



POLIO GLOBAL ERADICATION INITIATIVE

AFRICAN POLIO LABORATORY NETWORK BULLETIN

WEEK 1 – 42, 2023

World Health Organization, Regional Office for Africa
Brazzaville, Republic of the Congo
September 2023



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- Data quality analysis



OBJECTIVES



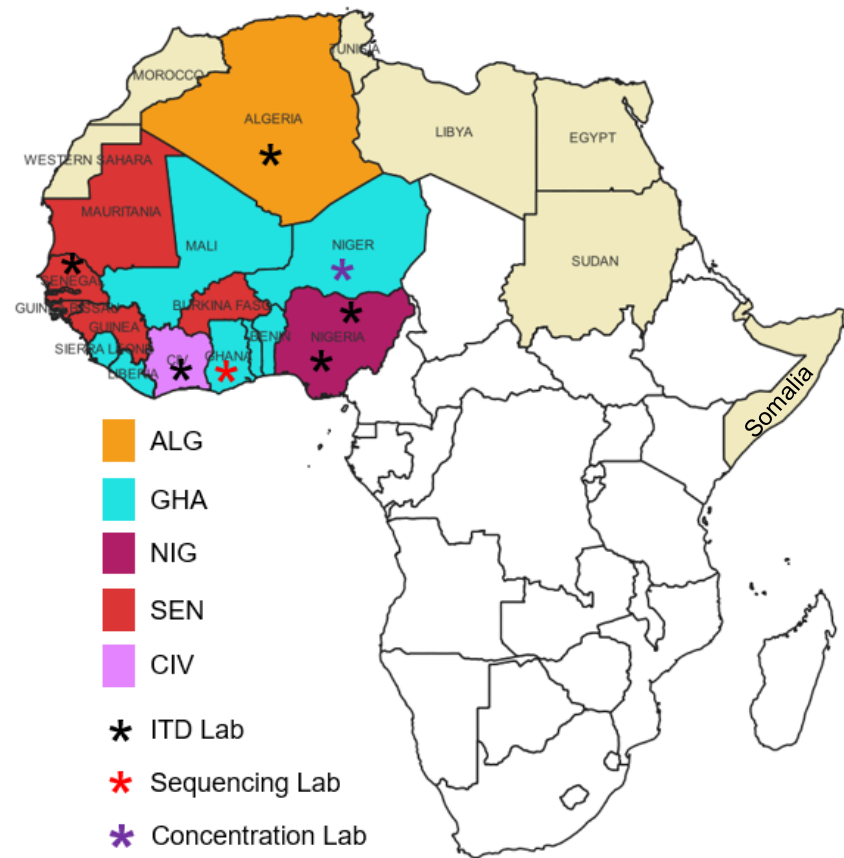
- The General objective of this bimonthly bulletin is to provide a brief highlight and feedback to the polio laboratory network in the region.
- **The Specific objectives include but are not limited to:**
 - To provide update on key laboratory performance indicators
 - To provide brief epidemiological and virological analysis on polioviruses
 - To assess timeliness of sample processing and virus isolation
 - To provide a regular feedback to all 16 polio laboratories in Africa and other stakeholders
 - To promote polio laboratory data use for program improvement

Summary of Key Performance Indicators (KPIs), Week 1-42, 2023

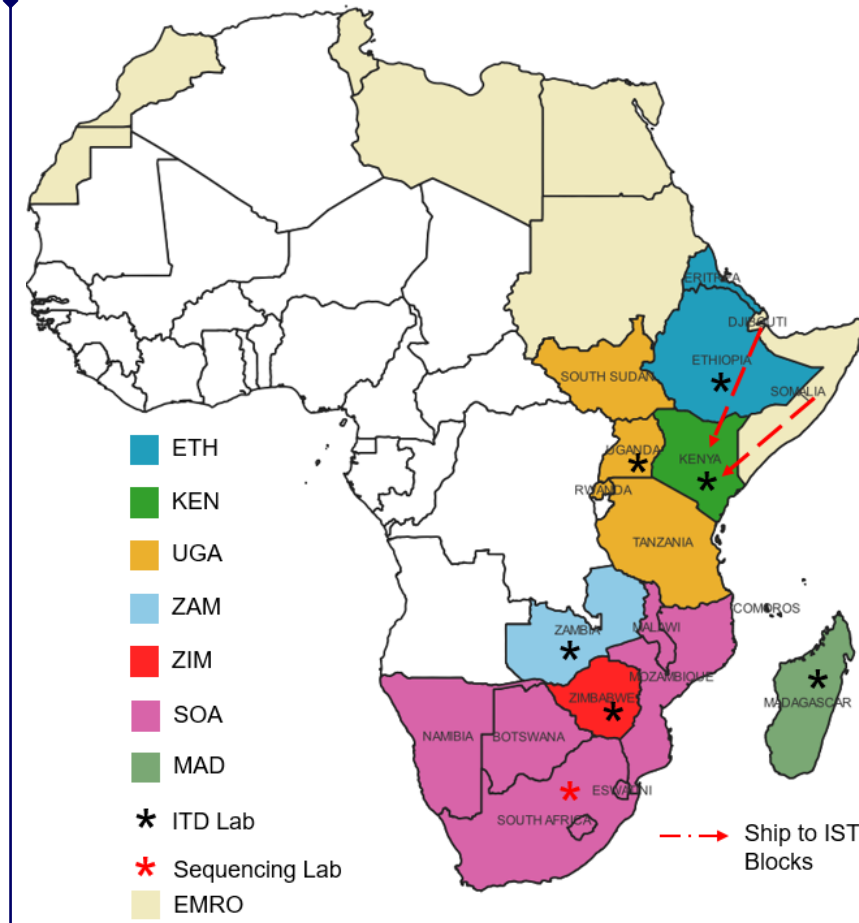
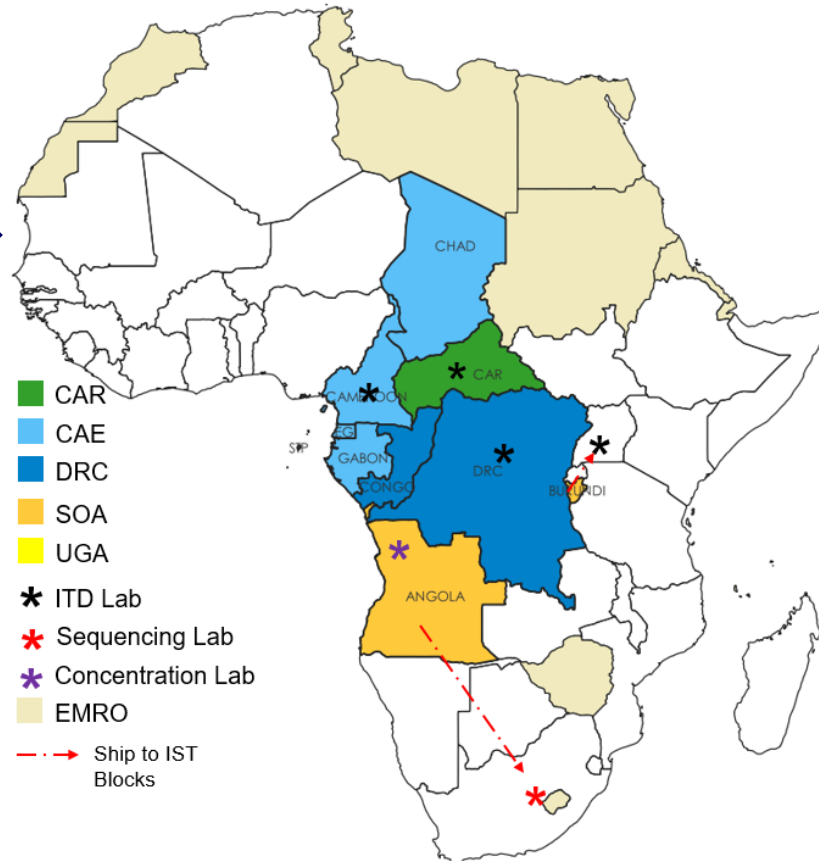
Lab Name	# of Stool specimens	Sample in Good condition	% PV Isolation results on Time	% ITD Results in 7 days of receipt of Isolates	% of Stool specimens with Final lab results available in 21 days of receipt
ALG	926	95%	100%	100%	100%
CAE	4467	99%	97%	91%	99%
CAF	680	98%	100%	100%	100%
CIV	4693	90%	100%	98%	100%
ETH	2382	100%	80%	100%	86%
GHA	4355	99%	100%	98%	98%
NIE - IBD	15668	100%	100%	99%	100%
KEN	2526	99%	99%	97%	99%
MAD	2695	99%	89%	86%	91%
NIE - MDG	11776	100%	100%	100%	100%
RDC	9556	97%	98%	99%	98%
SEN	1562	98%	99%	100%	99%
SOA	3938	99%	87%	100%	92%
UGA	5858	99%	94%	100%	97%
ZAM	1175	100%	96%	100%	98%
ZIM	519	99%	99%	100%	99%
AFRO	72776	98%	98%	97%	98%

POLIO LABORATORY NETWORK IN THE AFRICAN REGION

IST – Western (17)



IST – Central (10)

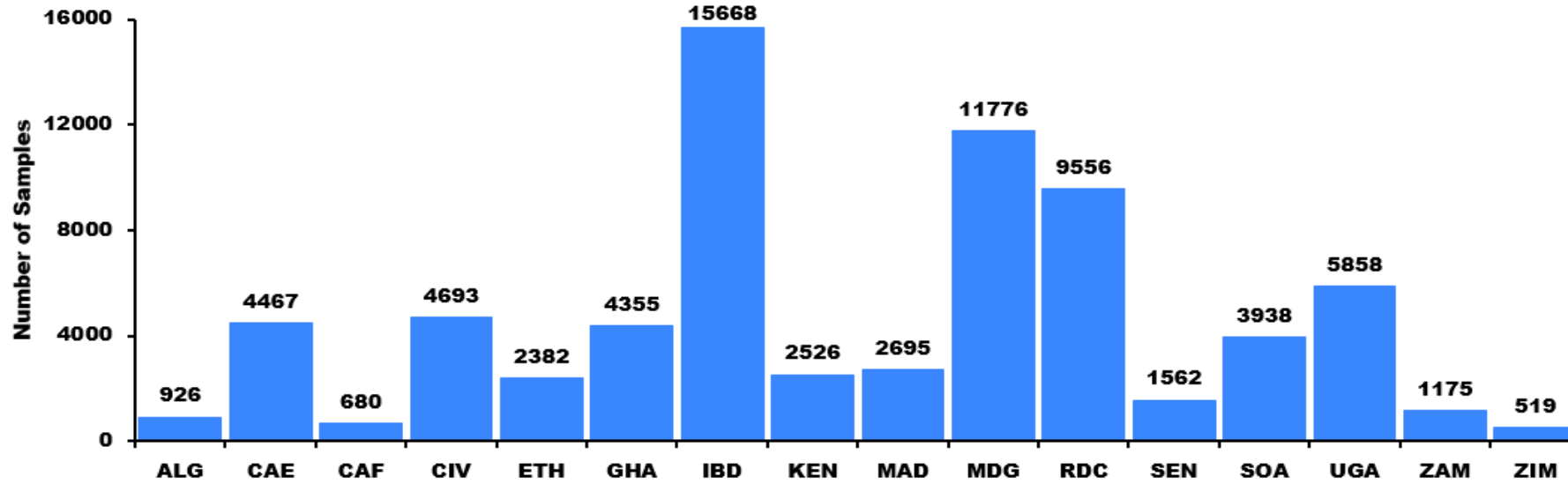


IST – Eastern and Southern (20)

- A total of 16 polio labs are available in the region. Angola & Niger have concentration labs.
- Ghana and South Africa provide sequencing services
- Kenya provide services to EMRO countries demonstrating strong collaboration

Sample Processing Workloads

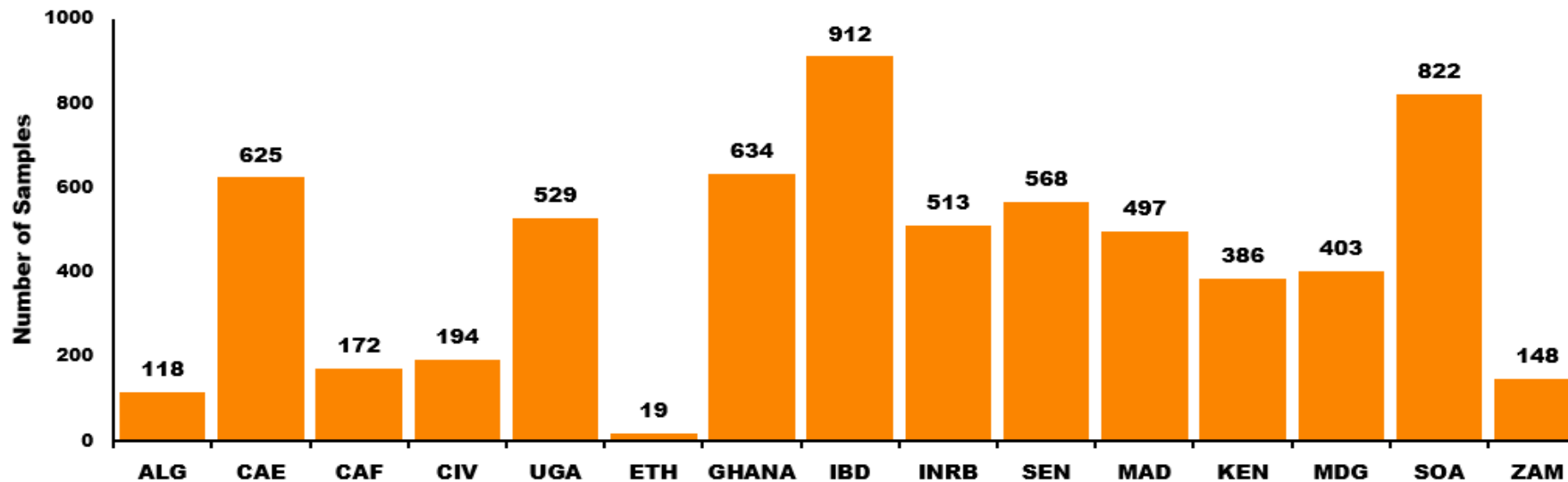
1. AFP Samples



Total AFP Samples

72.7K

2. ES Samples

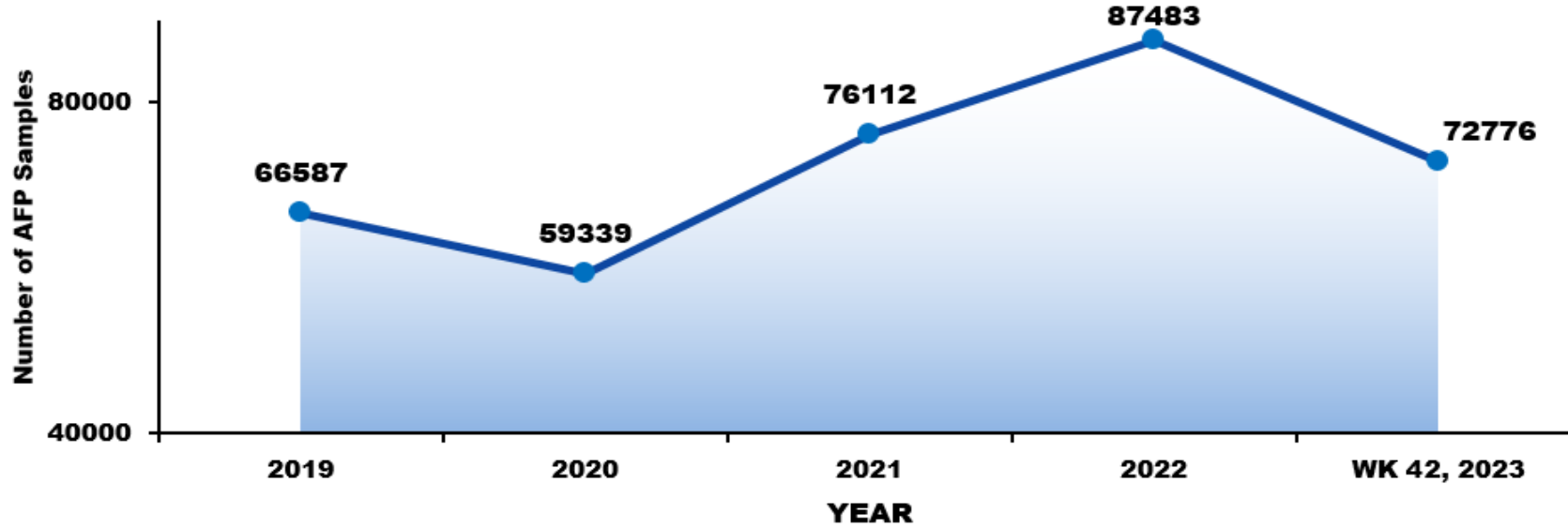


Total ES Samples

6.5K

TRENDS IN SAMPLE PROCESSING WORKLOADS BY LABS, 2019 – Week 42, 2023 (Past 5 Years)

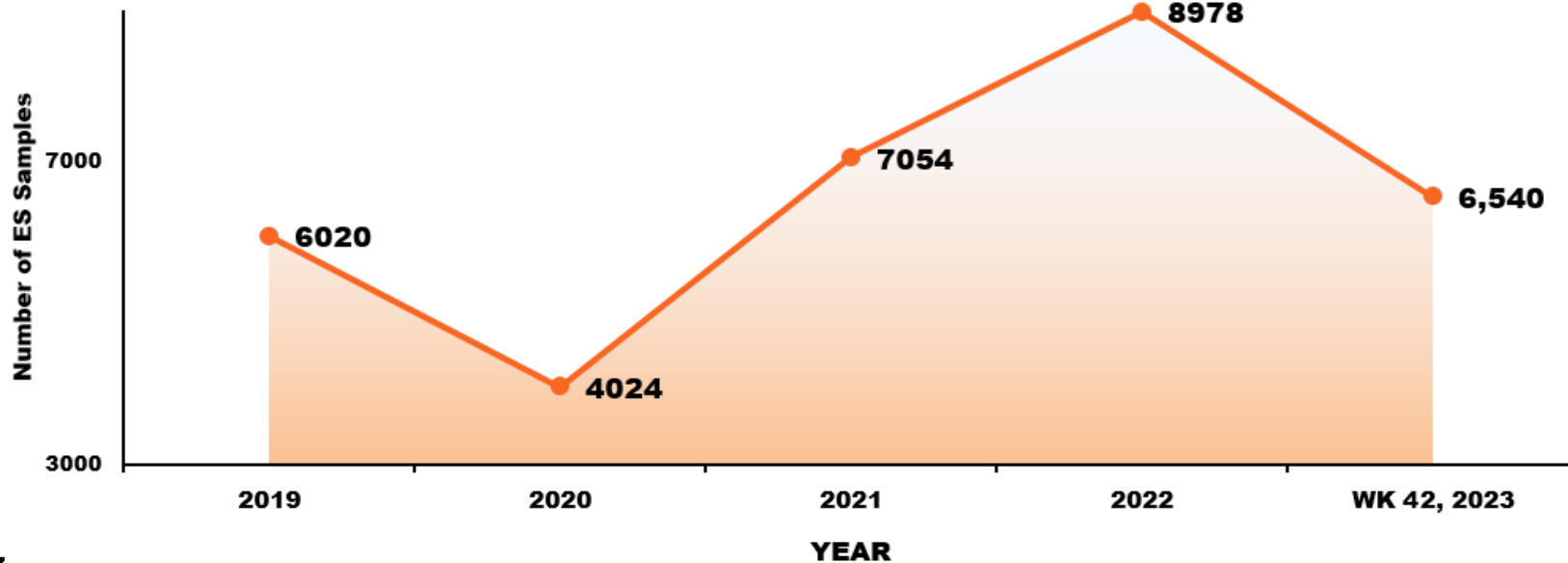
AFP Samples



362K

- Over 354,000 samples over five years
- An increasing trend over the years
- 2020 incidence of COVID-19 pandemic

ES Samples



26.5K

- An increasing trend except in 2020
- ES sites linearly increasing in the region

Polio Laboratory Key Performance Indicators

TIMELINESS AND RESULTS OF PRIMARY VIRUS ISOLATION (14 DAYS), WK 1-42, 2023

LABS	NUMBER OF SPECIMENS	PRIMARY VIRUS ISOLATION RESULTS								Pending Samples			
		Culture +ve for PV		Culture +ve for PV & NPEV		NPEV		Negative		Total Pending	15 - 30 days	31 - 60 days	> 60 days
ALG	926	29	3.1%	0	0.0%	59	6.4%	812	88%	0	0	0	0
CAE	4467	100	2.2%	4	0.1%	618	13.8%	3568	80%	57	56	1	0
CAF	680	62	9.1%	1	0.1%	178	26.2%	433	64%	0	0	0	0
CIV	4693	115	2.5%	0	0.0%	501	10.7%	3979	85%	0	0	0	0
ETH	2382	2	0.1%	0	0.0%	174	7.3%	1872	79%	334	2	43	289
GHA	4355	107	2.5%	0	0.0%	429	9.9%	3696	85%	8	8	0	0
NIE IBD	15668	324	2.1%	46	0.3%	1831	11.7%	12864	82%	21	21	0	0
KEN	2526	66	2.6%	0	0.0%	318	12.6%	1985	79%	13	13	0	0
MAD	2695	279	10.4%	0	0.0%	243	9.0%	1981	74%	159	21	119	19
NIE MDG	11776	143	1.2%	8	0.1%	2337	19.8%	8795	75%	26	23	3	0
RDC	9556	1140	11.9%	1	0.0%	994	10.4%	6806	71%	78	78	0	0
SEN	1562	49	3.1%	1	0.1%	292	18.7%	1140	73%	10	10	0	0
SOA	3938	139	3.5%	8	0.2%	462	11.7%	3051	77%	278	272	5	1
UGA	5858	61	1.0%	3	0.1%	593	10.1%	4906	84%	179	97	56	26
ZAM	1175	22	1.9%	0	0.0%	53	4.5%	1037	88%	21	21	0	0
ZIM	519	13	2.5%	0	0.0%	39	7.5%	433	83%	3	3	0	0
TOTAL	72776	2651	3.6%	72	0.10%	9121	12.5%	57358	78.8%	1187	625	227	335



3.6%

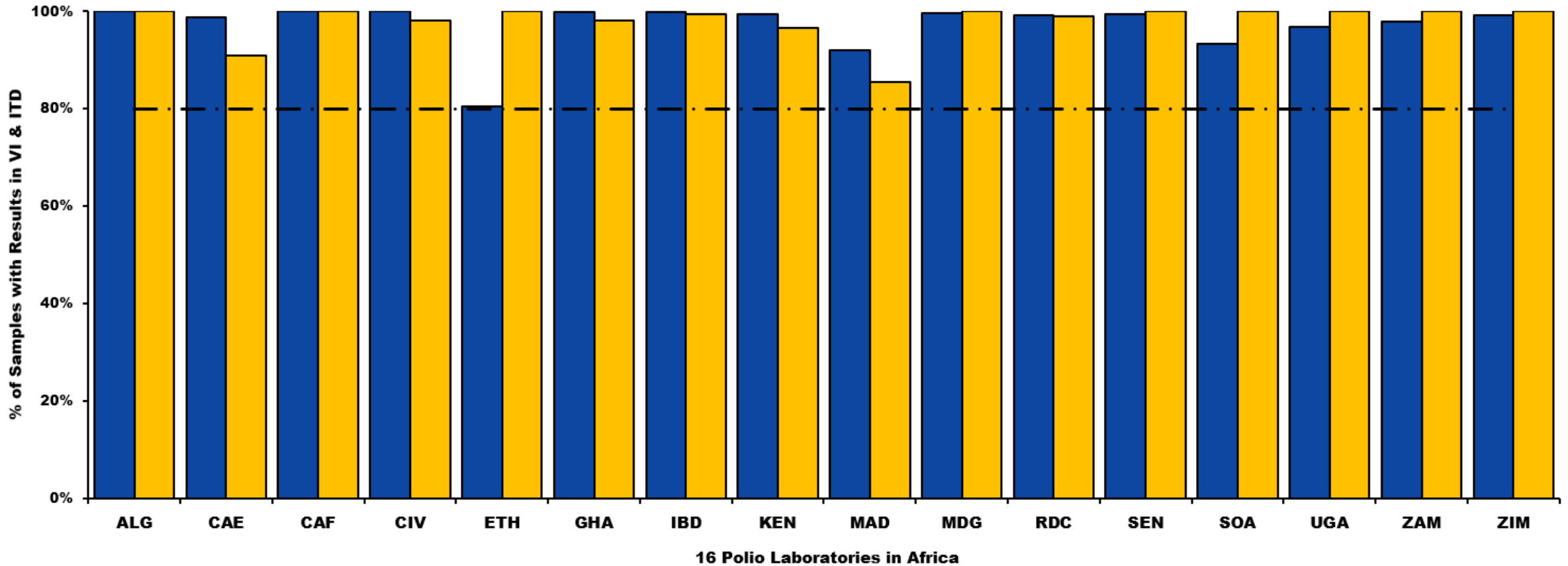
- The Positivity rate stand at 3.6%; Slight improvement from previous reports
- Virus isolation in 14 days stand at 98%, exceeding the target of 80%

INTRATYPIC DIFFERENTIATION (ITD 7 DAYS) OF ISOLATES FROM AFP CASES, Week 1-42, 2023

LABS	NUMBER OF ISOLATES	SABIN LIKE POLIOVIRUS		DISCORDANT			PV2	nOPV2	NPEV	NEV	MIXTURE	Pending Isolates		
		Type 1	Type 3	Type 1	Type 2	Type 3						Total Pending	8 - 14 days	>14 days
ALG	25	0	6	0	0	0	3	10	0	2	4	0	0	0
CAE	109	0	2	0	0	0	71	12	6	1	7	5	0	5
CAF	63	0	1	0	0	0	56	0	3	1	2	0	0	0
CIV	109	0	16	0	0	0	71	0	0	0	20	1	1	0
ETH	2	0	2	0	0	0	0	0	0	0	0	0	0	0
GHA	109	10	4	0	0	0	11	43	4	1	34	1	0	1
NIE IBD	342	40	40	0	0	0	77	110	3	0	70	1	0	1
KEN	59	0	1	0	0	0	39	6	0	0	11	1	0	1
MAD	305	72	78	52	0	0	0	0	0	0	59	22	0	22
NIE MDG	147	9	18	0	0	0	94	0	8	4	14	0	0	0
RDC	1002	0	237	1	0	0	298	82	5	5	364	5	0	5
SEN	45	0	6	0	0	0	35	0	0	0	4	0	0	0
SOA	129	36	34	0	0	0	0	2	0	1	54	1	0	1
UGA	69	0	19	0	0	0	21	6	7	0	6	5	0	5
ZAM	24	2	1	0	0	0	6	13	0	0	2	0	0	0
ZIM	5	0	5	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2544	169	470	53	0	0	782	284	36	15	651	42	1	41

- No WPV case was reported in 2023. the last case was reported from Tete province, Mozambique with a date of onset of paralysis 10th August 2022
- Routine tracking of PV2s and isolates send for sequencing is ongoing in collaboration with regional laboratories and WHO HQ

TIMELINESS OF PV ISOLATION (14 DAYS) AND INTRATYPING (7 DAYS), Week 1-42, 2023



Performance at Regional Level for Both Indicators

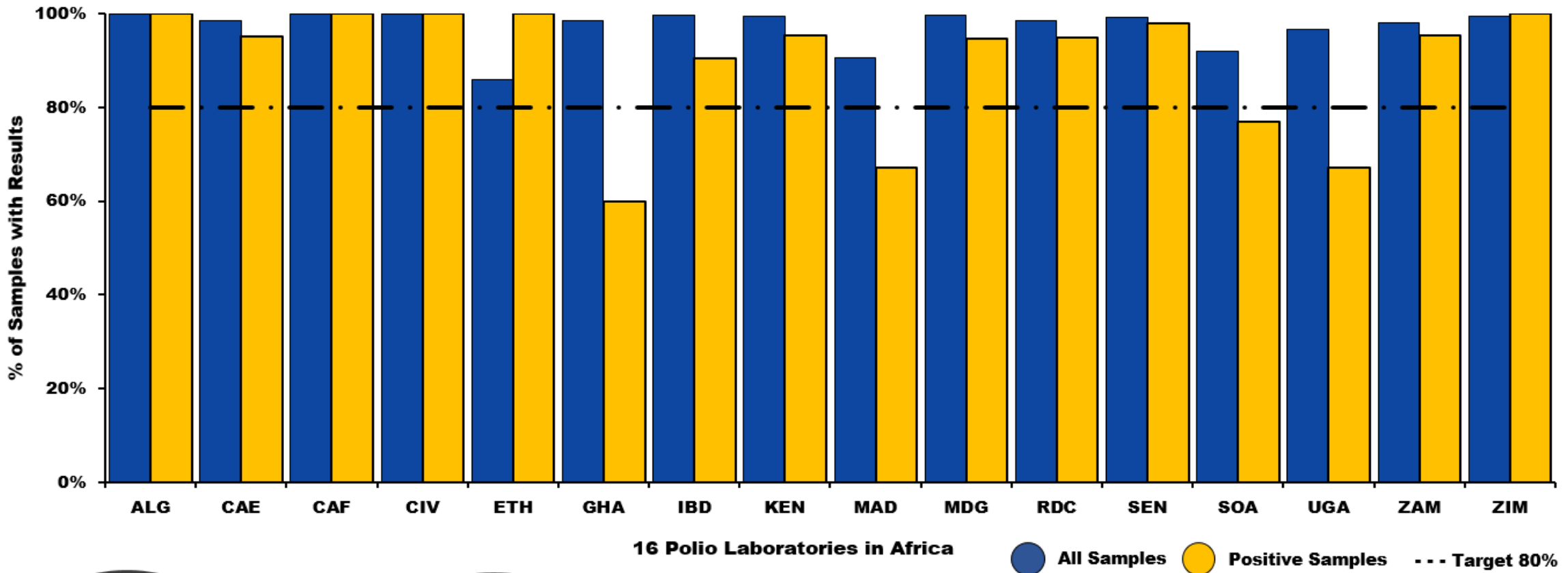
● All Samples ● Positive Samples - - - Target 80%

98% Virus Isolation in 14 Days

97% ITD in 7 Days

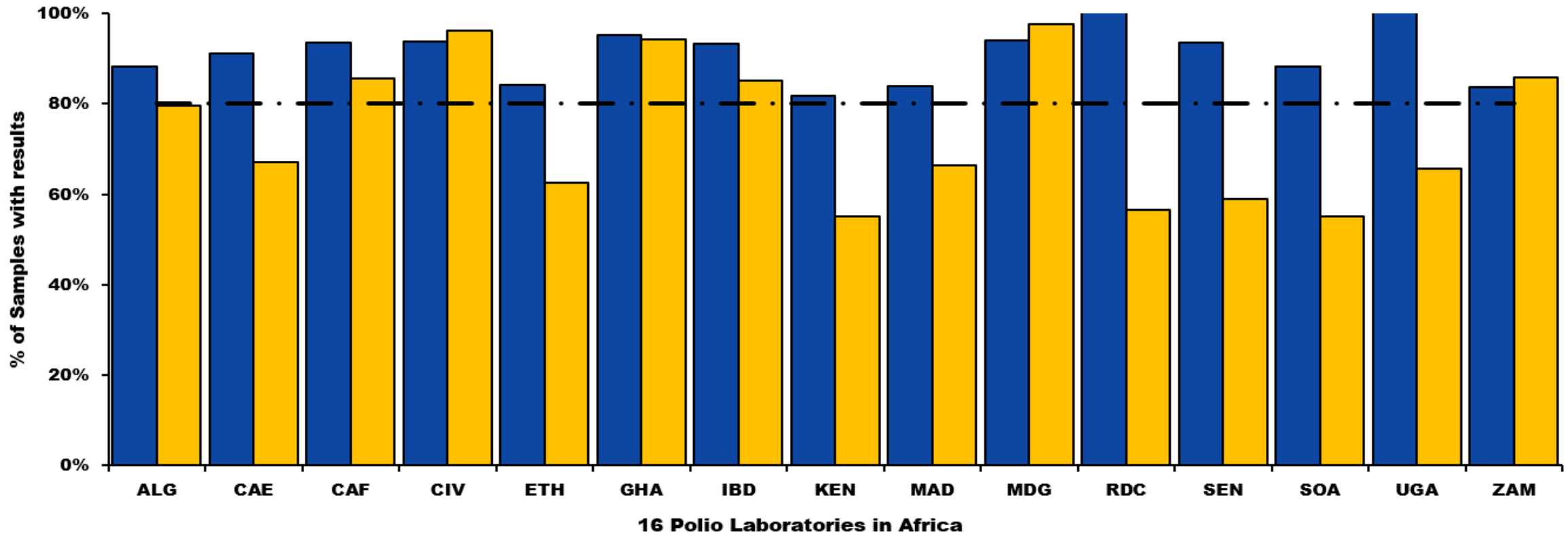
● All labs surpassed targets for both key indicators!

AFP: TIMELINESS OF REPORTING FINAL LABORATORY RESULT IN 21-DAYS OF SAMPLE RECEIVED IN LAB, Week 1-42, 2023



- **Batching of samples (Ghana and Uganda), Contamination (Ethiopia), and shortage of supplies (Uganda) affected timeliness.**
- **However significant improvements have been observed in all these labs.**

ES: TIMELINESS OF REPORTING FINAL LABORATORY RESULT IN 21-DAYS OF SAMPLE RECEIVED IN LAB, Week 1-42, 2023



93%

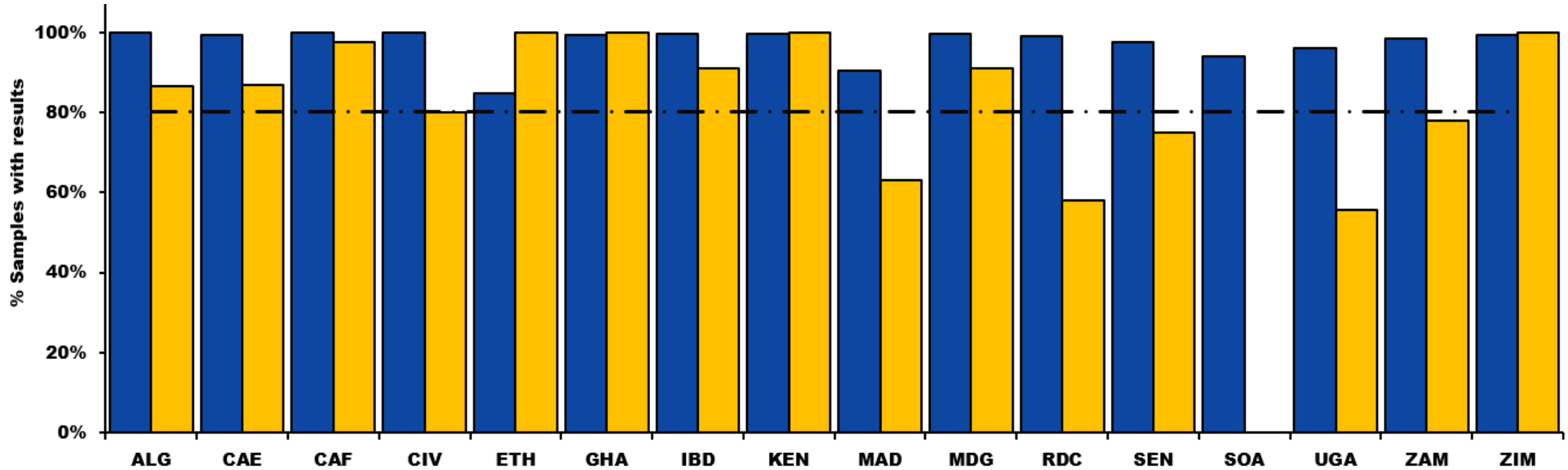


72%

- Batching of samples, Stock out reagents, and ES flasks, and other competing activities affected timely processing of samples
- Positive improvement has been observed

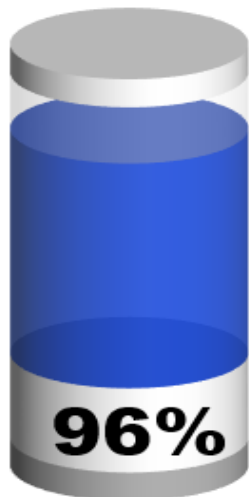
● All Samples ● Positive Samples - - - Target 80%

AFP: TIMELINESS OF REPORTING FINAL LABORATORY RESULT IN 35-DAYS OF ONSET (COUNTRIES WITH LABS), Week 1-42, 2023



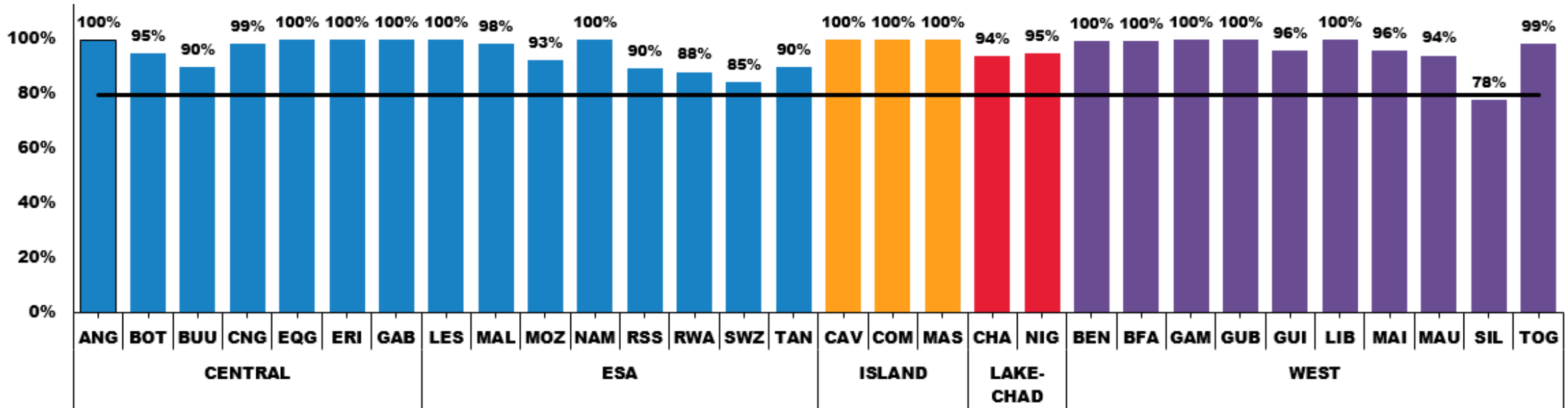
16 Polio Laboratories in Africa

● All Samples ● Positive Samples - - - Target 80%

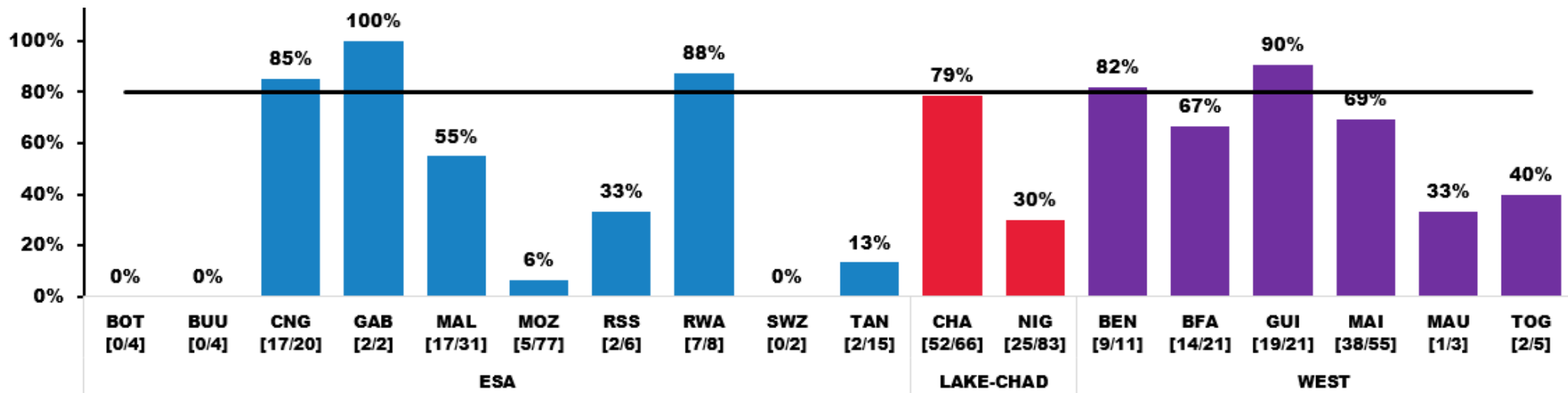


- Only 68% positive samples had laboratory results within 35 days of onset of paralysis
- SOA had two positive samples in virus isolation and both were beyond 35 days
- UGA had 5/9 positive samples had results in 35 days

AFP: TIMELINESS OF REPORTING FINAL LABORATORY RESULT IN 35-DAYS OF ONSET (COUNTRIES WITHOUT LABS), Week 1-42, 2023



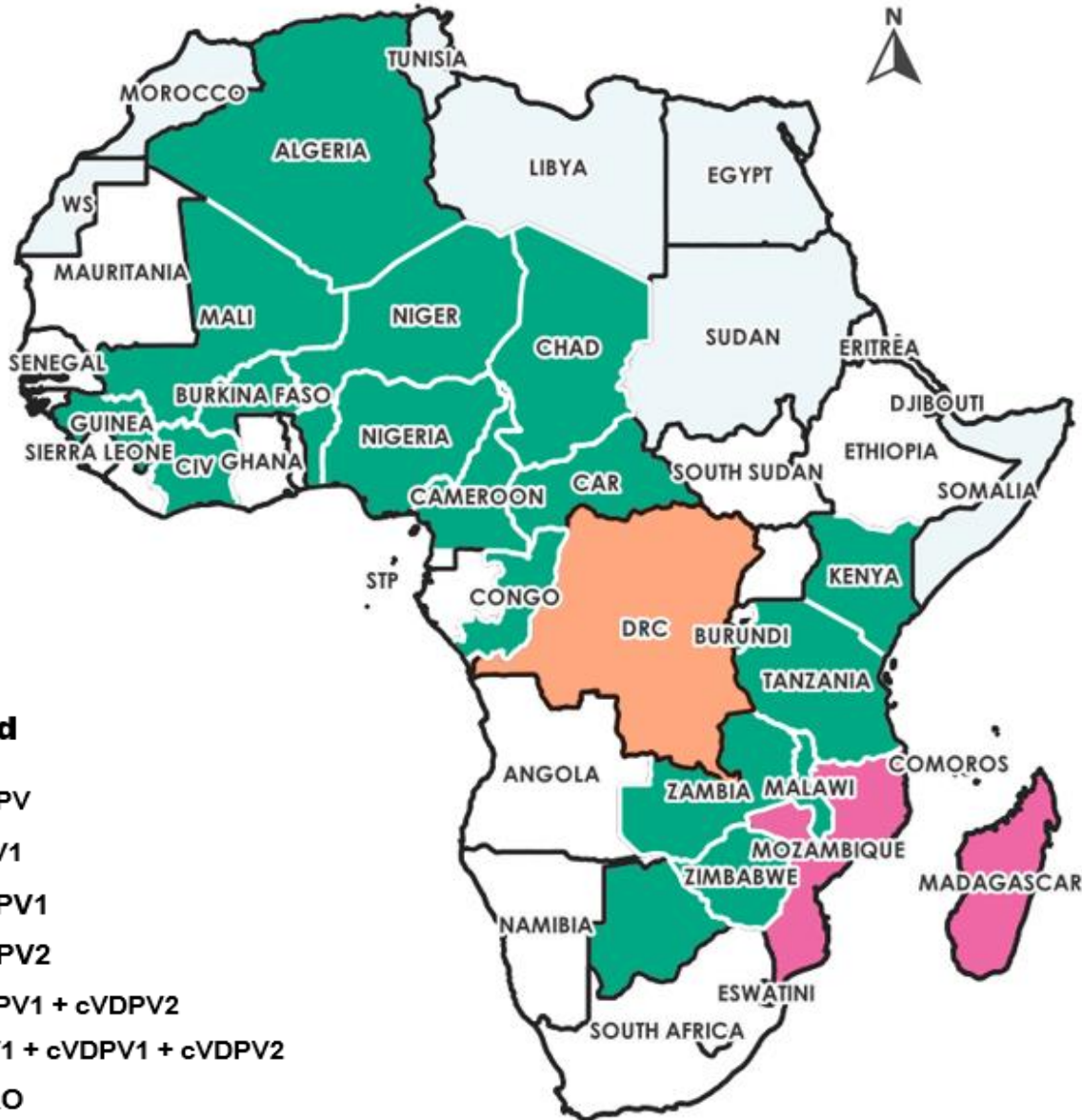
Among Positive Samples



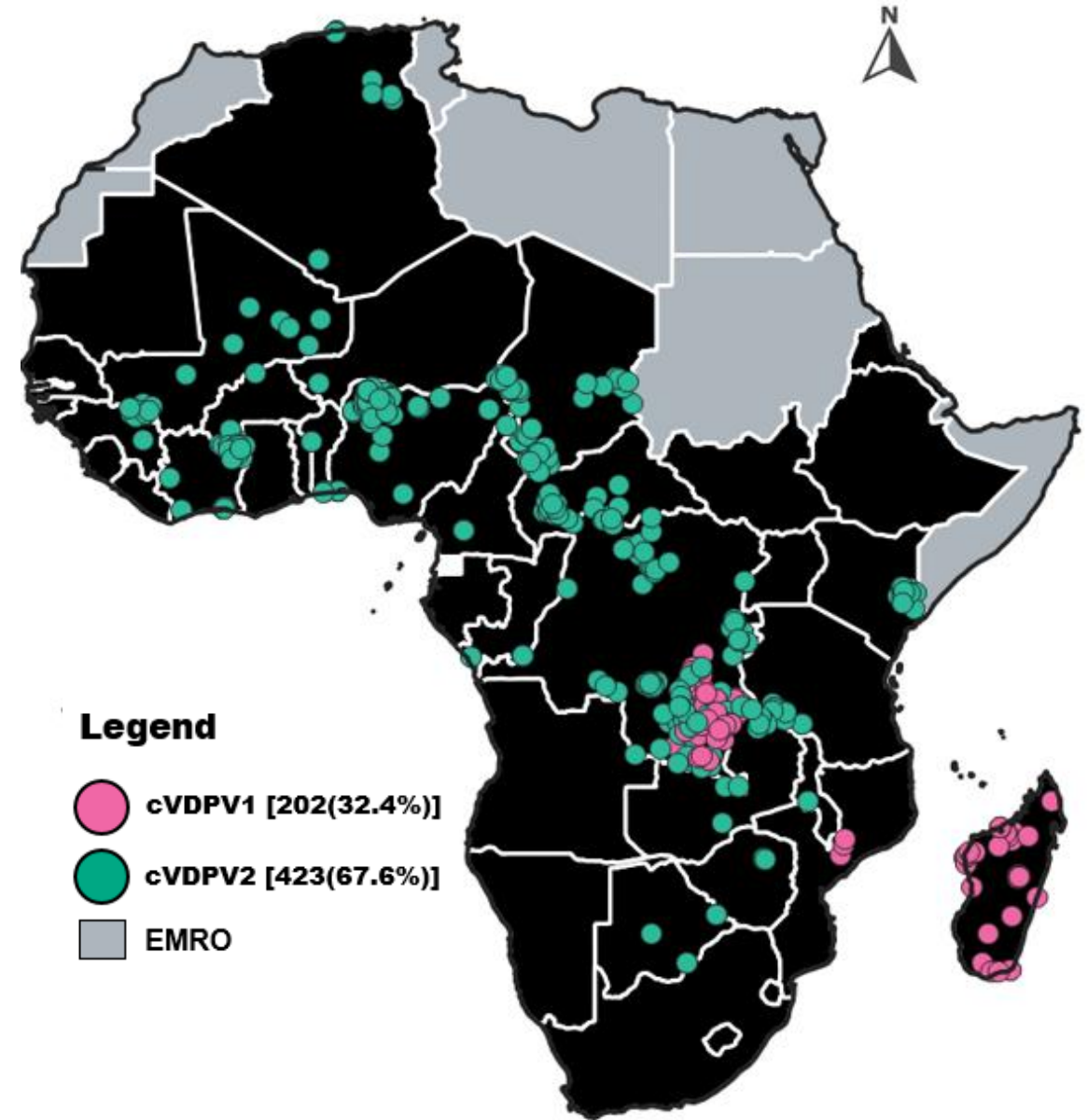
Epidemiology of Poliovirus Infection

POLIOVIRUS INFECTED COUNTRIES BY YEAR AND TYPE, Week 1-42, 2023

2023 (n=22)



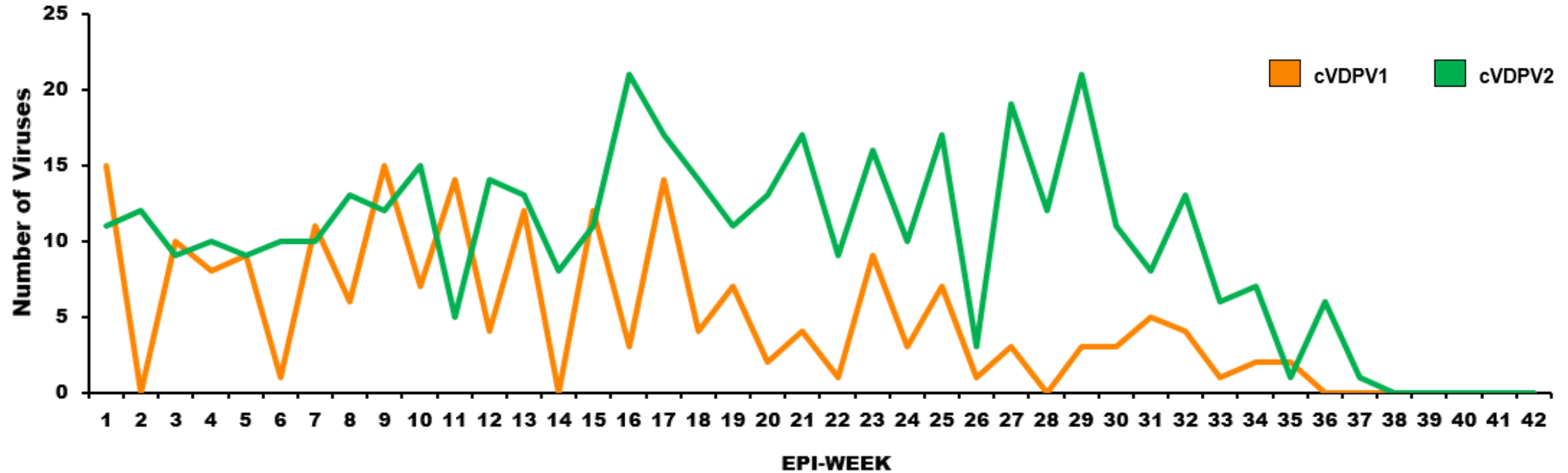
2023 (n=625)



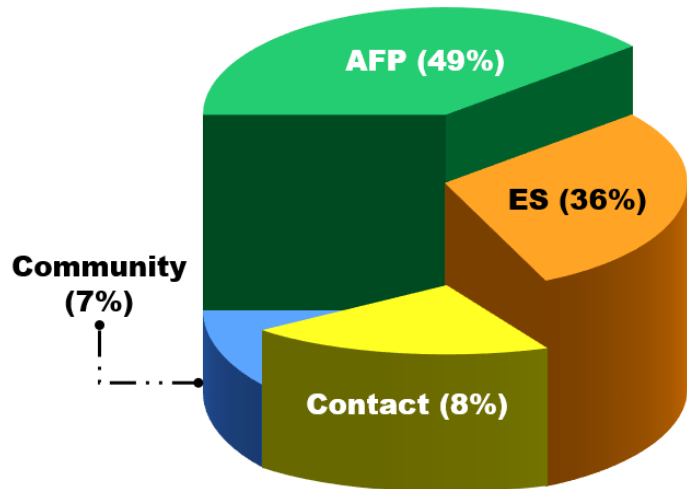
- Legend**
- NO PV
 - WPV1
 - cVDPV1
 - cVDPV2
 - cVDPV1 + cVDPV2
 - WPV1 + cVDPV1 + cVDPV2
 - EMRO

- Legend**
- cVDPV1 [202(32.4%)]
 - cVDPV2 [423(67.6%)]
 - EMRO

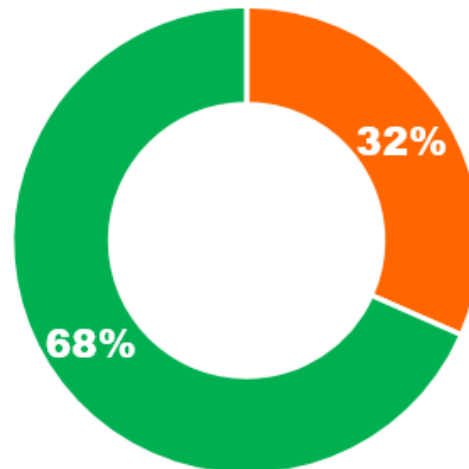
TREND IN POLIOVIRUS CASES BY SEROTYPE, Week 1-42, 2023



Virus isolation by surveillance type



Summary by Virus type



- AFP continued to be the main source of poliovirus detection
- 36% polioviruses were isolated from environment sewage samples
- cVDPV2 is the most prevalent type of poliovirus circulating in the region

LINEAGE AND EMERGENCE GROUP ANALYSIS, Week 1-42, 2023

S/N	Emergence Group	Number of viruses	Countries infected
1	BOT-FRA-1-n	3	BOTSWANA
2	CAE-EXT-1-n	2	CAMEROON, CHAD
3	CAF-BNG-3-n	6	CENTRAL AFRICAN REPUBLIC
4	CAF-KEM-1-n	1	CENTRAL AFRICAN REPUBLIC
5	CAF-MOZ-1	6	CENTRAL AFRICAN REPUBLIC
6	MAD-ANO-2	114	MADAGASCAR
7	MAD-SUE-1	6	MADAGASCAR
8	MOZ-NPL-2	3	MOZAMBIQUE
9	NIE-ZAS-1	216	ALGERIA; BENIN; BURKINA FASO; CENTRAL AFRICAN REPUBLIC; CAMEROON; CHAD; GUINEA; COTE D'IVOIRE; MALI; NIGER; NIGERIA
10	RDC-BUE-1	10	DEMOCRATIC REPUBLIC OF CONGO
11	RDC-HKA-2-n	6	DEMOCRATIC REPUBLIC OF CONGO
12	RDC-KOR-1-n	63	DEMOCRATIC REPUBLIC OF CONGO
13	RDC-MAN-3	34	DEMOCRATIC REPUBLIC OF CONGO; REPUBLIC OF THE CONGO
14	RDC-MAN-5	5	BOTSWANA; DEMOCRATIC REPUBLIC OF CONGO; MALAWI
15	RDC-SKV-1-n	46	BURUNDI; DEMOCRATIC REPUBLIC OF CONGO; TANZANIA; ZAMBIA
16	RDC-TAN-1	79	DEMOCRATIC REPUBLIC OF CONGO
17	RDC-TAN-3	1	DEMOCRATIC REPUBLIC OF CONGO
18	RDC-TSH-1	9	DEMOCRATIC REPUBLIC OF CONGO
19	SOM-BAN-1	11	KENYA
20	TBD	4	ZIMBABWE
Total		625	A total of 22 countries infected as at week 42, 2023

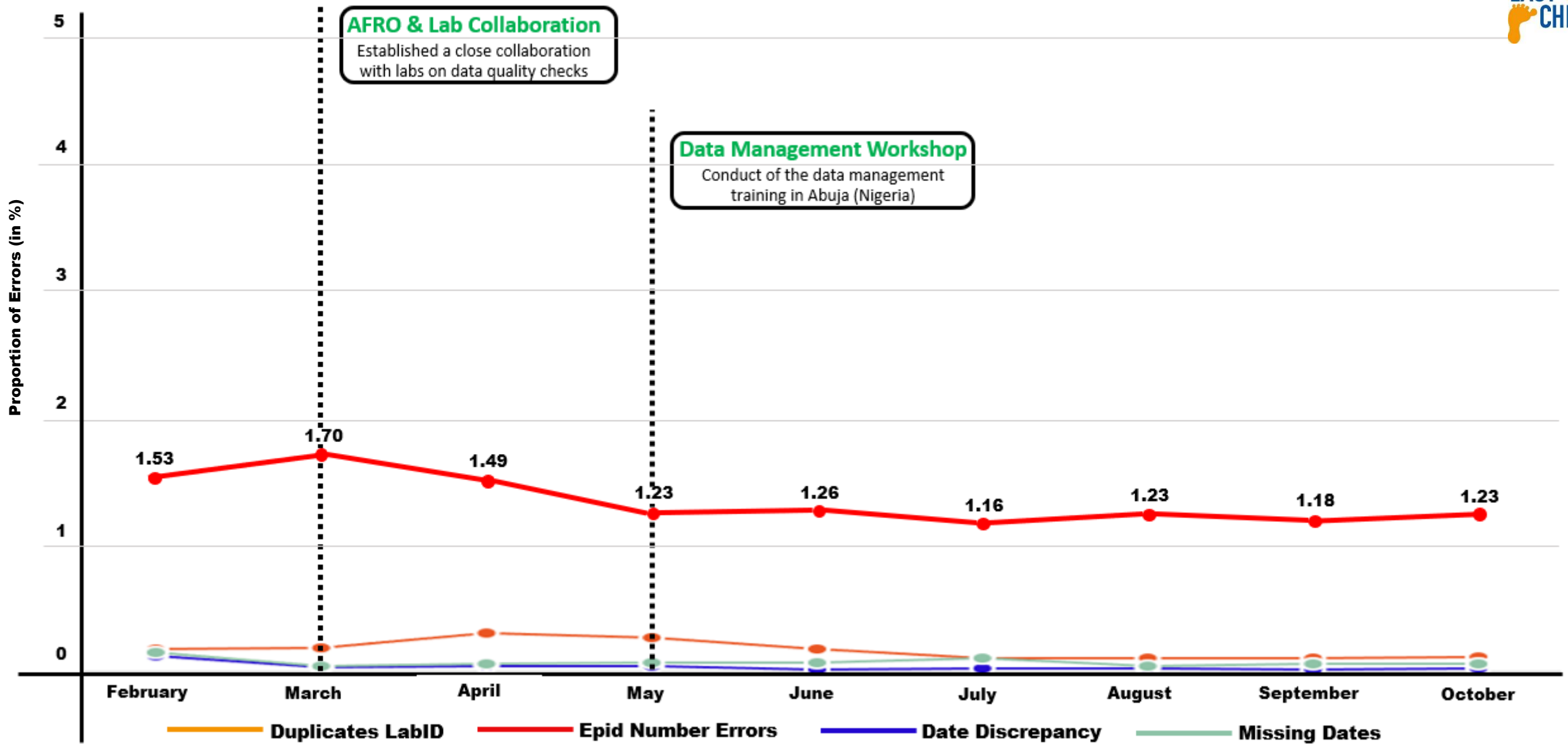
● **A total of 20 Emergence groups with 22 countries infected as at Week 42, 2023**

Additional slides

Regional Polio Laboratory Data Quality Analysis and Feedback

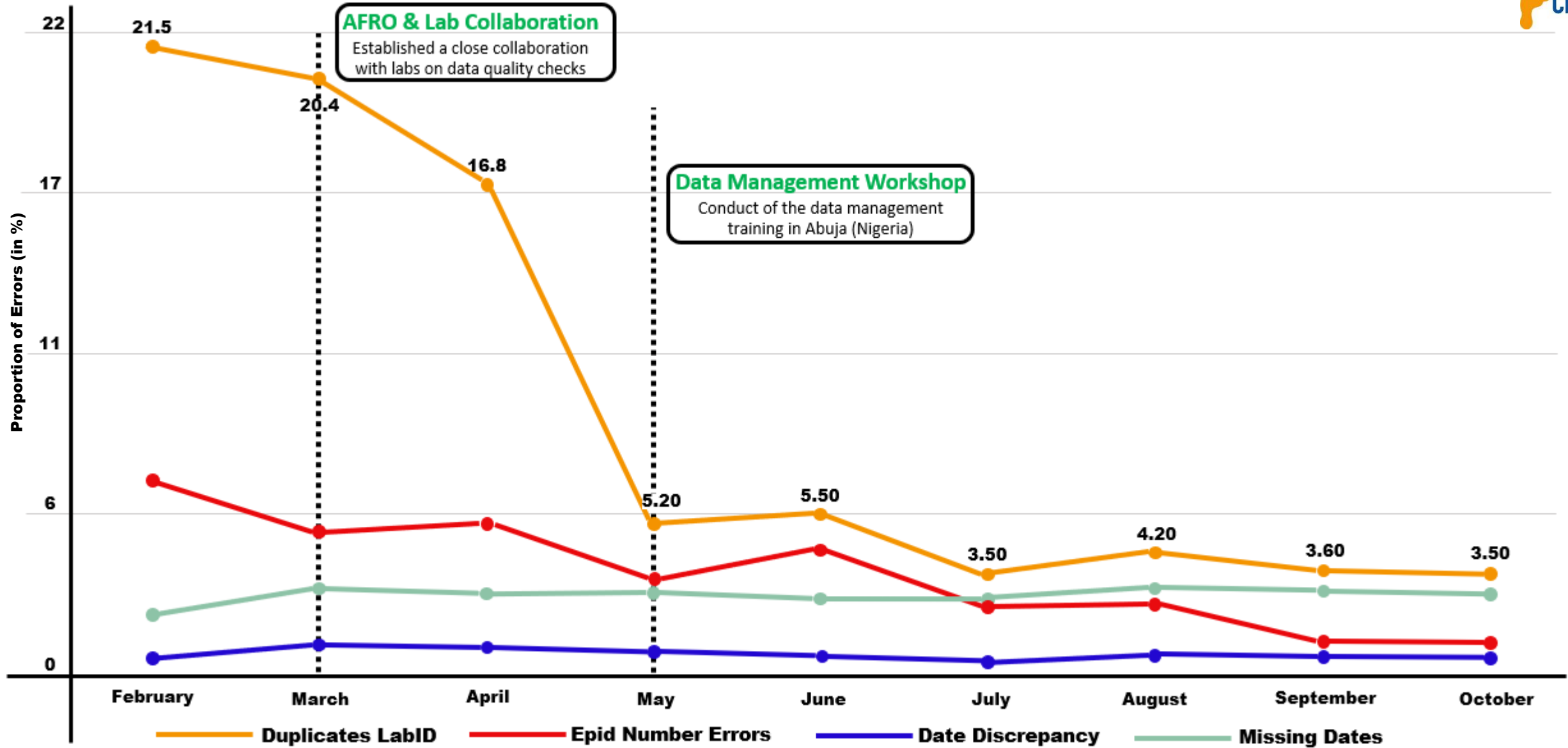


AFP ERRORS BY MONTHS



Errors in all categories have slightly risen, except for the number of missing dates, which has remained constant. This increase can be attributed to the inclusion of new samples from Zimbabwe

ES ERRORS BY MONTHS

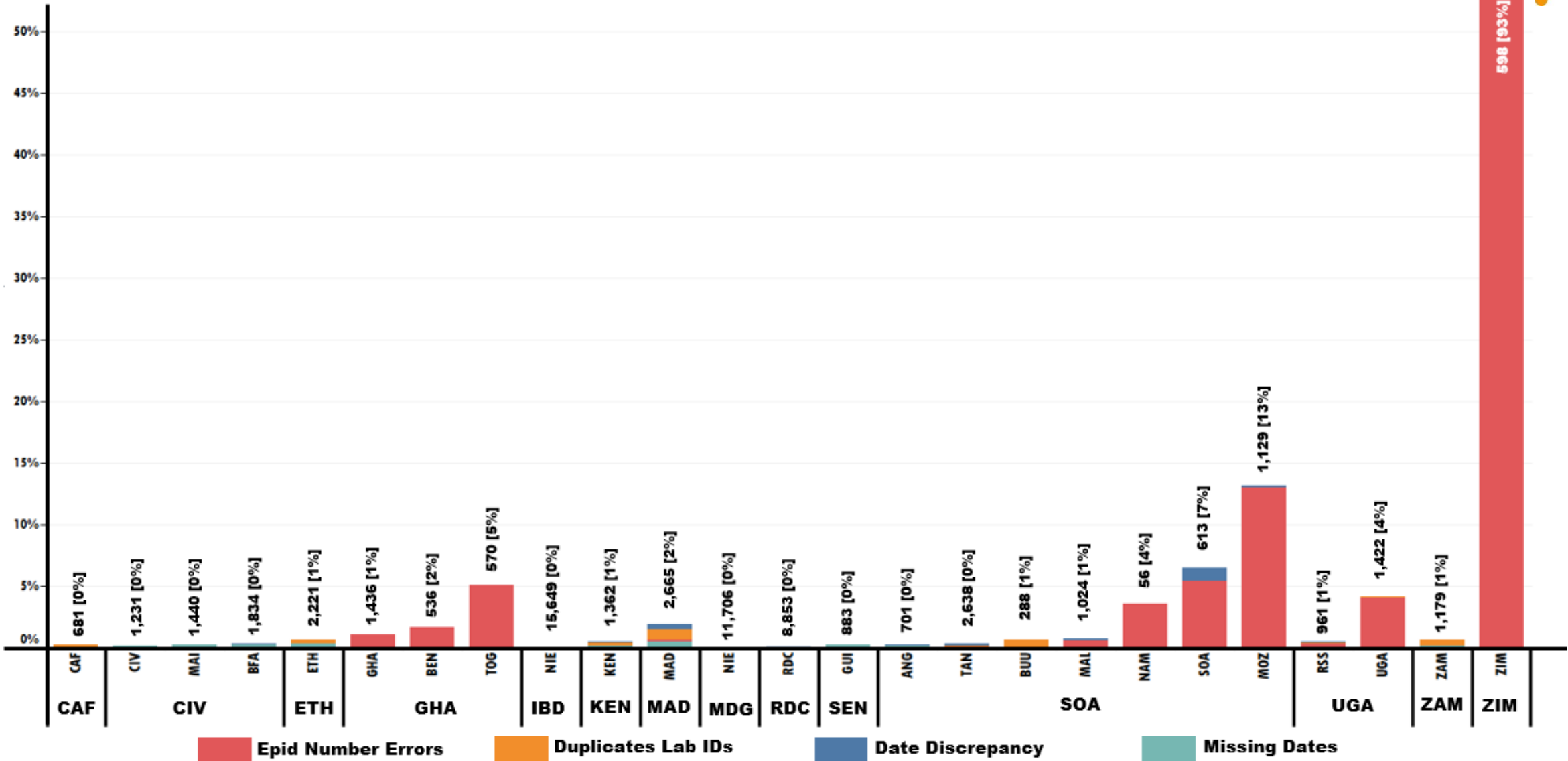


This month (October) has seen a reduction in errors compared to September across all variables in the ES Database. This aligns with the ongoing trend of decreasing errors in our records.



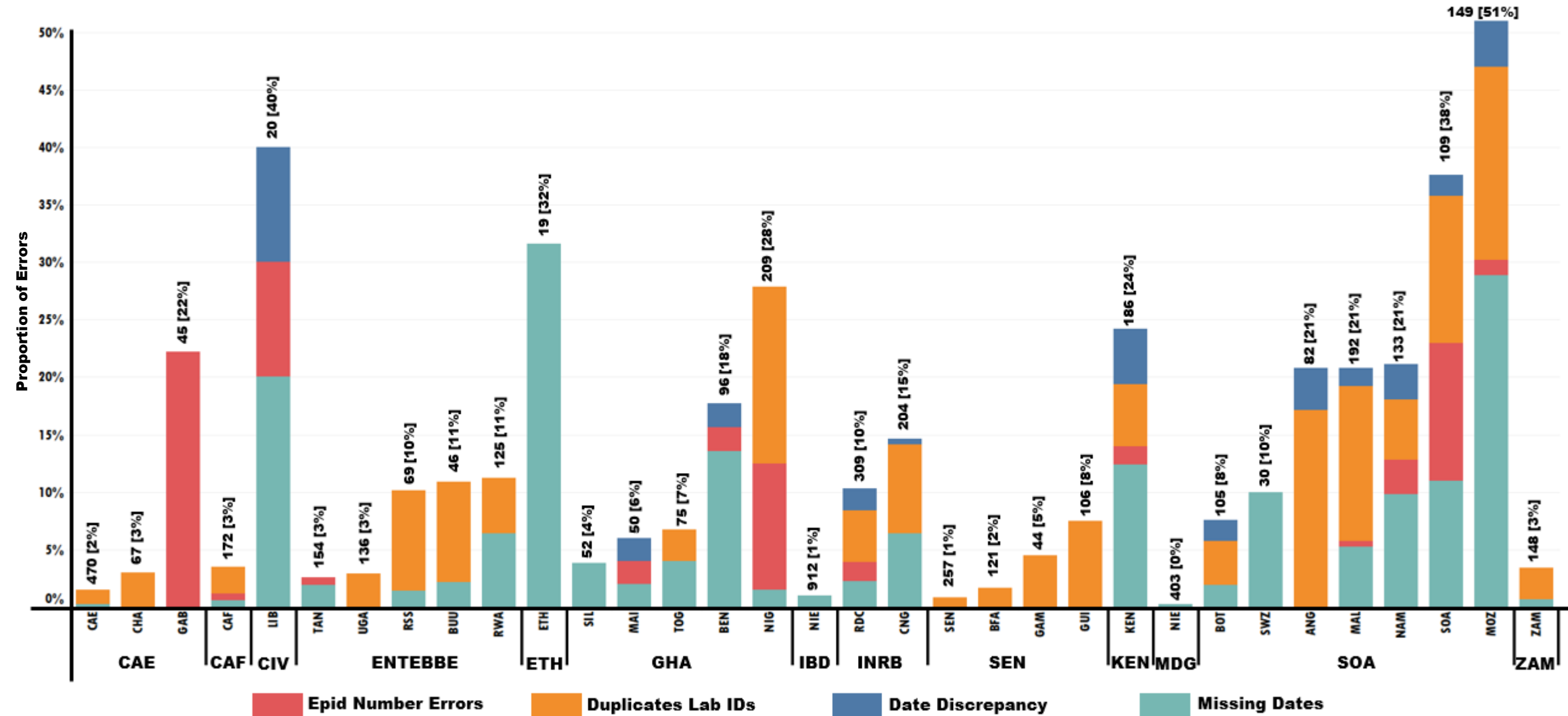
Weekly analysis of the lab databases as of October 23, 2023

AFP ERRORS BY COUNTRIES & LABS



Total Samples Processed [Proportion of Errors]

ES ERRORS BY COUNTRIES & LABS



Total Samples Processed [Proportion of Errors]

Additional Updates on Key Laboratory Activities Implemented

1. Virus isolation and Cell culture refresher training at NICD, South Africa from, 9th – 13th Oct, 23

2. Environmental surveillance refresher training at NICD, South Africa from 2nd to 6th October 2023



Environmental surveillance review mission, Democratic Republic of Congo, 11th Sep to 3rd Oct, 2023





Merci beaucoup

Thank you

