and ongoing risk of polio outbreaks.

The TAG expressed utmost concern that Ethiopia could not synchronize the implementation of second mOPV2 round and could also not implement so far the two planned bOPV rounds. TAG noted the generally high estimates of SIAs quality as indicated by the administrative, IM and LQAS data. However, inaccessible children are not systematically and uniformly taken into account, there are still issues regarding data reliability (particularly in Somalia), inconsistent field implementation and interpretation of LQAS and IM. TAG also noted that the missed children information from IM and LQAS, is not well analysed or used for tracking and improving quality of the subsequent vaccination rounds. TAG appreciated the program’s robust action to implement SIAs (as SIADS) in newly accessible populations/areas

of Somalia.

Due to persistent low routine immunization, variable SIAs quality and longstanding inaccessibility, the overall population immunity remains low at the sub-provincial / county level leading to continued transmission of cVDPV2 and cVDPV3.

The key surveillance indicators are meeting the targets at the national level. However, there is inconsistent surveillance sensitivity and quality sub-nationally. Data is not currently analysed effectively to understand surveillance sensitivity in access compromised areas and among high risk populations (particularly Somalia, Yemen, Ethiopia, Kenya, South Sudan and Uganda). The TAG acknowledged the use of innovations to improve surveillance including ISS and AVADAR; however, TAG could not establish a firm opinion about the impact of these innovations from the information presented. The TAG expressed concern over the continued trend of low non-polio enterovirus isolation rates in some provinces of Ethiopia and Kenya. The program is not regularly and thoroughly carrying out special investigations for Zero dose children, hot/urgent and compatible AFP cases, or for AFP clusters. Moreover, the current contact sampling policy is not well implemented in Kenya and Ethiopia. TAG noted the ongoing risk posed by cVDPV2 transmission in DRC and this risk is not being fully considered during the risk assessments for bordering areas of HoA. This is compounded by the weak surveillance in high risk and insecure/conflict affected areas of Uganda and South Sudan with risk of missing transmission.

Environnemental surveillance continues to complement the AFP surveillance. However, the TAG was concerned that enhanced environmental surveillance in Kenya and Ethiopia could not be implemented as per the plan.

The TAG appreciated the rich comprehensive fact sheets developed at regional level and acknowledged the improvement in social data collection by country offices. The TAG was concerned that non-outbreak countries, especially those neighbouring active outbreaks, did not report on relevant C4D components of polio outbreak preparedness and response planning.

The TAG was appreciative of overall focus and good management of mOPV2 at all levels. However, the high vaccine wastage rate in Ethiopia is of concern as vaccine may be unaccounted for. TAG also noted the high number of unaccounted vials in Kenya during the July and August campaigns.

In conclusion, the TAG considers the cVDPV2 & cVDPV3 outbreaks as still ongoing. Several countries across the Horn of Africa remain at high risk of development or importation of cVDPVs due to serious gaps in immunity and surveillance. Close coordination of efforts, better and more comprehensive use of data is critical to address properly these emerging outbreaks and guard against future transmission.

Key Recommendations

1. As the first phase of response to the cVDPV outbreaks has concluded, a comprehensive second phase plan should now be prepared, utilizing the lessons learned, the findings of internal program reviews, and the recommendations of the OBRA and TAG. TAG re-emphasizes the importance of a “comprehensive, synchronized HoA” approach with clear emphasis on outbreak zones and high risk areas/populations.
2. In view of the ongoing outbreaks and risks, GPEI should continue regular communication and advocacy with the Ministries of Health to ensure all necessary efforts are made until the current outbreaks are stopped.
3. GPEI should immediately review the current capacity of the HoA coordination office and assess the need for further strengthening.
4. The WHE Grade-2 should be maintained until the current outbreaks are declared closed
5. WHO /UNICEF Team Leads for Somalia should be co-located in the same office at Mogadishu to enable them to work together.
6. All national and sub-national risk assessments must consider the proximity of transmission and population movement across international borders.
7. Ethiopia program must immediately implement the deferred bOPV rounds and consider all appropriate operational flexibilities like phased approach, hit and run and any others.
8. While endorsing the current GPEI SIAs schedule, the TAG emphasized the need to remain flexible depending on epidemiology and access situation. TAG also urged to ensure uniformly high quality SIAs in all accessible areas
9. GPEI to work with MoH Kenya to put in place direct disbursement mechanism to ensure payment to frontline workers in a transparent and timely manner
10. Country programs must continue exploring ways to improve post campaign assessment (Independent Monitoring / LQAS), with special focus on high risk areas and special populations. Information should be disaggregated for high risk areas and populations for in-depth analyses and use.
11. Inaccessible populations should be accounted for, while analysing program data (SIAs adjusted coverage, surveillance indicators) to understand the real situation.
12. Failed IM/LQAs lots and information on missed children should be investigated and remedial actions (e.g. follow up vaccination, better planning for subsequent rounds) should be taken and documented. Moreover, precise tally (by campaign) of any areas dropped from LQAS / IM randomized list due to inaccessibility should be maintained.
13. While considering inaccessibility as one of the major challenges towards stopping transmission, the TAG urged all country programs to maintain the best possible estimates and mapping of inaccessible populations.
14. The TAG endorses the Somalia contingency strategy for the currently inaccessible areas.
15. Surveillance data should be disaggregated for inaccessible/conflict affected areas and special populations to identify underperforming pockets. Country surveillance strengthening plans should be adjusted to secure this approach for the long term.
16. The national and sub-national teams must ensure regular review and appropriation of the active surveillance network and systematically monitor and report the timeliness and completeness.
17. All countries should immediately classify all the AFP cases pending for more than 90 days and ensure timely classification in future.
18. All Zero dose AFP, AFP clusters and compatible cases should be thoroughly investigated, including social profiling, to rule out likelihood of missed transmission.

19. AFP vaccination status should capture SIA and RI OPV doses for all countries. Information on Routine Immunization Zero dose AFP cases should be systematically shared with EPI for remedial actions.
20. The issue of “Unknown Doses” should be immediately addressed through better case investigation, orientation/training of surveillance staff and adjusting tools / formats, where necessary. Results of investigations should guide corrective actions.
21. All GPEI partners, GAVI, and key donors must focus their support to strengthening routine immunization in the poorly performing areas of HoA.
22. Innovations like ISS and AVADAR should be implemented in a rational way to complement existing AFP surveillance and their impact should be explicitly documented after systematic validation.
23. The TAG urges to perform thorough investigation for the new VDPV2 environmental isolates in Kamukungi, Nairobi, considering the demographically linked areas/populations within the city and high risk counties in north-east Kenya. Special focus should be laid on mapping of high risk populations and program performance at Nairobi lowest level.
24. Kenya and Ethiopia should ensure that their contact sampling policies are fully implemented.
25. Immediate assessment of reverse cold chain should be carried out for areas with continued low NPEV rates and any identified issues should be addressed immediately.
26. Given the specimen shipment challenges from Yemen, the program should update the disaggregated data on pending samples by location and stage (in transit or at laboratories) to facilitate follow up.
27. Environmental surveillance expansion plans should be immediately implemented. Kenya and Ethiopia should initiate sampling from the new agreed sites (latest by end Q-1) and expansion in Uganda, Tanzania, Burundi and Zambia should be prioritized, given the high importation risk from DRC.
28. The program should ensure regular monitoring of the dynamics around the existing environmental sampling sites and timely address any identified issues.
29. A regional comprehensive C4D plan should be developed in close coordination with country teams focusing on common priorities.
30. All International partners including GPEI partners must strongly support the use of global communication guidance and best practices. Country teams must ensure the use of data for evidence based planning and corrective action, including zero dose social profiling, and disaggregation for special and mobile populations at all levels.
31. Outbreak country teams should strictly adhere to the global Vaccine accountability framework, including joint validation.
32. The program should continue search for mOPV2 missing vials, during all the field visits.
33. The program should plan for capacity building of vaccine handlers and managers on mOPV2 management in high risk HoA countries.
34. The TAG proposed to convene again in May or June 2019 to review implementation of the next phase of outbreak response and risk reduction measures.

PREAMBLE AND OBJECTIVES

The 18th meeting of the HoA TAG was held from the 27 – 29 November 2018, in Nairobi, Kenya under the chairmanship of Dr. Jean-Marc Olivé. The meeting was opened by Dr Daniel Langati on behalf of the Ministry of Health, Kenya. In attendance were delegations from Ethiopia, Kenya, Sudan, South Sudan, Somalia, Tanzania, Uganda, Zambia and Djibouti as well as representatives of Rotary International, WHO, UNICEF, BMGF, CDC, CORE group, IGAD, Red Cross and USAID.

The last (17th) HoA TAG meeting was held in May 2018. The 17th TAG had concluded that the current outbreaks should be considered as affecting the entire HoA and urged the need to respond to both cVDPV2 and cVDPV3, with priority for type-2. The last meeting of the TAG also sent a strong message of urgency to all Governments, development partners and GPEI and all other stake holders.

Since the last meeting of the TAG in May 2018, the HOA implemented response to the ongoing outbreaks of circulating Vaccine Derived Poliovirus Type 2 (cVDPV2) and Type 3 (cVDPV3). Both outbreaks however, have continued until now due to a range a factors, indicating continued gaps in population immunity.

The 18th HOA TAG meeting was convened on 27 – 29 November 2019 to review the current situation and quality of HoA outbreak response till; following were the key objectives of the meeting:

1. To review the cVDPV OB situation in Somalia and Kenya, including the implemented and planned response in those and other HoA countries, and provide recommendations as required
2. With particular reference to Somalia, Kenya, Ethiopia, Yemen, and South Sudan, to review the following and make recommendations as appropriate
 - a. The status of the control of the cVDPV 2 and 3 OB affected countries
 - b. OBR preparedness and risk mitigation strategies in countries with no confirmed circulation
 - c. Sensitivity of surveillance in countries, particularly with reference to access compromised, high risk and mobile populations
 - d. Plans for strengthening basic immunization services in the context of polio transition
 - e. Communication strategies focusing on building and sustaining demand for immunization, particularly in high risk groups
3. With respect to other HoA countries, make recommendations as required to strengthen surveillance and mitigate risks

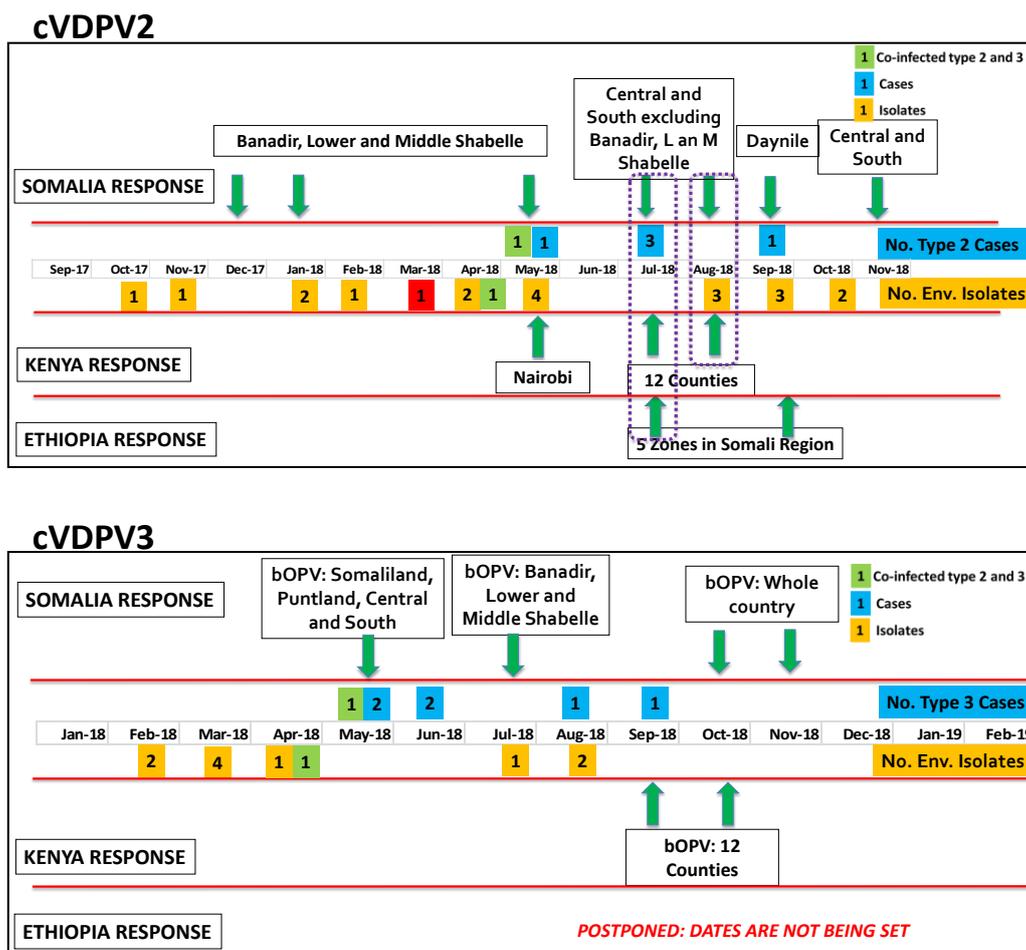
1. CONTEXT

Horn of Africa cVDPV2 and cVDPV3 outbreaks

At the time this report is being written, HoA has reported a total of five cVDPV2, six cVDPV3 cases and one cVDPV2/cVDPV3 co-infected case (all from Somalia), since the start of the outbreak in November 2017. Moreover, cVDPV2 was isolated in 21 environmental samples (20 Somalia, 1 Kenya) and 10 environmental samples yielded cVDPV3 (all from Somalia) since the start of the outbreak. The last cVDPV2 case had onset of paralysis on 02 September 2018, while the last cVDPV3 case had onset of paralysis on 07 September 2018. Last cVDPV2 positive environmental sample was collected on 11 October 2018 (Waberi Banadir, Somalia), while last cVDPV3 positive sample was collected on 23 August 2018 (Waberi Banadir, Somalia). It is important to note that genetic sequencing indicates, these viruses have been circulating for several years, before detection last year.

The TAG considers that the outbreaks affecting Somalia, Kenya and Ethiopia should be considered as ongoing until there is clear evidence that they have been stopped.

Timeline of isolations and response activities in Somalia and Kenya, 2017 – 2018



Epidemiology

The cVDPV2 and cVDPV3 outbreaks have continued as far as October 2018, as indicated by the reporting of paralytic polio cases and isolation of cVDPV2 and cVDPV3 in the environmental samples. One mOPV2 round is currently in progress in Somalia after the latest cVDPV2 isolation from an environmental specimen (date of collection: 4th October, 2018); while two bOPV rounds have been conducted in Somalia and Kenya since the latest cVDPV3 isolation (date of onset: 7th September, 2018).

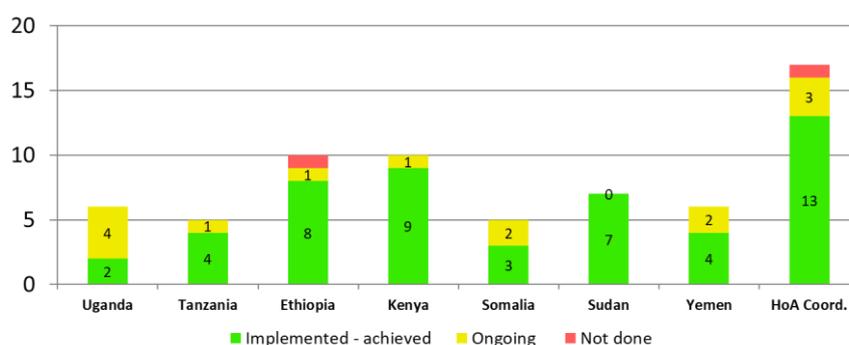
The TAG noted that high susceptibility, inaccessibility and mobility continue to be the key factors for sustaining cVDPV transmission. It is pertinent to mention that three of the twelve cases were reported from the inaccessible areas and five from mobile population groups. Four cases were reported to be “Zero Dose”, three of which were from areas inaccessible for vaccination.

The TAG noted with concern that Ethiopia did not implement the two planned bOPV rounds. It is not yet clear if response efforts have stopped cVDPV transmission.

2. FINDINGS

2.1 Implementation status of last TAG recommendations

Of the 66 recommendations from the 17th TAG meeting, 50 were implemented and 14 were partially implemented. Two recommendations were not implemented: “careful review of outbreak response SOPs for necessary adjustments” and “implementation of two bOPV rounds in Ethiopia”.



2.2 Oversight and coordination

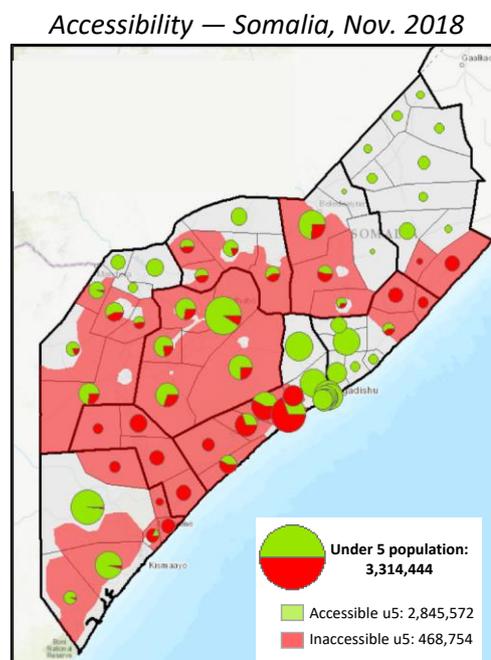
The TAG acknowledged the declaration of cVDPV2 and cVDPV3 outbreaks in the Horn of Africa as a Public Health Emergency (PHE) by the governments of Somalia, Kenya and Ethiopia. Strengthening of HoA coordination office and ongoing close coordination among Regional Offices were also appreciated by the TAG. The use of WHO Emergencies (WHE) grading for the HoA outbreaks has proven helpful towards fast tracking human resource, administrative and finance processes. However, the TAG noted the need for further improvement in the “one team approach” and inter-agency coordination.

2.3 Outbreak Response Assessment

The TAG acknowledged the Outbreak Assessment (desk review) for Somalia, Kenya and Ethiopia during November 2018. The finding of the assessment fed well into the TAG’s deliberations. The TAG, however noted that a full field assessment could not be done at this stage.

2.4 Population Immunity

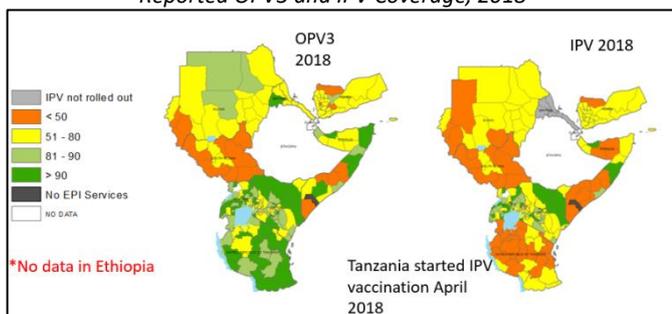
The TAG noted with concern that the ongoing population immunity gaps remain significant, due to inaccessibility, low routine immunization and inconsistent SIAs quality at sub-provincial and county levels and among high risk mobile populations. There is significant dependence on SIAs for maintaining population immunity, particularly in South Sudan, Yemen, Somalia and Uganda. TAG noted that disaggregated analyses of SIAs data, including information on high risk groups and accessibility, is not uniformly available for all the countries. The TAG noted that Kenya and Ethiopia did not present proper information on accessibility issues encountered during the response SIAs.



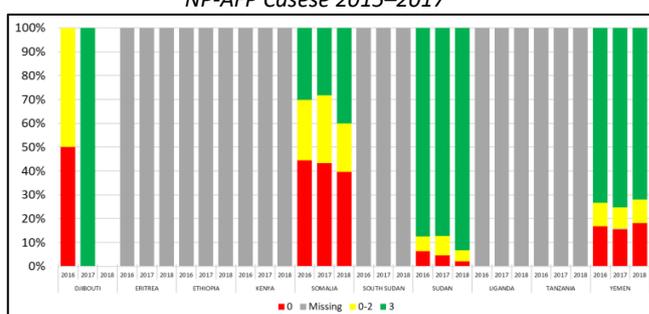
a) Continued sub-optimal Routine Immunization

The TAG noted with concern, the longstanding gaps in RI in several countries due to a range of factors. Inconsistent IPV supply is compromising the efforts to immunize refugees and other special populations in Uganda as well as the catch up for missed birth cohort due to delayed IPV introduction in Tanzania. The TAG noted in Sudan, the challenges with GAVI and Polio transition to maintaining RI efforts. Considerable staffing issues were noted (e.g. absenteeism, high turnover) in Uganda and South Sudan. TAG expressed concern about the continued difficulties in establishing RI in the inaccessible and hard to reach areas of South Sudan, Sudan, Somalia, Yemen and parts of Kenya. The RI administrative data is generally unreliable and poorly used for planning and implementation purposes. Having mentioned this, all the available information sources including non-polio AFP data, reinforce the ongoing low RI performance.

Reported OPV3 and IPV Coverage, 2018*



OPV Doses Received through Routine Immunization among NP-AFP Cases 2015–2017



2.5 SIAs

The table below mentions the SIAs implemented in HoA in response to cVDPV2 and cVDPV3 outbreaks (mOPV2 and bOPV rounds, respectively) in HoA, since the notification of the index virus.

IMMUNIZATION RESPONSE – SIAs	Somalia	Kenya	Ethiopia
HOA Type 2 response – mOPV2 (Day 0 – date of notification index virus)	Day 0 09/11/17	Day 0 06/04/18	NA
Round 0 - Type 2 response – mOPV2 – dates	10/12/17		
Round 1 - Type 2 response – mOPV2 – dates	29/01/18		
Round 2 - Type 2 response – mOPV2 – dates	06/05/18	R0 09/05/18	
Round 3 - Type 2 response – mOPV2 – dates (HOA – synchronized response)	09/07/18	R1 11/07/18	R1 09/07/18
Round 4 - Type 2 response – mOPV2 – dates (HOA – synchronized response)	04/08/18	R2 04/08/18	R2 23/09/18
Round 5 - Type 2 response – mOPV2 – dates (CR Daynile)	19/09/18		
Round 6 – Type 2 response – mOPV2 – dates (additional round South/Central zone)	25/11/18		
HOA Type 3 response – bOPV (Day 0 – date of notification index virus)	Day 0 01/02/18	NA	NA
Round 1 - Type 3 response – bOPV – dates	30/04/18 05/06/18 23/07/18		
Round 2 - Type 3 response – bOPV – dates (HOA – synchronized response)	01/10/18	R1 15/09/18	R1 Not done
Round 3 - Type 3 response – bOPV – dates (HOA – synchronized response)	29/10/18	R2 20/10/18	R2 Not done

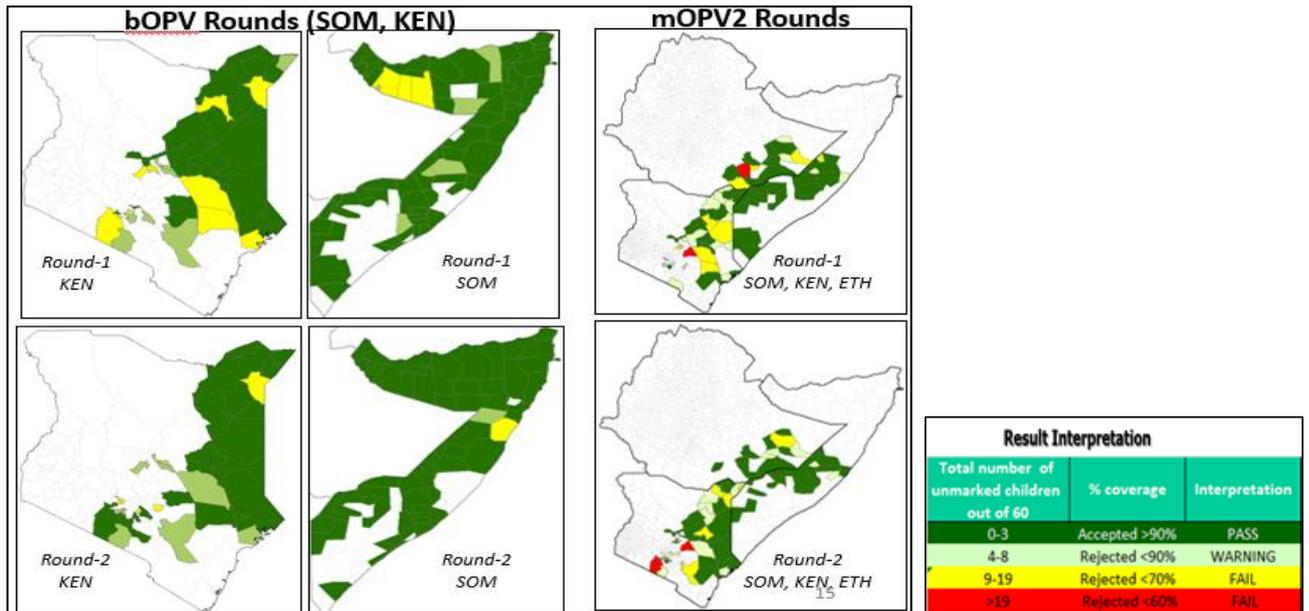
* SIAs part of the HOA OBR plan

a) Implementation and Quality

The TAG noted with concern that Ethiopia could not synchronize the implementation of the second mOPV2 round and did not implement to date the two planned bOPV rounds. Administrative data and (IM estimates for all the mOPV2 and bOPV response rounds in Somalia, Kenya and Ethiopia are generally high. However, the data does not account for inaccessible populations. The TAG noted that there are still issues about data reliability despite efforts to enhance data collection quality, particularly in Somalia. The TAG also noted inconsistency in field implementation and interpretation of LQAS and IM processes.

The TAG appreciated the robust steps to implement SIAs (as SIADS) in newly accessible populations/areas in Somalia. The TAG noted that data are not available for post campaign assessment in Djibouti.

LQAS Results for mOPV2 and bOPV Synchronized Rounds, 2018

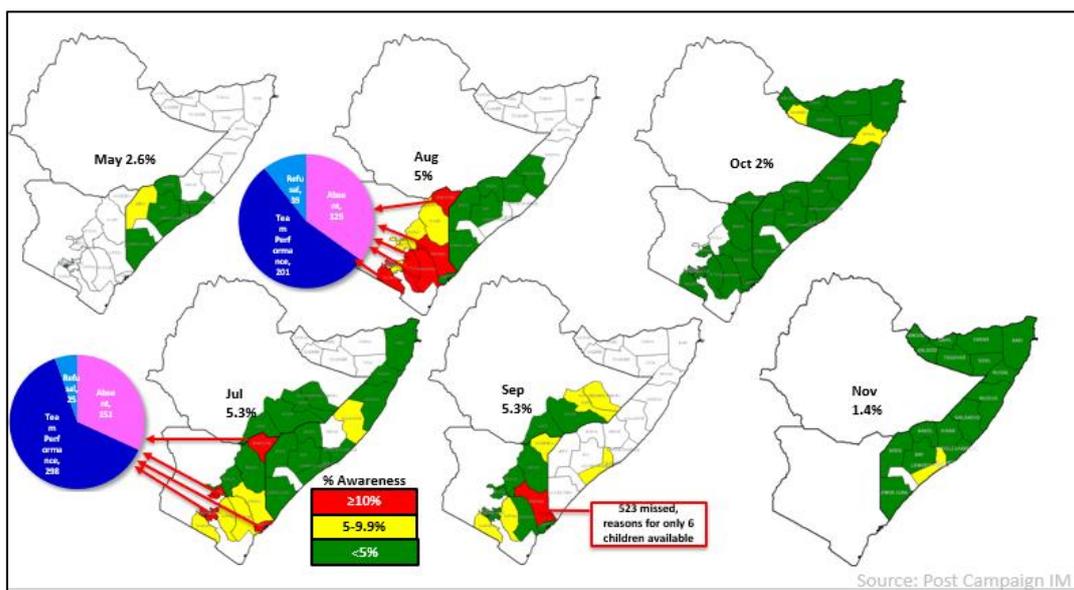


b) Missed Children

The TAG is concerned that post campaign IM and LQAS data on missed children is not being fully utilized to improve the campaign quality. As per the reports presented to the TAG, high proportion of missed children are due to “absence (school, parents not available etc.)”, highlighting lack of effective tracking of missed children. This information is not in line with the “high community awareness” indicated by the C4D data presented to the TAG.

The TAG also noted significant proportion of children missed due to poor team performance in Kenya and Somali region of Ethiopia.

Children missed during campaigns and main reasons, May–Nov, 2018



2.6 AFP Surveillance

The TAG noted that key surveillance indicators are met at the national level in all the countries; however, there is inconsistent surveillance sensitivity and quality at the sub-national level. The TAG was concerned that currently, surveillance data is not analysed effectively to understand surveillance sensitivity in access compromised areas and for high-risk areas and populations (Somalia, Yemen, Ethiopia, Kenya, South Sudan, and Uganda). The TAG noted with concern, weak surveillance in high risk and insecure/conflict affected areas of Uganda and South Sudan, risking missed transmission.

The noted that Kenya and Ethiopia country programs are not implementing the existing contact sampling policy for all AFP cases (three contact samples for all inadequate AFP cases and from all AFP cases of region V of Ethiopia). TAG also noted that special investigations for zero dose, hot and compatible AFP cases and AFP clusters are not regularly carried out. Furthermore, the TAG noted lack of uniformity in data collection tools for special investigations.

The TAG noted with concern the risks posed to HoA countries by viral transmission in closely bordering areas of DRC and that this is not being fully considered (and analysed) to identify and respond to the risk in bordering areas of HoA.

The TAG noted with concern the continued trend of low non polio enterovirus isolation rates in some provinces of Ethiopia (national: 6.8%) and Kenya (national: 9.5%). In addition, long intervals (up to 15 days) in specimen transport from some areas in South Sudan and Tanzania risk missing potential transmission. Despite improvements, the very long specimen shipment time from Yemen (transportation challenges) has led to an ongoing risk of potential missed transmission.

The TAG acknowledges the use of innovations to improve surveillance including ISS and AVADAR; however, evidence of the impact of these innovations was unclear from the information presented.

2.7 Environmental surveillance (ES)

The TAG noted with appreciation that environmental surveillance (ES) continues to complement AFP surveillance. The TAG expressed concern about the limited ES expansion since the beginning of the outbreak due to slow processes. There has not been any ES expansion in Kenya and Ethiopia since the last TAG meeting despite identification of potential new sites through external review. Furthermore, it was not clear to the TAG that corrective actions were taken in existing sites with suboptimal performance (*Kenya and Ethiopia*).

	Kenya	Ethiopia	Somalia
Contact sampling policies	3 contacts for all inadequate cases	3 contacts for all inadequate cases + all cases in region V	3 contacts for all cases, nationwide
Implementation	22% (19/86) for inadequate cases Partially	21% (13/61) for inadequate cases Partially	100% (312/312)

Compatible cases, 2017-2018	Kenya	Ethiopia	Somalia
NO of Compatible cases	19	3	0
NO of cases pending classification*	71	14	3
Analysis	No	No	N/A
Potential Cluster	Yes (2)	No	N/A
Investigation	No	N/A	N/A

* Pending classification >90 days after onset

The TAG noted lack of regular monitoring of ES sites to identify issues in a timely manner and ensure accountability; as evidenced by long delay in identifying the reason for interruption of sample collection in Garissa (Kenya).

2.8 Communication for Development (C4D) and Social Mobilization

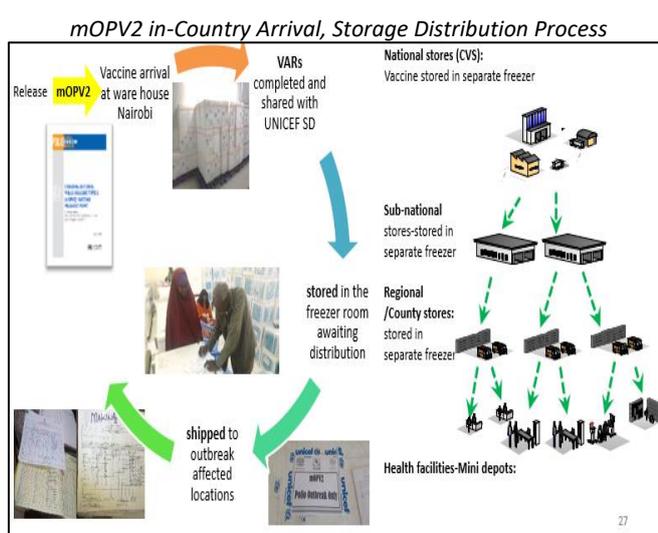
The TAG appreciated the rich, comprehensive fact sheet (Polio Communication Profile) developed at the regional level. The TAG also acknowledged the improvement in social data collection by country offices. The TAG noted, with concern that non-outbreak countries, especially those neighboring active outbreaks, did not address or report on relevant C4D components of polio outbreak preparedness and response planning.

The TAG acknowledges the following lessons learned from the 2013–14 WPV1 and 2017–2018 VDPV outbreaks, in particular:

- South Central Somalia as the epicentre for both outbreaks
- Role and effect of mobile populations in spreading the polio virus, e.g. Refugees/Nomads/IDPs/Migrants etc.
- Need for regular, cross-border coordination for nomadic and migrant populations, focussing on the three outbreak countries
- Importance of high quality training at all levels on the use of data for evidence-based communication planning
- The need for monitoring framework for social and behaviour change activities conducted in the region

2.9 Vaccine Management

The TAG noted the extensive efforts in retrieval of unused and empty vials after vaccination campaigns. However the TAG is concerned, that from GPEI calculation, vaccine wastage rate is high in Ethiopia, leading to concern that vaccine may be unaccounted for. In addition, the TAG noted that Kenya had a high number of unaccounted vials in July and August.



Vaccine distribution / retrieval, HoA OB response

	Round	Vials Received	Children immunized	Number of Doses used	Wastage Rate	unaccounted vials	unopened vials in stock at the end of SIA	Form A submission status
SOMALIA	Dec	80,000	702,667	765,120	8.2%	853	41,744	Yes
	Jan	0	715,172	764,560	6.5%	0	3516	Yes
	May	40,000	759,019	811,920	7.0%	0	2853	Yes
	Jul	37,800	666,421	736,160	9.0%	26	3,835	Yes
	Aug	37,800	670,895	756,340	11%	22	3,693	Yes
	Sep	3,693	47,255	50,100	5.6%	0	1,188	Yes
KENYA	May	47,100	768,016	942,000	18.5%	83	6,594	Yes
	Jul	139,000	2,506,436	2,701,380	7.2%	272	13,613	Yes
	Aug	156,700	2,668,556	2,858,120	7%	477	22,029	Yes
ETHIOPIA	Jul	28,700	406,355	425,130	27.1%	38	707	Yes
	Sep	28,700	486,816	523,119	11.3%	135	0	Yes

3. CONCLUSIONS

The TAG concluded that the cVDPV2 and cVDPV3 outbreaks affecting Somalia, Kenya and Ethiopia should be considered as ongoing until there is clear evidence that they have been stopped. Several countries across the Horn of Africa remain at high risk of development or importation of cVDPVs due to serious gaps in immunity and surveillance. The TAG emphasized close coordination of efforts to stop existing transmission and to guard against future transmission is critical. The TAG also noted a much better and more comprehensive use of data is essential to inform implementation of efforts to reduce risk.

4. KEY RECOMMENDATIONS

4.1 Horn of Africa Outbreak Response – Next Phase

The TAG considers that the first phase of response to the cVDPV outbreaks concludes at the end of the ongoing mOPV2 campaign in Somalia. The TAG recommends that a *comprehensive second phase response plan* be prepared immediately covering both cVDPV2 and cVDPV3; including the contingency for additional mOPV2 or bOPV rounds if epidemiologically required. The second phase plan should take note of lessons learned to date, the findings of internal program reviews, and the recommendations of the OBRA desk review and TAG. The TAG re-emphasizes the importance of a “comprehensive, synchronized HoA” approach with clear emphasis on outbreak zones and high risk areas/populations. **(Responsible: HoA Coordination)**

4.2 Oversight and Coordination

- In view of the ongoing outbreaks and risks, GPEI should continue regular communication and advocacy with Ministries of Health to ensure all necessary efforts are made until the current outbreaks are stopped
- GPEI should immediately review the current capacity of the HoA coordination office and assess the need for further strengthening **(Responsible: GPEI)**
- The WHE Grade-2 should be maintained until the current outbreaks are declared closed **(Responsible: WHO)**
- TAG urges WHO, UNICEF and other GPEI partners to work as “one team” at national and sub-national levels to ensure integration of operational, C4D planning and implementation processes; supported by the Regional Offices **(Responsible: GPEI, Regional Offices WHO and UNICEF)**
- WHO /UNICEF Team Leads for Somalia to be co-located at one office in Mogadishu to enable them to work together **(Responsible: WHO/UNICEF Regional and country offices)**

4.3 Outbreak Response Assessment

- The current TAG recommendations should be considered in conjunction with the recommendations of the OBRA. The HoA Coordination Office and Regional Teams should support national and sub-national teams to immediately review/develop

action plans based on the OBRA and TAG recommendations (**Responsible: HoA Coordination, WHO/UNICEF RO**)

- GPEI should ensure implementation of the OBRA recommendations and strengthen program capacity at the national and sub-national levels before considering the next OBRA (**Responsible: GPEI relevant bodies e.g. OPRTT, EOMG**).

4.4 Assessing and Responding to Risks

- Currently non-infected countries should update their outbreak response preparedness plans and rapid response teams should be identified and trained.
- The national and sub-national risk assessments must consider the proximity of transmission and population movement across international borders. (**Responsible: Djibouti, South Sudan, Sudan, Tanzania, Uganda, Yemen**)

4.5 Supplementary Immunization Response

- The TAG endorses the current 2019 GPEI bOPV SIAs schedule for HoA but emphasises the need to remain flexible depending on epidemiology and access, and to take into account additional activities that may be necessary to stop the current cVDPV outbreaks.
- The TAG supports contingency planning for additional mOPV2 round in Somalia, if epidemiologic developments require.
- While inaccessibility remains a challenge, it is essential to implement uniformly high quality SIAs in all accessible areas. (**Responsible: Djibouti, Ethiopia, Kenya, Somalia South Sudan, Sudan, Tanzania, Uganda, Yemen**)
- The TAG urges the Ethiopia program to immediately implement the deferred bOPV rounds and consider all appropriate operational flexibilities e.g. phased approach, hit and run and / or any others (**Responsible: Ethiopia**)
- The TAG recommends GPEI to work with MoH Kenya to put in place direct disbursement mechanism (DDM) to ensure payment to frontline workers in a transparent and timely manner. (**Responsible: Kenya, HoA Coordination office, AFRO**)

Current GPEI bOPV SIAs Schedule – 2019													
2019													
Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	SIA equiv
Djibouti				100%									100%
Somalia			100%	100%						50%			250%
Sudan			50%							50%			100%
Yemen			100%							100%			200%
Ethiopia			33%	33%						19%			85%
Kenya			50%							50%			100%
South Sudan		67%	100%							33%	100%		300%
Uganda						47%							47%

4.6 SIAs Monitoring

- All the HoA country programs must continue exploring ways to improve and strengthen post campaign assessment (IM, LQAS), supported by HoA Coordination Office and Regional Offices (**Responsible: Country teams supported by HoA Coordination**)
- High risk areas / special populations should be targeted during IM/LQAS (targeted monitoring) and information should be disaggregated for analyses (**Responsible: Country teams supported by HoA Coordination**)
- Failed IM/LQAs lots should be thoroughly investigated and remedial actions to be taken and documented (**Responsible: HoA Country teams**)
- Data/Information on “missed children” should be used for actions i.e. to perform follow up vaccination/mop ups and strengthen preparation for the subsequent SIAs i.e. microplanning, training etc. (**Responsible: all HoA countries**)

4.7 Inaccessible Populations

- The TAG urges all the country programs to maintain the best possible estimates and mapping of inaccessible populations.
- Inaccessible populations should be accounted for while analysing program data (SIAs adjusted coverage, surveillance indicators) to understand the real situation
- Program should maintain precise tally (by campaign) of any areas dropped from LQAS / IM randomized list due to inaccessibility
- The TAG endorses the Somalia contingency strategy for currently inaccessible areas i.e. mOPV2/bOPV SIADS for new accessible areas. If the type-2 epidemiology remains as such, mOPV2 rounds may be considered up to the end of quarter-1 of 2019; any later use should be after a careful situational assessment.
- The TAG recommends to assess availability of vaccine and other resources at the end of ongoing mOPV2 campaign in Somalia and decide on the need for a contingency buffer.

4.8 Strengthening Routine Immunization

Current cVDPV outbreaks are result of chronically low performing routine immunization (RI). The TAG is concerned that cVDPV outbreaks will continue unless urgent steps are taken to rapidly improve RI; this has to be realized by all the concerned international partners. The TAG recommends:

- Sharing Information on Zero Dose children, identified by AFP surveillance with EPI program to inform and document corrective actions (**Responsible: All countries**)
- All GPEI partners, GAVI, and key donors must focus their support to strengthening RI in the poorly performing areas (**Responsible: GPEI, GAVI, USAID and others**)

4.9 AFP Surveillance

- The TAG remains extremely concerned by the weak surveillance quality especially in parts of Somalia, Kenya, Uganda and Ethiopia. The TAG recommends that surveillance data should be disaggregated for analysis of inaccessible, conflict affected areas, and special populations to identify underperforming pockets. Country

surveillance strengthening plans should be adjusted to ensure this approach for the long term. **(Responsible: all countries, HoA Coordination)**

- The longstanding issue of AFP cases with “unknown doses” should be immediately addressed through better case investigation, orientation/training of surveillance staff and adjusting the tools / formats where necessary. **(Responsible: all countries, HoA Coordination)**
- The TAG recommends regular review and appropriation of the active surveillance network, and to systematically monitor and report timeliness and completeness of active surveillance visits. **(Responsible: all countries, HoA Coordination)**
- All countries should immediately classify all the AFP cases pending for >90 days and ensure timely classification in future. **(Responsible: all countries, HoA Coordination)**
- Innovations like ISS and AVADAR should be implemented in a rational way to complement existing AFP surveillance and their impact should be explicitly documented after systematic validation. **(Responsible: all countries, HoA Coordination and AFRO)**
- AFP vaccination status should capture SIA and RI OPV doses for all countries **(Responsible: AFRO to ensure)**
- Thorough investigation should be carried out for the new VDPV2 environmental isolates in Kamukunji, Nairobi (Kenya) to determine the level of risk they represent. Investigation must consider the demographically linked areas/populations within Nairobi and high risk counties in north-east Kenya. Special focus should be laid on mapping and social/demographic links of high risk populations and program performance in Nairobi at lowest level **(Responsible: Kenya, AFRO to support)**
- Contact sampling policies should be fully implemented and monitored in Kenya and Ethiopia **(Responsible: Kenya, Ethiopia programs, AFRO to support)**
- All Zero dose AFP and compatible cases and AFP clusters should be thoroughly investigated, including social profiling, to rule out likelihood of missed transmission. Results of investigations should guide corrective actions. Zero dose cases information should be systematically shared with EPI for remedial action **(Responsible: HoA, all countries)**
- Extended support missions from RO/HQ should guide national and sub-national teams on implementing surveillance strengthening plans **(Responsible: WHO ROs and HQs)**
- Immediate assessment of reverse cold chain should be carried out for areas with continued low non polio EV rates and any identified issues should be addressed. Specimens tracking mechanism should be put in place. **(Responsible: HoA, all countries, especially Ethiopia and Kenya)**
- Yemen should update disaggregated data on pending samples by location and stage (in transit or at laboratories) to facilitate follow up **(Responsible: Yemen country team, EMRO)**

4.10 Environmental Surveillance (ES)

- Need for regular monitoring of existing site performance and adherence to sample collection schedules and procedures.
- Kenya and Ethiopia should begin sample collection from the new sites (per the external review), latest by end of Quarter 1, 2019.

- Given the high importation risk from DRC, Immediate expansion of environmental surveillance to Uganda, Tanzania, Burundi, Zambia should be considered. All concerned GPEI bodies (and GPLN) should continue coordination on ES expansion. **(Responsible: HoA countries, Regional Offices, HQs, GPLN)**

4.11 Communication for Development

- **General recommendations**
 - The Horn of Africa should develop a regional comprehensive communication for development (C4D) plan focused on common priorities (one voice, one platform) in close coordination with country teams.
 - All International Partners including GPEI partners must strongly support the use of global communication guidance and best practices. Country teams should ensure **use of data** for evidence based planning and corrective action, including zero dose social profiling, and disaggregate data for special and mobile populations at all levels.
 - All outbreak-affected countries should continue to build capacity to use polio communication profiles to help inform programmatic decisions.
- **Kenya:** Develop monitoring framework for communication activities and triangulate the social data from different sources. Kenya should also focus communication activity on special populations (e.g. illegal immigrants and others gated communities).
- **Somalia**
 - Continue nomadic and hard to reach population focused communication activities
 - Consider developing a communications / social mobilization plan for inaccessible population
 - Continue cross border activity for better coordination with Kenya and Ethiopia
 - Ensure training quality at all level for social mobilizer
- **Ethiopia**
 - Ensure training quality at all level for social mobilizers
 - Continue and accelerate cross border mobilization activity for nomadic and mobile population
 - Document the use of Clan and Islamic Affairs Supreme Council (IASC) leaders for community mobilization
- **Yemen**
 - Conduct outbreak simulation and document that relevant C4D components are integrated in national outbreak preparedness plans
 - Build capacity for outbreak response and preparedness especially with regards for improving Inter Personal Communication (IPC) skills of frontline workers
 - Develop special outbreak preparedness, response C4D strategies and communication profiles for security comprised areas

4.12 Vaccine Management

- The TAG recommends outbreak country teams to strictly adhere to the Vaccine Accountability Framework, as per the global guidelines, including joint validation. **(Responsible: HoA countries)**
- All teams (vaccination, monitoring, etc.) should continue to search for mOPV2 missing vials during all the field visits. **(Responsible: HoA countries)**
- The TAG recommends additional capacity building of vaccine handlers and managers on mOPV2 management in high risk HoA countries. **(Responsible: HoA coordination office, UNICEF ESARO)**

5. Key Areas of Focus, January -June 2019 and Tracking implementation of TAG recommendations

- In summary, to reach the un-reached, the following four key areas require high focus over the next six months (Jan – Jun 2019):
 - immunization and surveillance in access compromised areas and populations,
 - program performance among the high risk populations and accessible areas,
 - social profiling of high risk groups and its use to improve operations, and
 - assessing the impact of innovations and rationalize to best benefit the program.
- The HoA Coordination office should track and report the status of TAG recommendations implementation on a monthly basis. Quarterly meetings of the Horn of Africa GPEI partners should be convened to review progress on outbreak response and surveillance enhancement measures. **(Responsible: HoA Coordination office)**

6. Next TAG meeting

Taking into consideration the current outbreak and outbreak response activities and the follow up of recommendations, the HoA TAG proposed to convene during May/June 2019 to review implementation of the next phase of outbreak response and risk reduction measures. **(Responsible: AFRO, EMRO, HoA Coordination office)**

ANNEXES

Annex A: Agenda of the meeting

Agenda: 18th Meeting of the Horn of Africa Technical Advisory Group (HOA TAG)

27th to 29th November, 2018 - Nairobi, Kenya

Objectives:

1. To review the cVDPV outbreak situation in Somalia and Kenya, including the implemented and planned response in those and other HOA countries, and provide recommendations as required.
2. With particular reference to Somalia, Kenya, Yemen, Ethiopia, and South Sudan, to review the following and make recommendations as appropriate:
 - o The status of the control of the cVDPV 2 and 3 outbreaks-affected countries
 - o Outbreak response preparedness and risk mitigation strategies in countries with no confirmed circulation;
 - o The sensitivity of surveillance in countries, particularly with reference to access compromised, high risk, and mobile populations;
 - o Plans for strengthening basic immunization services in the context of polio transition;
 - o Communication strategies focusing on building and sustaining demand for immunization, particularly in high risk groups
3. With respect to other HoA countries, make recommendations as required to strengthen surveillance and mitigate risks.

Programme

Tuesday, 27th November 2018

- 07:30-08:00 Registration
- Session 1: Opening: Welcome and Objectives of the HOA TAG meeting- TAG Chair**
- 08:00-09:00 Welcome and introductions, opening remarks by TAG Chair
Remarks by WHO/UNICEF Representatives
Opening speech by MoH Kenya
Objectives of the HOA TAG meeting (Jean-Marc Olivé, TAG Chair)
Security Briefing by UNDSS
- Session 2: Global and HOA Overview**
- 09:00-09:10 Global situation (WHO HQ)
- 09:10-09:45 Main developments in HOA since the last TAG and Status of Cross-cutting 17th TAG Recommendations (GPEI HoA Coordinator)
- 09:45-10:00 HoA Cross Border Activities (Core Group)
- 10:00 – 10:45 Coffee Break and Picture
- Session 3: cVDPVs outbreaks and response**
- 10:45-11:30 Somalia – Situation, actions taken, and actions planned
- 11:30-12:15 Kenya – Situation, actions taken, and actions planned

- Discussion
- 12:30 - 13:30 Lunch Break**
- 13:30-14:15 Ethiopia Country presentation – risks and risk mitigation
- 14:15-15:00 Discussion on cVDPV outbreak and response
- 15:00- 15:30 Coffee Break**
- 15:30-17:00 Closed meeting of the TAG (ONLY TAG members and Technical Advisors)
OBRA Debriefing to TAG Members

Wednesday, 28th November 2018

- Session 4a: Country presentations on status, risks, and risk mitigation**
- 08:00-08:45 Uganda Country presentation
- 08:45-09:30 South Sudan Country presentation
- 09:30-10:00 Discussion of risks and risk mitigation measures

- 10:00 – 10:30 Coffee Break**
- Session 4b: Countries with particular focus at risk countries**
- 10:30-11:00 Yemen
- 11:00-11:30 Tanzania
- 11:30-12:00 Sudan
- 12:00-12:30 Djibouti

- 12:30 - 13:30 Lunch Break**
- 13:30-15:00 Discussion of risks and risk mitigation measures
- 15:00- 15:30 Coffee Break**
- 15:30-17:30 Closed meeting of the TAG (ONLY TAG members and Technical Advisors)

Thursday, 29th November 2018

- 09:30 -12:00 *Capacity building on the GIS to improve micro planning for Immunization (SLAs and Routine Immunization) – Country participants*
Closed Meeting of the TAG (ONLY TAG members and Technical Advisors)
- 12:00-13:00 Lunch Break**
- Session 5: Recommendations and Conclusions – TAG Chair**
- 14:00- 15:00 Deliberation on the conclusions and recommendations by TAG Chair
- 15:00- 15:30 Clarifications
- 15:30- 16:00 Closing remarks and end of 16th HOA – TAG Meeting

Annex B: Country Summaries (provided by the country polio eradication teams)

Country Summary: Djibouti

Background (Geography, demography , administrative, security and special populations):

▪ **Geography**

The Republic of Djibouti with its 23 000 Km² of surface, is located in the Horn of Africa, at the southern entrance of the Red Sea.

Djibouti shares its land borders with Somalia in the South, Ethiopia in the Southwest and Eritrea in the North. In the eastern part, its access to the Red Sea, with 370 km of coastline, and the Gulf of Aden, would offer economic and natural opportunities.

The country occupies a strategic position within the region with natural resources affected by desert climate and volcanic soils.

The climate is of desert type with sporadic rains. Rainfall rarely exceeds 200 mm per year. The rainy season or cool season often covers the period from October to April and the dry season, very hot where temperatures are generally above 40 ° C in the day, extends from May to September and weighs heavily on degradation of the environment.

Arid regions have a strong negative impact on agricultural production. In addition, the scarcity of water resources and their poor quality particularly in Djibouti city is a severe constraint for both agricultural and pastoral activities, and for the population and its health.

▪ **Demography**

According to the preliminary results of the General Population and Housing Census carried out between May and June 2009, the total resident population of Djibouti was 818,159 inhabitants, 70.6% of whom live in urban areas and 58.1% in Djibouti City the capital of the country. In 2018 the population is estimated to be around 1 049 001 inhabitants.

▪ **Administrative**

The decentralization process has divided the country into six administrative regions: a capital-centric region with a special status. Djibouti-ville is thus subdivided into three communes: the commune of Balbala 55.4% of the population of Djibouti city, Boulaos (42.7%) and Ras-Dika (1.9%) , and five other regions of the interior (Ali-Sabieh, Arta, Dikhil, Obock and Tadjourah).

▪ **Health systeme**

Djibouti's health system is based on district health system approach and primary health care strategy

The regional level at the administrative level merges with the district level (peripheral). As a result, district management teams led by District Chief Medical Officers are the primary health officials in the administrative regions corresponding to the health districts (5 inland districts (rural) and two urban districts in Djibouti).

The organization of care supply structures is pyramidal type with three levels.

There are three sub-sectors offering care within this pyramid: (public, parapublic and private).

In the public sub-sector, the first level consists of rural health posts (28) and community health centers (10) in urban areas. These care structures ensure the first contact of the health system with the populations. The second level is made up of five Hospital Medical Centers that also play the dual role of District Hospital and Regional Hospital. The third level of tertiary care is a national reference hospital, a national reference maternity hospital and two specialized centers.

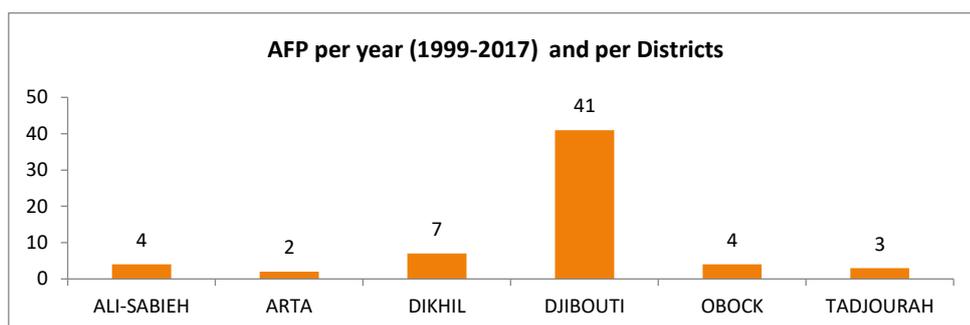
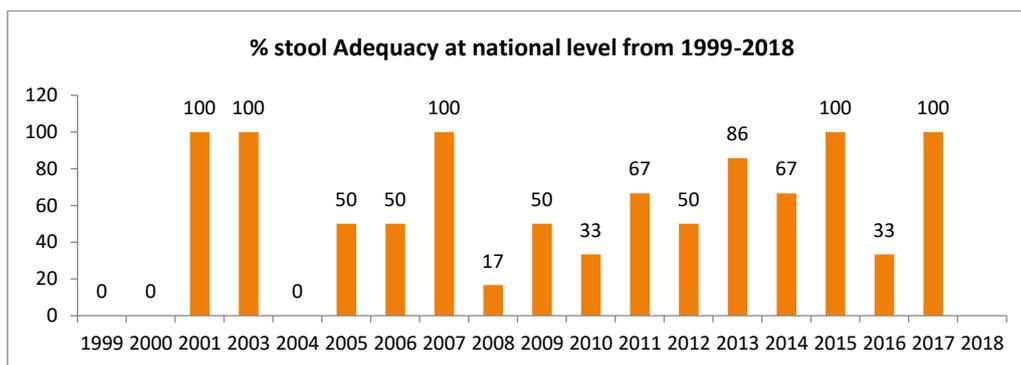
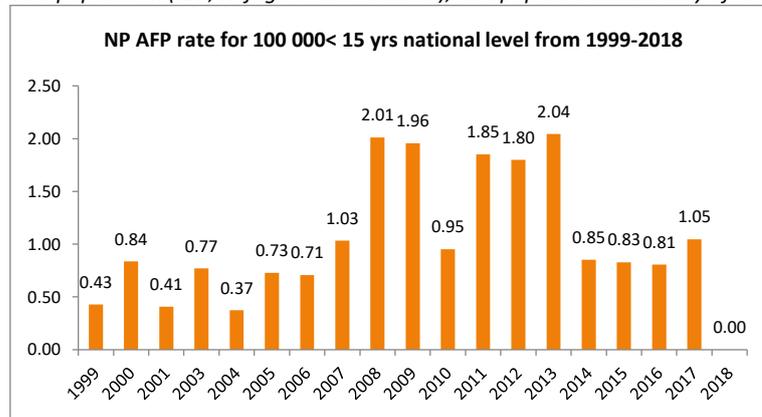
The parapublic and private sub-sectors are limited to Djibouti city. The six parastatal structures are composed of four military health structures and two health structures of the social welfare agency. The private service offering is structured around three polyclinics, five private pharmacies and 10 medical practices.

▪ **Security and Special population**

Due to the unstable political and social context in the Horn of Africa region, Djibouti with stability and security has been a land of welcome for refugees from conflicting neighboring countries since 1978 and is also facing the phenomenon of floating population which represents a total of 120 to 150 000 people. There are 3 refugee camps in 2 health regions: Ali Adeh Camp, and Holl-Holl in the Ali Sabieh region which includes Somali refugees

and Markazi in the Obock region, which is home to Yemeni refugees fleeing the war. The total population of refugees and asylum seekers is estimated at 29,915, with an impact on the national health system. Moreover, Djibouti is a natural corridor for the passage of migrants from East Africa and the Horn of Africa to the countries of the Arabian Gulf and Europe. The current migrant population is estimated at 34,750 migrants and represents 170 to 180,000 people or 500 people per day who cross the Djibouti territory to the Arabian Peninsula and Europe.

AFP surveillance – National, sub national (Region and Districts), Surveillance Status (performance indicators) in the inaccessible areas and special population (IDP, Refugees and Nomads), and population immunity of AFP cases (6m-59m)

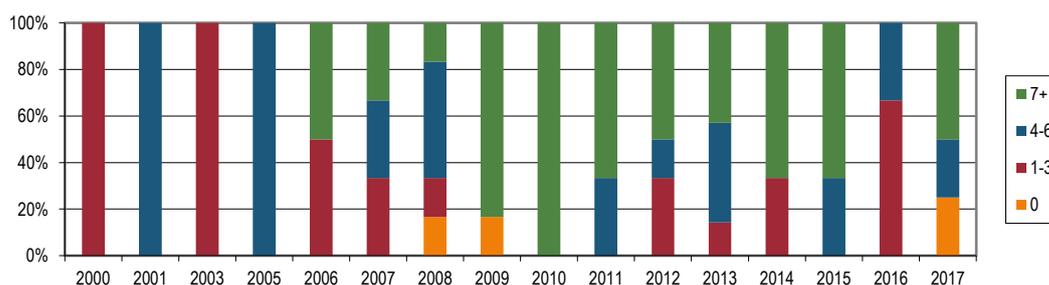


% NP ENV from 1999 to 2018 subnational level				%		Special population
Region/ District	NPEV	Not NP ENV	AFP stool sample	NPENV	Not NPENV	
Alisabieh		4	4	0%	100%	Refugees /nomadic
Arta		2	2	0%	100%	nomadic
Dikhil		7	7	0%	100%	Migrant/nomadics
Djibouti	8	29	37	22%	78%	Mixed populations
Obock	1	2	3	33%	67%	Refugees/ Migrant/nomadics
Tadjourah	1	2	3	33%	67%	Migrant/nomadics
Country	10	46	56	18%	82%	

Immunization

▪ Routine immunization (%)

Immunity profile of AFP (6-9 month) cases by year 2000 to 2017



Region/districts level	2015		2016		2017	
	OPV3	IPV	OPV3	IPV	OPV3	IPV
Alisabieh						
Arta						
Dikhil						
Djibouti						
Obock						
Tadjourah						
Country	84%	NA	68%	46%	68%	46%

(Source WUENIC)

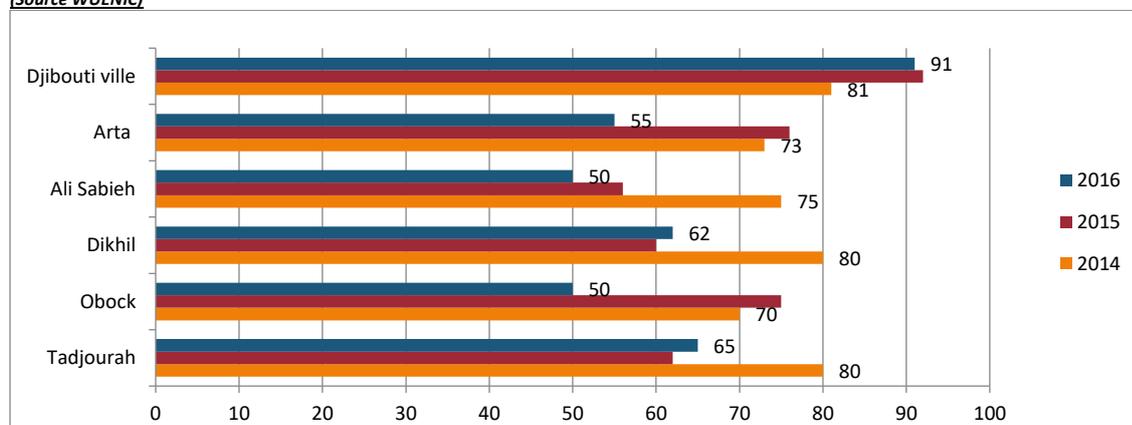


Figure 1: Vaccination coverage of OPV3 at district level per years (2014, 2015, and 2016) : source EPI/JA

SIA (March 2016 and October 2018)

Region/District	Mars 2016			October 2018 (23 to 27)		
	Target (0-59 month)	Administrative vaccine	Coverage rate	Target (0-59 month)	Administrative vaccine	Coverage rate
Alisabieh				12 709	11 479	90,32
Arta				6 195	5 151	83,15
Dikhil				13 001	12 682	97,55
Djibouti				69 476	89 635	129,02
Obock				5 533	5 685	102,75
Tadjourah				12 673	12 260	96,74
Country				119 587	136 892	114,47

Independent monitoring and LQAS:

Report of IM for 2018 not yet published.

1) Communication for Development (C4D):

- Ongoing with UNCEF activities
- Need of STOP team (Communication)

2) Cold chain capacity and vaccine management

- 95% of health facility with new cold chain (GAVI CCEOP and HSS)
- Capacity building of Logistician for management of vaccine and consumable, and preventive and curative maintenance of cold chain

3) Preparedness for outbreak response

- POSE in 2016
- Strengthening of surveillance (Relaunch of activities)
- SIAs response to HOA cVDPV outbreak
- Enhancing of Routine immunization (Capacity building of national and sub national Staff in vaccinology , logistic and solar cold chain)

4) Transition Planning

Not yet started. Need of technical assistance

5) Challenges

- Polio surveillance training (Health staff and community health worker)
- Collection of stool of the healthy children , and Community based surveillance
- Environmental surveillance
- Revitalization of NCC, NPEC , ICC
- Updated prioritization of surveillance site
- Share REC file weekly (IFA)
- Subnational risk assessment to conduct in a regular regularly
- Conduct sentinel site visits on a regular base
- Improve Timeliness of Lab reference result. (KEMRY)
- Conduct a second round of polio mass campaign (January)
- Include both LQAS and MI for the post campaign evaluation
- Elaborate on a regular base a bulletin of epidemic prone disease and polio
- STOP team Assigned (Field)
- Annual Certification Report to be updated and shared at the Regional Office (2015, 2016, 2017,)
- Need for car and motorcycle for national and sub-national focal point to strengthen surveillance activities.
- Data management

6) Technical support required

- Need of technical assistance

Country Summary: Ethiopia

Background –Ethiopia is administratively divided into nine regions and 2 city administrations, 100 zones, over 876 woredas, and more than 17,000 kebeles. The total population of Ethiopia for 2018 is estimated at 96 million (CSA, 2007) and 80% of the population lives in rural areas. Agro and mobile pastoralist constitutes 13.44 million (14% of total population). People live in 134 border woredas is estimated at 12 million and are mostly included in pastoralist community. In addition, about 905,831 refugees (as of 31, August 2018) distributed in camps and close to 1,994,912 (1, 453,422 conflict and 541, 490 climate induced)1 IDPs as of 31 August 2018 in some part of the country.

AFP surveillance –In 2017, the non-polio AFP rate and stool adequacy rate was 2.6 and 92% respectively. As of epidemiological Week 46, 2018, Ethiopia reported 896 AFP cases. Non-polio AFP rate (annualized) 2.3/100,000 less than 15 years of old children age while the stool adequacy rate 93%. About 88% of stools have arrived in good condition and the NPENT isolation rate is 6.8%. Two polio compatibles case are reported in 2018. About 66% of the zones have met both non-polio and stool adequacy rates in 2018. Out of the 35 high risk zones (35% of the total that have international borders or harbor special populations like pastoralists, refugees or IDPs), 27 zones (77%) have achieved the two key AFP surveillance indicators. OPV status of non-polio AFP cases aged 6 to 59 months indicates that 85% have received three or more doses, 2% are with '0' OPV doses and 3 % are with unknown OPV doses. The OPV status of non-polio AFP cases aged 6 to 59 months in Somali Region shows that only 62% have received 3 or more doses while 8% have not received any OPV dose.

Routine Immunization: Based on administrative reports, the national OPV 3 coverage for the last three years (2016-2018) was 89%, 92.5% and 92% respectively. In 2018, the coverage of opv3 ranges from 71% in Somali to 100% in Addis Ababa City administration. However, according to WHO-UNICEF joint estimate, the national OPV3 coverage was estimated to be 98%, 94% and 96% in 2015, 2016 and 2017 respectively. Though data quality issues are still a challenge, in 2017/18 Gambella (78%) and Somali (71%) regions reported <80% OPV3 coverage. Out of 9 zones in Somali region, only 2 (22%) achieved OPV3 coverage >80% and in Gambella out of 5 zones, only 1 (20%) reported OPV3 coverage >80%. Generally the immunization coverage bordering woredas is very low which needs to be supplemented by SIAs.

Polio Supplemental Immunization Activities: Two rounds (July and September 2018) of mOPV2 SIAs targeting five zones of Somali region were conducted and 475,900 of the 482,321(99%) and 486,816 of 478,920 (102%) children less than five years old were vaccinated during 1st and 2nd rounds, respectively. A total of 22,053 and 22,323 under-five children were also vaccinated in the five refugee camps of Liban during round 1 and 2, respectively. According to IM result, the proportion of woredas that achieved > 95% was 88% and 73% for round1 and round2 mOPV2 SIAs respectively. One woreda has coverage <80% during 2nd round of mOPV2 SIA. LQAs result of mopv2 SIAs showed that 1 woreda (Cherati) failed to achieve 90% coverage in round1 while there was no woreda rejected during round2 SIAs.

Communication for Development (C4D): The communication team supported the implementation of mOPV2 polio campaign which was conducted in July and September 2018. As per the IM data, 98% and 86% of parents/caretakers were aware of the campaign before vaccination team visited their house. The IM also showed that the three commonest sources of information for the campaign include kebele leader (38% and 30%), megaphone (32% and 38%) and health workers (24% and 25%) for first and second round, respectively. Absence of child during team visit is the major reason for not being vaccinated during round 1 (81%) and round 2 (78%) followed by failure of the vaccination team to visit the house (8-9%). A total of 2,698 IASC network members have conducted weekly polio social mobilization activities in 3,666 orientation sites (mosques, madrasas and other public gatherings) and reached an audience of 277,291 individuals. 14 bordering woredas got additional attention in polio social mobilization activities. In those woredas orientation sessions were used to conduct once per day.

Cold chain capacity and vaccine management: Significant actions were taken in cold chain during the previous years including installation of 34 cold rooms at central and sub-national hubs, procurement of 20 refrigerated trucks, a total of 6000 SDDs procured of which 5911 (98.5%) were delivered to the Health facilities and 5301 (88%) of them were installed to HP in low performing zones and pastoralist zones. With these, cold chain storage spaces available at national and regional hubs and health facility levels are improved to support both RI and SIAs. Prior to the implementation of mOPV2 campaign, cold chain inventory has been conducted in 5 targeted zones, 1400 vaccine carriers were distributed and other corrective actions were taken to improve the capacity at woredas and health facility level.

Preparedness for outbreak response: Ethiopia developed a polio outbreak response plan based on the updated global SOPs for polio outbreaks. The plan was revised based on the cVDPV outbreak in the Horn of Africa and submitted to Horn of Africa Coordination Office.

Transition Planning: Ethiopia developed an ICC- approved polio transition plan that covers the period from 2018-2022 and to be implemented in two phases. Phase I (2018-2020) focuses on maintaining minimum structure and assets to continue essential polio functions. A massive capacity building of PHEM on VPD surveillance has been conducted in 2018 to facilitate successful transition of all functions to MoH. A gradually transitioning certain functions will be made during this phase. Phase II (2021-2022) focuses on mainstreaming polio functions to the national health system in existing national health programs (immunization, surveillance, etc.). A resources mobilization strategy is finalized and a donor roundtable is proposed by ICC to fill a gap of \$12 million for proper implementation of the transition plan.

Challenges: The remaining challenges for implementation of polio eradication activities include recurrent health and health related emergencies (e.g. disease outbreaks), episodes of internal displacement and health service disruption due to inter-ethnic conflicts, high staff attrition rates, data quality issues, competing priorities for implementation of response activities (other emergencies, new vaccine introductions, etc.) and delay in fund liquidation.

Way forward/plan for 2018: The country would like to get support to continue enhancement of surveillance and C4D activities with focus to the high risk and border regions through the surge support. Expand environmental surveillance to two more sites in Addis Ababa; Implement two rounds of bOPV SIA targeting 33% of the population, implement RI strengthening activities such as cross border vaccination, PIRI and RED implementation. Complete containment of polio virus using PIM guideline, and implementation of polio transition plan including resource mobilization.

Technical and financial support required: Technical support is required for refreshment training of polio field staffs and national polio committees, C4D training and data management training for WHO staffs and government counterparts. Financial support is required for (i) maintaining the local polio surge supports in Somali region, (ii) Quarterly review meeting at zonal levels, (iii) quarterly supportive supervision visits by government counterparts, (iv) Routine immunization strengthening at borders and permanent crossing points, and (vi) Supporting implementation of RIIP in Somali Region.

Country Summary: Kenya

Background:

Kenya is a country in east Africa that borders Somalia and the Indian Ocean to the east, Tanzania to the south, Uganda to the west, South Sudan and Ethiopia to the north. The estimated total population in 2018 is 48,462,082, and estimated population <15yr=20,478,392 (42.3%), <5yr=7,518,712 (15.5%) and <1yr=1,589,971 (3.3%). The administrative structure comprises 1 central government, 47 county governments (devolved units) and 295 sub-counties (lowest administrative level). There are 8,994 health facilities (Public, private & FBO) of which 6,800 provide immunization services; of these, 7144 are priority sites for active surveillance.

Kenya's last indigenous case of wild poliovirus was reported in 1984. The country presented its documentation to the Africa Regional Certification Commission in 2005 which was accepted. Since then the country has had several imported WPV1 outbreaks in 2006, 2009, 2011 and 2013. The last confirmed case of WPV1 had onset of paralysis on 14 July 2013. . The 2013 outbreak was declared closed in June 2015 and since then 7 preventive SIAs have been conducted in 2015-2017.

Environmental Surveillance was established in Kenya from 2013 to complement AFP surveillance. Currently, the country has 9 collection sites located in 4 cities namely; Nairobi, Mombasa, Kisumu and Garissa. Since inception environmental surveillance has isolated WPV1(2013), VDPV2(2015), cVDPV2(April 2018) and VDPV2 (October 2018) all from samples collected from the 2 Kamukunji sites in Nairobi. The WPV1 and CVDPV2

A VDPV type 2 was isolated from an environmental sample collected on 21 March 2018 in Kamukunji Site 2 in Nairobi. Sequencing results showed 47 nucleotide changes from parent Sabin 2 closely related to cVDPV2 isolated in Somalia ES in Oct & Nov 2017. Subsequently, two rounds of SIA with mOPV2 were conducted in 12 counties at high risk in July and August in addition to a zero round in Nairobi.

Recently two VDPV2 isolated from Kamukunji Site 1 with 6 and 10 nucleotide changes respectively. The sample that yielded the viruses was collected on 4th of October. The country team was notified on 16th November and field investigation is currently in progress including retrospective and active case search, IPV and OPV coverage survey, adhoc and weekly collection of environmental surveillance samples

AFP surveillance

As of the epidemiological week 45 of 2018, 569 AFP cases have been reported from 47/47 counties, compared with 414 cases during similar period in 2017. National non-polio AFP rate is currently at 3.05 and stool adequacy of 83%. 70% (33) counties have a non-polio AFP rate of $\geq 2/100,000$, while 72% (34) had stool adequacy of $\geq 80\%$. 86% AFP cases had 3+ doses of OPV in 2018, 86% during similar period in 2017. Unknown vaccination history in 2018 is 2%, compared with 1% during similar period in 2017.

Immunization

Routine Immunization

In 2017 due to health worker strike actions routine immunization coverage of OPV3 and IPV achieved were suboptimal at 66% and 61% respectively with wide ranging variability at subnational level. However initiatives embarked upon at national level (Rapid results initiative launched in June 2018 by the President) and locally at county level including outreach services supported by Gavi Health Systems Strengthening grant, resulted in an improvement in coverage with OPV and IPV. As at end of October 2018, an OPV3 and IPV coverages of 84% and 87% respectively had been achieved.

Polio SIAs

In response to the 2018 cVDPV2 outbreak, one round of Polio SIA was conducted in Nairobi alone in May 2018 targeting 817,782 children under the age of 5 years and achieved an independent monitoring coverage of 96%. Two additional rounds of polio SIA with mOPV2 were conducted in 12 high risk counties targeting 2,827,093 children under 5 years and achieving independent monitoring coverages of 89% and 92% respectively. In response to cVDPV3 outbreaks in Somalia, two rounds were conducted with bOPV targeting the same 12 counties and achieving independent monitoring coverages of 94% and 97% respectively.

Communication for Development (C4D)

The C4D / Advocacy and Social Mobilisation was integrated into the national outbreak response. The C4D response in Kenya was based on evidence generated through formal KAP studies and formative research as well as the analysis of campaign data to create county level profiles. The Current Campaigns focused on the 12 high risk counties which included border counties, Nairobi and counties in close proximity to Nairobi. The strategy ensured the application and utilization of existing community, social structures and networks to reach the targeted populations. The entire response was carried out in close collaboration, consultation and coordination with the MoH, under the Advocacy Communication and Social Mobilization (ACSM) subcommittee.

The strategy which stemmed from the evidence generated identified the need for capacity enhancement and a three-tiered approach was used for this purpose. National and County Level Health Promotion Officers and Community Health Strategy focal points received a master Training which was cascaded to Sub County level and to the Community Health Volunteers. Following the capacity building, advocacy at national, County and subcounty level was initiated. Developing evidence informed IEC material for each of the rounds with media planning considering high visibility on TV and Radio, use of local media stations were a key part of the response. Social media was a key strategy used for urban audiences and media engagement by the local leaders helped increase vaccine acceptance and awareness. Additionally, a strong community engagement element with different stakeholders increased the vaccine reach and utilization. The engagement with the Pediatrics Association, Religious Leaders and Community Influential's, the High Risk Populations (nomads, IDPs / Refugees, Urban high density populations and hard to reach religious groups). The campaigns were supported by the national and county level champions.

Cold Chain Capacity & Vaccine Management

Investment in cold chain is guided by the National Cold Chain Rehabilitation plan. Through the support of donors and development partners (UNICEF, KfW, Gavi and World Bank) has greatly improved cold chain

capacity from 70% to 90% between 2013 and 2018. Through funding from Gavi CCEOP, the country expects to address the remaining cold chain capacity gaps in the next 3 years. There is however need to procure vaccine carriers to replace those procured in 2013/2014 to ensure effective management of vaccines during supplemental vaccination campaigns and outreaches. In response to the current cVDP2 outbreak, 342,800 mOPV2 vials were procured of which the country has accounted for 342,134 Vials Efforts continue to be made to account for the remaining 666 vials. Total of 5,946,738 children were vaccinated using 6,420,620 doses of mOPV2. This shows overall wastage rate of 7.4%. Except for 21,769 Unopened usable vials and 8 unusable vials stored at CVS all other unusable and open vials were incinerated. The vials still at CVS will be incinerated this week.

Preparedness for Outbreak Response

Kenya reviewed and revised its preparedness and outbreak response plan in early 2018 in line with guidelines provided by WHO SOPs on Outbreak preparedness and response. The plan also reflect recommendations of an outbreak simulation exercise conducted in March of 2017.

Transition Planning

The government of Kenya is yet to develop a transition plan. Guidelines for development of a plan has been provided to the Ministry of Health. However WHO has implemented aspects of transition planning as it relates to human resource and assets.

Challenges

- **Financial** -Inadequate budget for sub-national surveillance and overdependence on external sources
- **Population dynamics** -Large high risk populations [camps, nomads],Cross border movement of populations, undocumented migrants
- **Security** -Threats of terrorism and other crimes in some of the high risk areas leading to inaccessibility.
- High staff turnover
- Vaccine acceptance challenges
- Competing health priorities

Technical Support Required

- EOC support
- Finance & Administrative officer
- Data Management support
- SIA officer
- 2 Surveillance officers
- TA Routine Immunization

Country Summary: Somalia

Overview: Somalia has been responding to concurrent circulating vaccine-derived poliovirus (cVDPV) type 2 and 3 outbreaks since late 2017. These outbreaks are evidence of vulnerable, under-immunized groups within the population. So far, 12 children have been paralysed by the cVDPVs, one of whom is coinfecting with both types 2 and 3. States in south and central Somalia (the most populated) are affected. Although there is no evidence of circulation of viruses in Somaliland and Puntland, these states remain at risk.

Outbreaks and Response

cVDPV2 Outbreak: Somalia introduced environmental surveillance sites to help search for polioviruses late in 2017. cVDPV2 was first isolated from an environmental site called '21 October', in Banadir, on 22 October 2017. Sequencing results showed that the virus had no linkages to any previously detected viruses. In 2018, five cVDPV2 cases were confirmed. One co-infection (cVDPV2 and cVDPV3) case was detected in Hiran's Buloburti district. VDPV2 was isolated from 19 sewage samples in Mogadishu; the latest one was confirmed on 4 October 2018. cVDPV3. In 2018 so far, cVDPV3 was isolated from 10 sewage samples in Mogadishu, the latest isolation being confirmed in August 2018.

The Government of Somalia, WHO and UNICEF have delivered a strong and robust response to the concurrent outbreaks in Somalia. As soon as a cVDPV case was confirmed in Mogadishu, in October 2017, Somalia

conducted two campaigns in December – one sub-national immunization campaign, delivering mOPV2, and another national immunization campaign, delivering bOPV. In 2018, additional mOPV2 and bOPV campaigns were conducted, targeting the entire country and hotspots. AFP cases were investigated in detail as soon as they were reported; and stool samples from contacts and healthy children around each case were tested for polioviruses.

AFP Surveillance: Somalia rolled out an enhanced surveillance plan in 2018, developing and implementing an annual enhanced surveillance workplan with an accountability framework, and surging human resources by deploying six senior State Surveillance Officers and National Surveillance Officers based in Mogadishu. The polio programme conducted an audit and prioritization of Somalia's health facilities, classifying them as high, medium and low priority and conducting active case search in these facilities, as well as within the community (collecting community samples in silent areas, zero-dose, hot cases, and healthy children). There are 933 active AFP reporting sites distributed across Somalia, 80% of which are health facilities, mostly operated by partners (NGOs and private institutions). To boost the search for AFP cases, zero-reporting was reintroduced in all health facilities in the country, and AFP cases were mapped with geocodes (target: geocoding 100% of AFP cases). In addition, a rationalization of 535 Village Polio Volunteers (VPVs) – community members who support the polio programme – is in progress, to ensure that they cover areas that are in need. Surveillance tools, including Detailed Case Investigation Forms, active surveillance site visit forms, zero-reporting forms, and monthly surveillance report forms were revised. Field staff were trained on the use of these enhanced surveillance tools, and put on high alert countrywide to respond to the cVDPV outbreaks in a timely manner. Additionally, e-Surveillance tools that were developed this year will be in use in February 2019.

So far, 312 AFP cases have been reported in 2018, of which 40% were reported by VPVs. In total, 70% of AFP reporting sites are health facilities, followed by pharmacies and traditional healers. The reporting network comprises 76 traditional healers, 60 of whom are in access-compromised areas of south and central zones.

Immunization campaigns: In 2018, Somalia conducted six mOPV immunization campaigns (the rounds in June and August were synchronized with campaigns in Kenya and Ethiopia); one campaign in Daynile (and IDP camps in Khada and Afgoi, which is host to a large number of internally displaced persons); and one round of IPV was conducted in April 2018 in Banadir, Lower Shabelle and Middle Shabelle regions.

Additionally, three nationwide bOPV campaigns were conducted in July, October and November 2018. During the last immunization campaign, 2.6 million under-fives were covered (84% of the total under-five children in Somalia). Over 400,000 children (around 13%) are missed during vaccination campaigns as they live in inaccessible areas.

In order to improve the quality of the polio campaigns, a detailed settlement survey was conducted, with the aim of developing an exhaustive list of all settlements in every district. This survey also defines the lifestyles and estimated size of the populations, and provides an understanding of the magnitude of inaccessibility in locations covered, particularly in partially accessible districts. This tool was also used to draw maps per regions and districts, which fed into revising microplans for campaigns, and to collect disaggregated data by lifestyle of the target population.

Somalia is using 419 transit point vaccination sites that are strategically located to capture children on the move, mainly from inaccessible areas, accessible areas, and ports of entry in Mogadishu, Berbera and Bosaso among other locations. A total of 1,999,842 children under ten years of age were vaccinated (as of Week 44, 2018). Among them, 19,018 (1%) were vaccinated for the first time.

Monitoring the quality of SIAs: Somalia has been using innovative means to manage campaign data – in December 2017, electronic data collection tools were developed using Open Data Kits (ODK). All SIA questionnaires, including campaign preparation, DFA- and team-level daily data compilation, intra-campaign monitoring, post campaign monitoring and LQAS were converted to ODK and successfully used in all campaigns this year, in areas that are accessible by the programme.

During the last nationwide bOPV campaign, conducted in November 2018, all districts covered 95% or more target children – according to post campaign monitoring. The LQAS for this campaign, which was conducted in 107 lots, had shown the following results: 1 failed lot, 97 passed lots and 9 lots passed with concern.

Routine immunization: Routine immunization coverage has historically been low in Somalia. In 2017, according to the Health Management Information System (HMIS), the National Penta 3 coverage was 63%, OPV3 provision through routine immunization was 64%, and 59% of the target children received BCG. Measles

coverage was equally low, at 60%. The immunization dropout rate for penta 1 to penta 3 vaccine was at 15% and 19.2% in 2016 and 2017 respectively. In the last nine months of 2018, national performance shows that 70% of OPV-3, 69% of Penta-3, and 73% of MCV-1 (measles) coverage was achieved respectively. Indicators are unlikely to reach the national and international targets. The country is receiving support from GAVI for 25 of Somalia's most populated districts.

Communication for Development (C4D): The Somalia programme is using a combination of C4D strategies, including high-level advocacy with all stakeholders, engagement of trained community mobilizers (3,500 and 146 regional, district and zonal social mobilization coordinators) and members of the National Islamic Advisory Group (NIAG) to inform communities – through house-to-house visits and mosque announcements - and to handle refusals through revisits. Nomadic elders continue to be mapped – 1,302 nomadic elders were mapped, oriented and included in microplans. They assist in coordinating with vaccination teams to ensure vaccination of nomadic children. Mass media channels such as Radio/TV, IEC materials as well as SMS and megaphone announcements are used throughout the country in all campaigns. Special emphasis is given to the sensitization of nomadic populations, and mobile/ cross-border/ IDP populations, which includes the increase in the number of days for house-to-house mobilization and community sessions. A communication assessment is being conducted in high-risk and densely populated districts of south and central regions, in addition to the intra-monitoring, to have the scope of assessing additional communication indicators, such as risk perception among other indicators. The results of the assessment show that the overall awareness is higher than 90% in the assessed districts.

As part of our mandate to inform various audiences about the polio outbreaks and risks posed by them, WHO and UNICEF are sharing regular situational updates and engaging with UN agencies, health cluster members, and the national and international media using different channels (meetings, TV, radio, social media (@WHOSom; @unicefsomalia)).

Accessibility: One of the biggest challenges the polio programme faces is impeded access to various states in South and Central Somalia due to insecurity, as well as families that are hard to access due to difficult terrain. More than 400,000 children (close to 42% settlements) in South and Central Somalia are inaccessible. A vast majority of AFP cases (34 out of 36 zero dose, as of Week 46) that have been reported from inaccessible areas have never been immunized.

To reach additional under-fives in access-compromised areas, the polio programme has appointed a focal person dedicated to IDPs and other high-risk mobile populations, completed mapping of IDP camps, and identified 30 health facilities in inaccessible areas that will be included in the surveillance network. The programme has also engaged local partners working in camps to support case reporting, and engaged and trained community informants to conduct AFP surveillance. By deploying a VPV-centered approach to reach inaccessible areas, validating all AFP cases with help of local nurses/doctors, and exploring the use of nomadic elders to support case finding and reporting, the programme aims to vaccinate additional children.

A special strategy is being deployed, comprising low-profile, grassroots negotiation, with the support of local traditional authorities, to reach children in access-compromised areas. Additionally, four rounds of SIADs, using mOPV2 and bOPV, with elements of polio plus activities, will be conducted, creating a buffer zone around the inaccessible areas by using transit vaccination teams around the areas. In the last one month, more than 70,000 children under 10 years of age have been reached with bOPV and mOPV2.

Technical innovations: In addition to ODK being used to compile daily and monitoring campaign data, electronic data collection is also being used for surveillance. Geographical Information Systems (GIS) mapping is ongoing to improve microplanning and to estimate populations. Furthermore, servers and a website (somalipolio.org) are in use to streamline data management, analyses and sharing.

Cold chain capacity and vaccine management: Across Somalia, the 2017 cold chain inventory reported that 82.7% of the equipment in the country are functional; about 6.3% of the country's CCE are working, but require service, and 10.9 are non-functional. Recent investments in the supply chain include procurement of about 200 Solar Direct Drive (SDD) for new health facilities for replacement of obsolete equipment, as well as equipping newly accessible areas; procurement was completed of five central temperature monitoring systems for all zonal cold rooms and development of new vaccine stock registers etc.

To address the issue of obsolete and non-functional equipment, investments in about 400 cold chain equipment through the GAVI CCEOP are planned for 25 priority districts across the country, which includes

nomadic populations in 24 out of the 25 priority districts and internally displaced persons in 18 of the 25 priority districts. While this will prepare the country to address cold chain gaps and ensure readiness for planned vaccine introductions e.g. MC2 in 2019, the location and spread of this equipment is crucial to contribute to reducing inequitable immunisation coverage.

Since the outbreak began, the country has received 5,140,000 doses of mOPV2, used 3,072,280 doses and immunized 2,802,410 children. Currently, the ongoing mOPV2 campaign in Central South Somalia will cover all the nine accessible regions; vaccines have been received in the Mogadishu cold chain store (100,800 vials). Actual utilization figures will be shared after the conclusion of the campaign. In all the campaign rounds conducted, the polio programme has managed to keep the wastage rate below 10%. The programme has managed to dispose of 74,651 vials from six regional stores and the process is ongoing in the three remaining regions.

Preparedness for outbreak response: The outbreak preparedness plan was revised in December 2017, and the country is adhering this plan to respond to the outbreaks.

Transition Planning: Although Somalia developed a draft transition plan for the country, the country is now committing efforts and resources to and prioritizing response to the cVDPV outbreaks.

Remaining challenges: Large number of unreached children; inadequate capacity of existing staff - intensive surveillance training required; inadequate measures to monitoring VPV activities; cross-border surveillance activities not streamlined adequately; lack of AFP surveillance in special populations (IDPs, nomads, slums), and difficulties in reaching them; gaps in immunization and surveillance in inaccessible areas; reverse cold chain that can be improved; laboratory indicators show evidence of the need to improve; and silent districts for AFP cases in 2018 (three districts from Banadir - Abdul Aziz, Hamar Jabjab and Hamarweyne. Abdulaziz and Hamerweyne have been silent for more than a year).

Way Forward

Plans are underway to further:

- Develop and implement specific strategies targeting high-risk groups, IDPs, nomadic, rural and peri-urban slum populations;
- Explore the possibility of small-scale mOPV2 campaign targeting high-risk groups, if there is evidence of virus circulation;
- Accelerate the implementation of activities targeting the inaccessible areas and explore possibility of prepositioning mOPV2;
- Conduct four rounds of bOPV in 2019;
- Continue the implementation of enhanced surveillance activities nationwide while designing and implementing specific activities targeting the high-risk groups;
- Strengthen routine immunization.

Country Summary: South Sudan

Background: The Republic of South Sudan remains a fragile state in the region, as the conflict continued in the period under review. Despite efforts to revitalize the broken cease fire deal of August 2015 in December 2017, little was achieved to sustain the deal till September 12th, 2018 when both warring parties inked yet another agreement to revitalize the implementation of TGoNU through the mediation of Intergovernmental Authority on Development (IGAD). The country remains in fragility with a protracted sporadic humanitarian crisis in some states. Over 7.6 million people still remain in need, 1.9 million internally displaced and 2 million displaced to neighboring countries. Accessibility to some displaced and trapped communities remains a challenge limiting all efforts to improve coverage of health care service aimed at alleviating morbidity and mortality. The revitalized peace deal is hoped to end humanitarian crisis, alleviate suffering and lay foundation of development.

The public health continues to face challenges in across the 6 pillars (human resource for health, Finance, leadership, pharmaceutical supplies and Logistics and infrastructure) of the health system while Governments allocation to the public health remains less than 4% of GDP and less than 0.001% of the MOH expenditure is made on immunization. Governance and leadership at subnational level remain weak, characterized by in

ability to demand for accountability from IPs. Supportive supervision remained weak, inadequate on job skills transfer through coaching and mentoring, absenteeism of health workers from duty station without permission leading to closure of some health facilities for days or weeks etc. The 22 out of the 32 newly created states in presidential decree of December 2016 remain without mid-level management staff. The country is characterized by different outbreaks that include measles, malaria, and rift valley fever and is one of the 4 countries at high risk for the Ebola virus disease and polio importation and outbreak. As at the end of 2017 the country recorded 5 cases of polio compatible cases which mirrors the challenges in AFP surveillance with immunization coverage put at 58% for OPV3 as at Aug 2018.

AFP Surveillance: Certification level surveillance has been maintained at national level for years, and in 2017 the NP-AFP rate was 4.7/100,000 U15, and stool adequacy of 87%. As of Epi week 39, 2018 the national NP-AFP and stool adequacy rate is at 5.20 and 85% respectively. All states have achieved a NP_AFP rate of above 2/100000. However, stool adequacy rate is less than 80% in two states (Upper Nile and WBG). AFP surveillance in the traditional three conflict affected states is improving with NP-AFP rate 4.4 (as at epi week 40, 2018) however stool adequacy rate is suboptimal (74%). The main challenge for low stool adequacy is sample transportation whereby there is no flights which results in delays. Activities done to improve surveillance include:

- Recruited additional Field Supervisors and Field Assistants in
- identified /priority counties and payams.
- Retrained Field supervisors, Field Assistants and health workers including private practitioners (old and new).
- Conducted surveillance review in all states with emphasis on the three conflict affected states
- Increased frequency of documented active surveillance visit using ISS checklist
- Verified and investigated any reported AFP cases, collected contact samples from each case, including healthy child sampling from silent counties
- Reprioritize surveillance sites to include all possible surveillance sites including traditional ones and intensification of surveillance in the IDPs sites and Refugees camps
- Review sample transportation situation and fast track the shipment process.

Environmental surveillance sampling continues in the country, and as EPI week 39 of 2018 a total of 64 samples were collected from four sites and none of them revealed any Polio Virus isolation. Audio Visual Detection and AFP reporting (AVADAR) started in the 1st week of June 2018. This has resulted in a total of 233 alerts and 16 true AFP cases, contributing to 72% of cases reported in the 3 counties it operates in.

Immunization

Routine immunization:

EPI performance in South Sudan has showed a decline in routine immunization (DTP3/Penta3) administrative coverage from 75% in 2012 to 59% in 2017 and WUENIC result also showed 26% for 2016 and 2017. The recent EPI cluster Coverage Survey conducted in 2017 also indicated Penta3 coverage of 49% which is higher than the WHO/UNICEF estimate but still less than the national administrative coverage.

Annualized Penta3 coverage as at the end of August 2018 is 53% with 22% Penta-1 to Penta-3 dropout rate. The report completeness is at 85% mainly reports coming from the functional health facilities of former 7 state hubs and stable counties in the conflict affected states. Further analysis by county showed that only 19 (24%) counties achieved 80% and above Penta3 coverage.

Supplementary Immunization Activities:

The country routinely conducts 4 rounds of NIDs, however in 2018 only 3 rounds were planned with 2 (1 sNIDs and 1 NIDs) already concluded. The sNIDs results shows the administrative coverage was only 77% with PCE result of 84% and the NIDs was 93% with 88% PCE coverage. In both rounds LQAS survey was conducted with 1 county rejected at coverage less than 70%.

Other special vaccination activities:

CORE Group had maintained 11 functional special vaccination posts in 2017 which are six cross border Posts: in Nasir, Renk, Abiemnhom, Kapoeta East and Magwi counties; Five inter-state Posts; Kudo, Kiryimbo, Attit, Mogos and Mingkaman. A total of 35,694 under 15 yrs children were vaccinated in 2017 however in 2018 none of the sites conducted vaccination activities due to funding gaps.

A total of 32 RRM have been done in 2018 reaching 82,419 under 5 years' children in the inaccessible and high risk counties.

Communication for Development (C4D):

All the 2306 community mobilizers and their supervisors received two one-day foundation's training on community mobilization for immunization. A total of 1.06 million households have been visited by community mobilizers from May 2018 to July 2018. During this time, they have also conducted 1789 school orientation, 1938 mothers' meeting, 1561 church/ mosque announcements, 1595 community meeting and 1261 youth club meeting.

Cold chain capacity and vaccine management.

The country continues to improve its cold chain capacity. Percentage of Health facilities with cold chain equipment increased from 25% in March 2017 to 45% by end Oct 2018, with 178 refrigerators and 8 generators has been installed in various locations.

Preparedness for outbreak response

The country has updated the national plan in line with the current outbreak in the region. Quarterly risk assessment conducted and based on the gaps identified risk mitigation plans are developed and implemented.

Transition Planning

Polio transition planning has been completed and endorsed by the ICC with a gap of USD 62,984,431 for the next 5 years and a resource mobilization strategic plan developed and shared with donors for funding.

Challenges

- Insecurity continues to be limiting factors with an increase in areas that are involved in fights even in so called safe havens, vandalization and looting of health facilities including cold chain equipment.
- High operational costs with difficult to monitor performances of health workers/social mobilizers in the inaccessible areas and challenges in data collection and payment of salaries.
- Ethnic sensitivity remain a challenge for movement of local staff
- Multi-lingual/multi-cultural population forced to prepare messages in several languages

Technical support required.

Taking into consideration the low routine immunization in the country there is a need to maintain, and increase the scope and number of SIAs.

- Scale up the environmental surveillance sites in other conflict affected states.
- Use of the PIRI and RRM (Rapid Response Mechanism), which is a temporary Humanitarian Emergency Collaborative platform, operated to deliver a basic lifesaving package.
- Resource mobilization to fill the gap created by GPEI ramp down.
- Scale up of accountability framework and ehealth mobile technology for all PEI activities and use knowledge to improve quality of supervision and RI activities.
- Capacity building for health workers
- Use the opportunity of the signed peace agreement to improve planning and implementation of PEI strategies.

Country Summary: Sudan

Background – Geography, demography, administrative, security and special population.

Sudan land covers an area of 1.8 million square kilometres with total population of 42 million inhabitants. It shares its borders with 7 countries, where the Sudanese population and those of the neighbouring countries move freely across these borders.

The country is divided to 18 states, 189 localities and more than 400 admin unites. 185 localities are fully accessible, 5 localities are fully inaccessible and 5 partially accessabilit, the inaccessible localities are located

in West and South Kordofan, and Blue Nile states. Sudan has high risks population of Nomads, IDPs, Refugees and Cross Border movement.

The northern part of the country is an extension of the Sahara Desert, the central part is a dry savannah area and the southern part has a rich savannah. Climatic factors can contribute to humanitarian emergencies related to drought and flooding, and ecological factors expose much of the population to major infectious diseases.

AFP surveillance – National, sub national (Region and Districts), Surveillance Status (performance indicators) in the inaccessible areas and special population (IDP, Refugees and Nomads), and population immunity of AFP cases (6m-59m).

Sudan surveillance performance indicators at national level are 3.1 NPAFP rate and 98% adequacy rate. At sub-national level few states reported less than 2 cases. GBS is above 0.8 since 2013. System reporting AFP cases from HRP details are in presentation. Environmental surveillance system is functional since Sept 2018, Internal surveillance review performed in all 18 states, and recommendations of international surveillance review are fully met.

Immunization

- a. Routine Immunization - National, sub national (Region and Districts), coverage status in the inaccessible areas and special population.
- b. SIAs - National, sub national (Region and Districts), coverage status in the inaccessible areas, special population. Monitoring the quality of SIAs (LQAS and IM).

OPV3 routine immunization, reported coverage is above 93% since 2013. EPI coverage assessment survey is planned for first half of 2019. There is concern on sub-optimal coverage among high-risk population and inaccessible areas. 15 out of 185 localities reported less than 80% coverage in 2017 and 17 localities classified as 80-90%.

Sudan implemented two rounds of SNIDs in 2018. The first round was 12-14 of July targeted 10 out of 18 states, with a target population of 3.1 million children under five using bOPV vaccine, IM coverage was 97%. Second round implemented 12-14 November 2018, in 16 states targeted 4.4 million children under five using bOPV vaccine, analysis of coverage is under process.

Communication for Development (C4D):

Sudan communication advocacy plan is in place to increase population demand, key messages developed will be transformed into IEC materials. study on barriers to immunization services in low performing localities is under implementation.

During SIAs we are using key channels for communication, megaphones are the main channel of mass communication in Sudan. Radio remains an important communication channel reaching to most localities through a network of national, state and community-focused stations and community leaders, religious leaders, CSOs have strong role in conveying messages and convening people during SIAs

Cold chain capacity and vaccine management

cEVM improvement plan prepared based on EVMA findings and action started, technical support through assignment of consultant by UNICEF is in place to ensure implementation of plan and quality vaccine management provided by Gavi and UNICEF. Technical support for temperature monitoring during vaccine transportation and establishment of cold chain maintenance system planned to be done 2019 through Gavi and UNICEF support

Preparedness for outbreak response

The program is alert and conscious about the risk of importation and the high risk areas in the country, the preparedness plan is developed and updated for each 18 state by localities, simulation exercise was done in 2016 for national and states officers during which the national preparedness plan was reviewed. Since 2017 the exercise is being done for locality officers

Transition Planning

Governing body under leadership of the Govt. is established, asset mapping conducted, transition Plan developed and submitted to RO, and regional office will assign a consultant to finalize the plan Jan 2019.

Challenges

- Reduction of SIAs schedule by GPEI affecting immunity of children and gain from routine immunization program particularly among high risk and inaccessible children.
- Cross border movement among Sudan, South Sudan, Nigeria, Chad, and Somalia causing programmatic and financial burden on country's program.
- Out of use and old vehicles causing supply break, missing supportive supervision sessions, and putting huge admin and financial burden on the program.
- Insufficient financial resources and human (because of high turnover of trained and experienced staff) diminish effective delivery of planned activities

Technical support required

- The PEI in Sudan is concerned about maintaining full support from government and partners to the program until the end of the game
- The country program recommended to implement two NIDs and 2 SNIDs rounds in high risk and hard to reach areas during 2019
- Logistic support is highly needed specially transport as the program vehicles are more than 10 years old and are very often off road
- Polio transition and GAVI transition will happen together and early in Sudan

Country Summary: Tanzania

Background: The United Republic of Tanzania is the union of Tanzania Mainland and Zanzibar located in East Africa. It occupies 945,087 km² of land surface, of which 1,658 km² is the Zanzibar Isles. The country is bordered by eight countries; Kenya and Uganda to the north, Rwanda, Burundi and the Democratic Republic of Congo to the west, and Zambia, Malawi and Mozambique to the south. The country's eastern border is the Indian Ocean. The country is divided into 31 regions, 195 district councils and over 12,000 villages. The country is estimated to have a population of 54,039,749 inhabitants of which under-fifteen and less than one year contribute to 43.8% and 3.8% of the total population respectively. Thirty per cent (30%) of the total population live in urban areas and 70% in rural areas. The majority of inhabitants are farmers, fishermen and pastoralists. Nomadic populations are found in the northern, western and Lake Zones. These populations are difficult to reach in certain seasons of the year for routine immunization services because of constant movement. Its western border experiences periodic refugee influx from war torn countries of Burundi, Rwanda and the Democratic Republic of Congo.

AFP surveillance: In Tanzania, all facilities are designated as AFP active surveillance sites, hospitals and health centers are classified as high and medium priority sites respectively while scheduling for active search. Both high and medium priority sites have designated AFP Surveillance Focal Persons who conduct active search weekly and bi-monthly respectively. On quarterly basis the National STOP Teams are deployed to the low performing districts to visit the high and medium priority facilities and support the conduct of active surveillance.

Tanzania has maintained the operational AFP Surveillance performance indicators at national level for the past 5 years. The Non Polio AFP rate for 2017 was 4.2 per 100,000 population aged less than 15 years and Stool adequacy was 98%. For the year 2018 to date the Non Polio AFP rate is 2.9 per 100,000 population aged less

than 15 years and Stool adequacy was 96%. However, there are gaps noted at sub-national level on AFP surveillance performance. Stool adequacy, Mid Nov 2018

AFP detection rate, Mid Nov 2018

However, the country has special groups of concern due to influx of Refugees from Burundi and DRC and Regions close to the Provinces in DRC which reported outbreaks of cVDPV.

Immunity profile shows most of AFP cases have received 3 doses of OPV

Routine Immunization: National, sub national (Region and Districts), coverage status in the inaccessible areas and special population.

The country had maintained the population immunity, by having a third dose of OPV coverage of 95% (national average) and 85% of districts attained OPV3 coverage of 80% and above with no district and region has less than 50% coverage by 2017. Inactivated Polio Vaccine was introduced in April 2018.

Supplementary Immunization Activities:– No Polio SIAs were conducted in Tanzania for the past 5 years.

Cold chain capacity and vaccine management: The cold chain storage capacity analysis done during Tanzania's CCEOP application in 2017 showed that there is adequate capacity at national and regional while need expansion at district and health facility level due to expected increase in the vaccines. Tanzania has requested through CCEOP plans to cater for this additional capacity need by procuring higher storage capacity equipment (doubling capacity at the facility from roughly 24L per site to over 50L) to replace existing low capacity sub-optimal equipment.

Findings of the effective vaccine management assessment done in 2015, reveal that the immunization programme in Tanzania is viable. The country managed to meet the EVM standard of 80% for 8 of the 9 indicators except for E1 that deals with vaccine arrival procedures at Central level. There is an overall 2% improvement from a similar assessment conducted 2012. However, there are some indicators that declined from the 2012 performance, notable of which is E1 dealing vaccine arrival processes.

Preparedness for outbreak response: Tanzania has been updating outbreak preparedness and response plan annually. However, the country is not free of importation risk from other countries with outbreak, including neighbor countries of Kenya and DRC. PORSE conducted in 2016 and the plan is to conduct another PORSE next year. There is National task force for response and national Emergency operation Centre (EOC) currently well equipped to handle all health emergencies. Based on national emergency preparedness structure, there are emergency preparedness teams at Regional and district level.

Transition Planning: The main objective of transitional planning in Tanzania is to maintain the polio free status while ensuring that investment made for polio eradication contribute to achieve other public health objectives in the future. Tanzania does not have many positions funded by polio fund. Most of the surveillance activities in Tanzania are done by government employees. Through Gavi HSS2 grant, some of the surveillance activities have been budgeted to make sure no negative effect occurs after total withdrawal of Polio funds.

Challenges: High turnover of trained surveillance staff at regional and district level is creating gap in knowledge requiring funds for training.

- Competing priorities at lower level and low frequency of active search in some districts.
- Inadequate and declining funds to carry out Polio eradication activities.
- The delayed IPV introduction (April 2018) after switch of tOPV to bOPV (May, 2016). Immunity gap for polio serotype 2
- The risk of importation of cVDPV2 from DRC which has an ongoing circulation.

Technical support required

- Conduct PORSE
- Initiate Environmental surveillance

Country Summary: Uganda

Background: In 2018, Uganda has an estimated total population of 38.8 million (52% under 15 years, and a population growth of 3.03%. Administratively, there are 122 districts, 1370 subcounties and 56,749 villages.

Uganda has achieved and sustained a polio free status despite the threats of importation from neighboring countries. Though the last laboratory confirmed indigenous WPV1 was reported 1996, Uganda succumbed to importations of WPV1 in 2009 and 2010 that were contained with multiple SIAs. In 2016, IPV introduction and tOPV to bOPV switch was successfully conducted in all districts. Sabin 2 has not been isolated from any stool sample.

AFP surveillance: Uganda has attained and sustained recommended performance levels for the two core indicators of AFP surveillance - non- polio AFP rate and stool adequacy rate at the national level 2013 – 2018. The annualized non-polio AFP rate per 100,000 children below 15 years of age in 2018 is 3.51 compared to 3.01 in 2017 and the stool adequacy rate in 2018 is 91% compared to 87% in 2017. In 2018, 82 of 122 districts have attained actual non-polio AFP rate of $\geq 2/100,000$.

Immunization campaigns /monitoring the quality of SIAs: In September 2017, a preventive house to house polio SIA using bOPV was conducted in 73 high-risk districts to increase population immunity. 6,441,282 children below five years were vaccinated. Coverage at household level by finger marking was 90% and 94% by history per independent monitoring results. Fifty percent (37 districts) had a coverage of 95% or above by finger marking at house hold level. From the LQAS in selected high-risk districts, of the 38 lots that were evaluated, only 9 (23.7%) had 90% coverage, 10(26.3%) had coverage of 80 - 89.9%; 9 (23.7%) with coverage of 60 -79.9%; and 10 (26.3%) with < 60%.

Routine immunization: In 2017, national OPV3 coverage was 90%. 97 districts attained a coverage of 80% and above. No district was below 50%. National IPV coverage was 67% and this was attributed to mainly global shortage of IPV. Technical and financial support were provided to the identified districts with large numbers of unimmunized children, inequities and low performance to develop and implement RED/REC immunization micro plans.

Communication for Development (C4D): Community mobilization and enhanced polio risk communications was emphasized during SIAs. Following the 2016 equity assessment the identified unreached communities were targeted especially the populations in urban poor settlements, migrants, ethnic minorities, some religious sects (especially Muslims, Bisaka sect and Triple 6, upcoming town settlements, fishing communities, refugee communities, remote rural, island and mountainous Country Summary on Polio Eradication Initiative in Uganda communities. Communication packages developed for stakeholders and health workers to facilitate effective communication and community mobilization. Meetings are ongoing targeting different stakeholders to address the identified hindrances to immunizations. Currently, Uganda is developing an EPI communication strategy.

Accessibility: The country has a total 49 villages which are geographically hard to access. These are in form of islands and escapements.

Cold chain capacity and vaccine management: The last SIAs were conducted in September 2017 and an update on vaccine management was reported on during the last TAG. Effective vaccine management assessment conducted in 2018 with remarkable improvement on all indicators at all levels.

Preparedness for outbreak response: Uganda has a National polio preparedness and response plan developed in line with the May, 2017 SOPs and was simulated in November 2017. Performance was 87% (compared to 75% in 2015) and technical capability to respond to an outbreak of polio was available however, the coordination in general showed some gaps which resulted in some negative effects in timeliness and completeness of the activities that have been discussed thoroughly during and after conducting the exercise.

Transition Planning: Uganda is developing a polio transition plan that will be finalized by end 2018. Mapping of all polio assets has been completed.

Remaining challenges: The competing public health priority activities at all levels is a major challenge. The District Surveillance Focal Persons have other assignments. The current Ebola virus disease outbreak in neighboring DRC has strained the available resources including human. Other challenges include the limited

AFP surveillance funds; increasing informal settlements especially in the urban and periurban areas and the continued influx of refugees.

Way forward: Continue deploying national IVD/EPI staff (MOH and partners), STOP and NSTOP to conduct active surveillance activities in the districts within IDSR framework but with special focus on Acute Flaccid Paralysis (AFP) surveillance. All the EPI/IDSR regional officers are team members of 14 regional cold chain management teams that are selected to support effective vaccine management.

Country Summary: Yemen

Background: Yemen is suffering from the worst man-made disaster in the world, continues war for more than three and half years, Creating a very bad humanitarian situation in country, concerns are raised about the humanitarian situation in general and the challenges facing health system in particular, between the destruction of infrastructure, internally displaced population and huge economic constraint, continuous war lead to deterioration to the health sector that faces enormous challenges to sustain its services and its progress. Moreover, according to humanitarian agencies, the estimated population in need of humanitarian aid are more than 23 million people, which are around 80% of population; around 11% of the population is internally displaced.

Consequently, Polio eradication activities encounter many challenges such as lack of governmental funds, security and accessibility issues, political unrest elevated price of fuel and transportation cost, despite these critical and deteriorating situation, the program with aid of supportive partners WHO, UNICEF, GAVI, is making vigorous efforts to keep Yemen free of polio.

AFP surveillance: Main AFP surveillance Indicators: AFP surveillance falls under the National center of epidemiology and disease surveillance department, which is under Health services sector at the MoPH. Yemen is polio-free since 2006, where the last wild polio case reported was on the 2nd of February 2006. The last cases of cVDPV was reported in 2013 from Saadah governorate, whereas the last aVDPV case was reported from Aden governorate in 201. Surveillance was strengthened through CBS volunteers in high risk districts 51 districts which planned now to extended to 88 districts according to updated risk assessment and accessibility beside immunization and surveillance performance.

The main challenges that facing Surveillance Program is difficulties to send samples to the reference laboratory, but by effort off WHO offices in Yemen, Djibouti most of cases of 2018 were transported in regular shipments to KEMRI Regional lab and recently all remaining samples of AFP cases and contacts were sent. Other main challenges was intolerable delay of budgets for 9 months that threatened the continuity of the surveillance system, Consequently all training and regular meeting of surveillance officers activities have not implemented yet.

Immunization campaigns. The immunization campaigns were contentious. As the last NIDs first round was applied on 6-8th of Aug 2018. this campaign not implemented in (all 15 districts of Saa'ada, 4 districts of Hodeida and 6 districts of Sayon governorates), administrative coverage was 75%, PCA 72%. The campaign was retroactively applied on Sayon at October 2018. Second round is planned to implement on 26- 28 Nov 2018.

Routine immunization:

At national level routine administrative accumulated coverage of OPV up to September 2018 was 61% due to incomplete outreach round in 6 governorates. The first stage of Outreach rounds was finished and the remaining two outreach rounds will be finished at end of these year.

Communication for Development

Yemen has updated the Outbreak preparedness and response plan. Communication plans in all high risk districts/governorates, microplans updated in all high risk districts/governorates. IEC material revised/updated in consultation with Health Education Directorate and communication section in GHO, in light of communication data collected and Idat KAP survey conducted.

Accessibility

Updating of accessibility problems districts every 3months, last one was done in the end of Sep 2018. Decrease# of fully inaccessible from 42 to 22 in contrast, the number increased of partial inaccessible. The total number of districts with accessibility problems became 75 districts.

Preparedness and response for Polio outbreak

The Polio outbreak preparedness and response plan have been updated, but (polio outbreak simulation exercise) hasn't implemented yet.

Challenges

- The ongoing and expanding war day after day.
- A large number of health facilities stopped working as a result of direct or indirect impact of the war.
- Absent of government funds and salaries.
- The irregularity of vaccine shipments leads to depletion of stocks, as happened with Rotavirus and pneumococcal vaccines.
- The Cold chain capacity still insufficient at health facility level.
- The widespread epidemics of diphtheria, cholera and measles, which create additional burdens and set urgent priorities.
- The prolonged unexplained delay of budgets.

Ways forward

- Establishing of community-based surveillance/reporting system in inaccessible and high risk areas and planned to extend them to 88 districts according (risk assessment, accessibility, and surveillance and vaccination performance).
- Implementing the 2nd countrywide immunization activities (NIDs) during 26-28th of Nov 2018.
- Agreement to implement the outreach activities in Sadaah and Aljawf governorates to decrease the refusal problem to vaccination in pairing with medical camp supportive by Unicef.

Rehabilitate a number of health facilities with the help of international partners and train staff in vaccination services in some governorates.

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