INFLUENZA SENTINEL SURVEILLANCE REPORT

Perspective

National Influenza Center – Pathology and Microbiology Department,
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Program	Influenza Sentinel Surveillance ILI and SARI	
Start Year	**2008**	
Provinces (Sites)	Lusaka **[UTH Pediatric, UTH Adult Hospital, Chipata Clinic]** Copperbelt **[Ndola Central Hospital, Arthur Davison Hospital, New Masala Clinic]**	
Type of site	Out Patient Clinics (ILI)	In Patient Hospital (SARI)
Case definition	**Influenza-Like Illness (ILI):** Out-patient consultation AND temperature 38ºC and above or history of fever AND cough or sore throat	**Severe Acute Respiratory Illness (SARI):** 5 yrs. and above: Patient admitted with less than 7 days duration of illness AND temperature 38ºC and above or history of fever AND cough or sore throat AND difficulty breathing. 2m-5yrs: Patient admitted with less than 7 days duration of illness AND cough or difficulty breathing AND one of symptoms - Tachypnoea (2m-1yr RR >50; 1-5yrs RR >40 - Unable to drink or breastfeed - Lethargic or unconscious - Vomits everything (not only occasional) - Convulsions - Chest in-drawing (retractions under ribcage/ stridor in a calm child)
Specimen collected	Nasal-pharyngeal/ Oral-Pharyngeal Swab	
Main pathogen tested	Influenza	

Methodology for Establishment of Epidemic Thresholds

Thresholds are calculated using Moving Epidemic Methods (MEM), a sequential analysis using R language available from: http// CRAN.R-project.org/web/package =mem) designed to calculate the duration, start and end of the annual influenza epidemic. MEM uses the 40th, 90th and 97.5th percentile established from available years of historical data to calculate threshold activities. Threshold activity for influenza is categorized as: below epidemic threshold, low, moderate, high or very high. Transmissibility of influenza can be inferred from ILI data while SARI data gives an indication of severity.

Summary

There was increased influenza activity at the beginning of the 4th quarter of 2019 between epi-weeks 40 and 48. Rates of Influenza-Like Illness (ILI) and Severe Acute Respiratory Infection (SARI) attributable to influenza virus infection were in the high to moderate threshold and remained within the moderate seasonal threshold in week 48. This second cycle of activity was of a moderate transmissibility and low severity.

ILI Surveillance:
Specimens from 1070 outpatients were received from two ILI surveillance sites. 1035 (97%) were adequately sampled and tested. Influenza virus was detected in 232 (22%) of these samples. 86 (37%) were identified as Influenza B, 52 (22%) Influenza A H3N2, 46 (20%) Influenza A H1N1 (pandemic), 38 (16%) influenza A Untyped and 10(4%) as Influenza A unsubtypeable.

SARI Surveillance:
During this same period, specimens were received from 1681 patients admitted to four SARI surveillance sites. 1251 (74%) were adequately sampled and tested. Influenza was detected in 206 (16%) specimens; 119 (58%) of which were identified as Influenza B, 23(11%) as Influenza A H3N2, 20 (10%) as Influenza A H1N1 (pandemic), 33(16%) influenza A Untyped and 11(5%) as Influenza A unsubtypeable.

Influenza Transmissibility

Fig 1: Percentage of Influenza Positive ILI Cases1 (Out-Patient Visit Surveillance) per Epi-Week against Epidemic Thresholds Set Using 2013 – 2018 Data
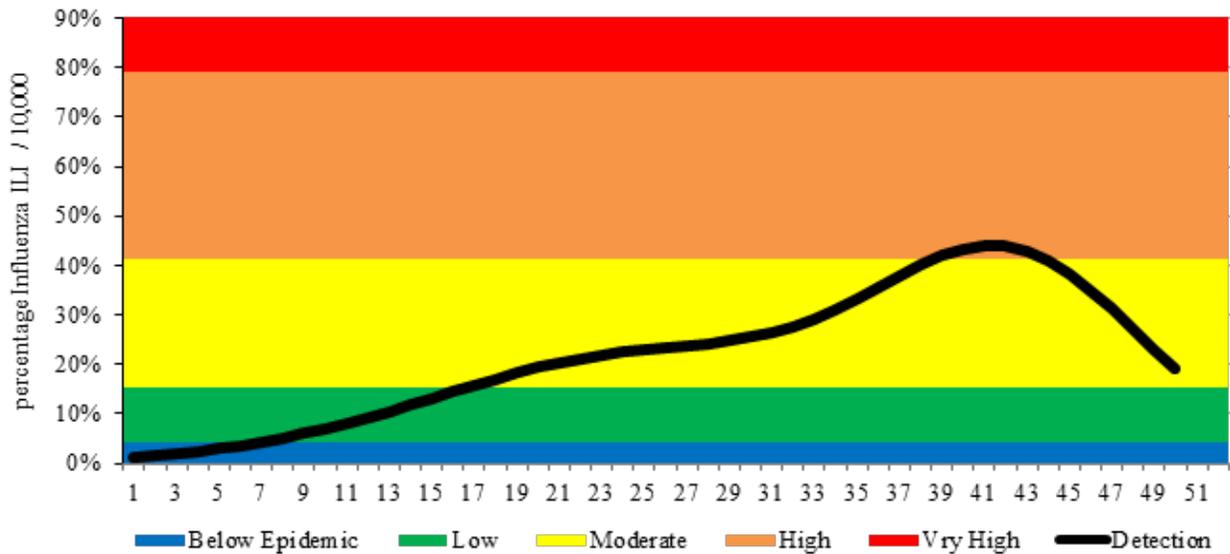

1ILI Case / Total ILI Sampled *100

In November of 2019, ILI outpatient visits attributable to influenza virus infection were above low epidemic threshold between weeks 44 and 47. Weeks 40 – 43 had a steady raise to High Epidemic threshold which was associated with an increase in influenza detection.

30th June 2019: Influenza Severity (Impact)
Fig 2: Percentage of Influenza Positive SARI Cases1 (Hospital Admission Surveillance) per Epi-Week against Epidemic Thresh-
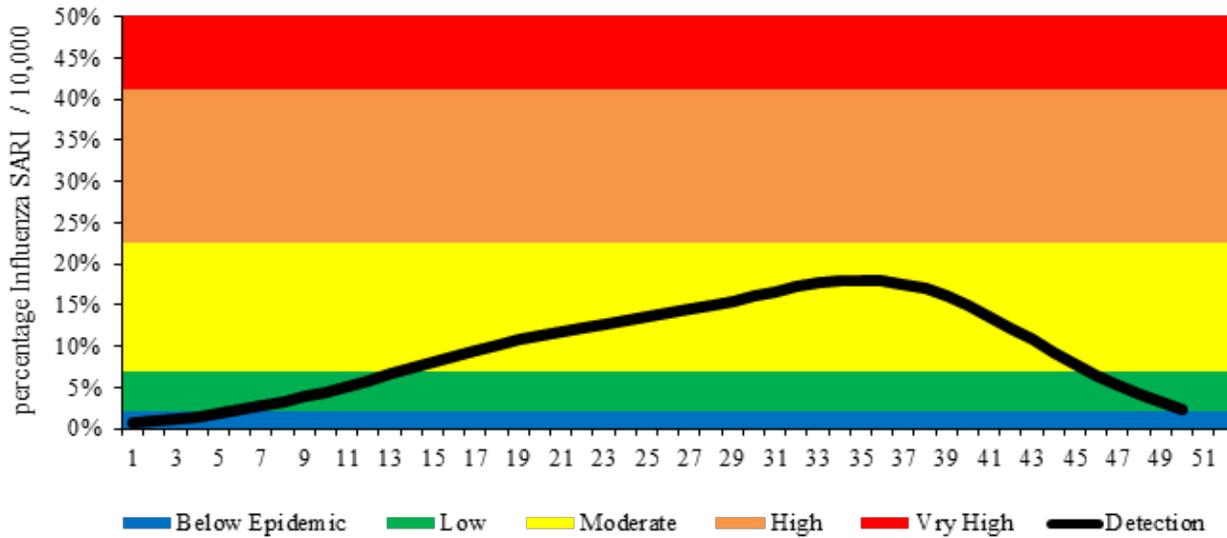
**SARI Influenza Positive Cases / Total Admissions Sampled *100**
In November 2019, SARI admission attributable to influenza virus infection declined to below epidemic threshold in week 40
and has remained below epidemic threshold from week 40 to week 43

Fig 3: Positives samples* by influenza type and detection rate by epi-week in 2019.**
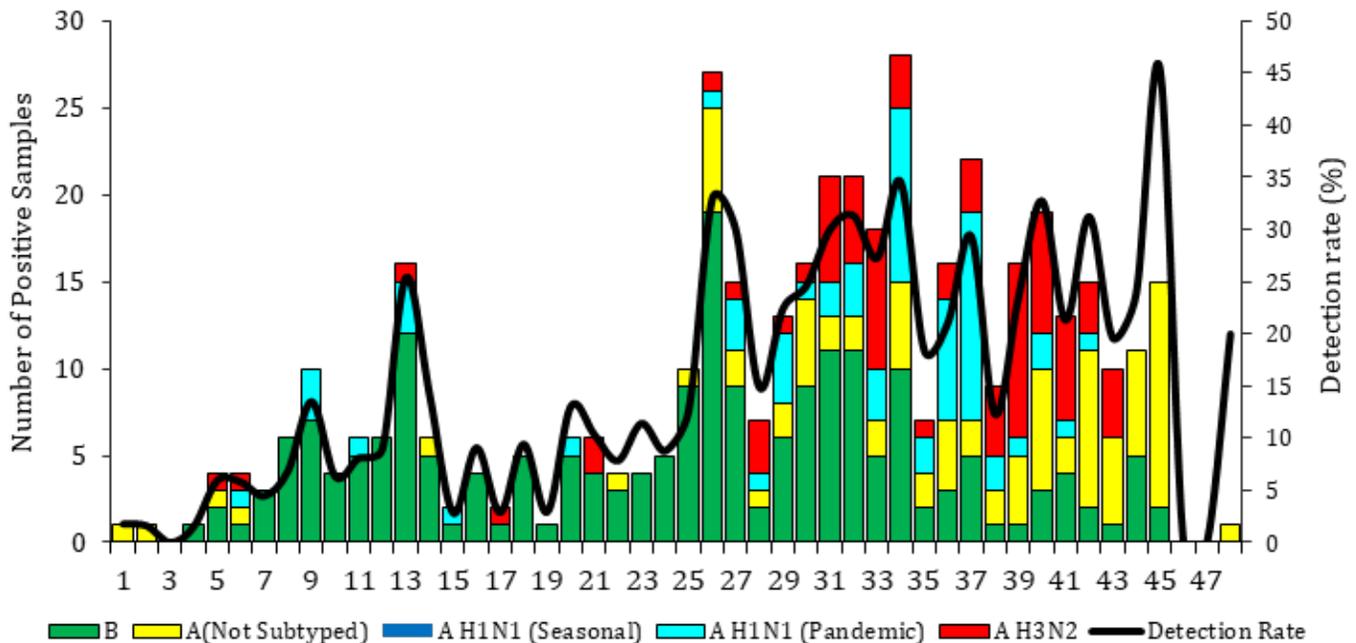
Influenza viruses circulating are predominantly influenza B and there was also an increased detection of influenza A. Among the influenza A viruses subtyped, H1N1 (Pandemic) and H3N2 were mostly seen in weeks 40 45. Most viruses were detected between weeks 40 and 43.

Fig 4: Number of Influenza Positive Cases by Age Group
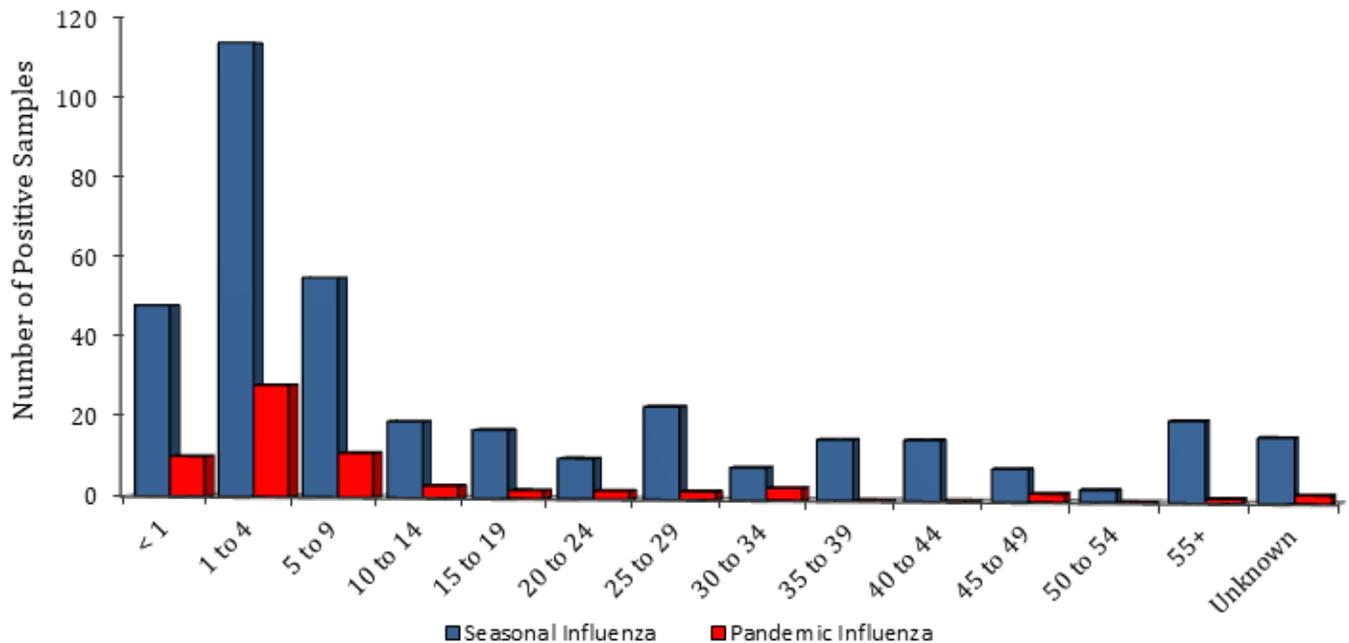
The virus circulation was greater at the beginning of the age spectrum but the most affected age groups have remained to be the under-fives, aged 3 years.

Fig: 5: Cumulative number of influenza types and subtypes and total number of samples tested by sentinel sites.

Case	B	A (Not typed)	AH1N1 (Seasonal)	AH1N1 (Pandemic)	A H3N2	A H5N1	Total Samples Tested
ILI	80	46	0	46	51	0	1026
SARI	80	30	0	14	13	0	1256
Unknown	45	15	0	6	11	0	442
Total	**205**	**91**	**0**	**66**	**75**	**0**	**2724**

District	Hospital/ Clinic	B	A (Not typed)	AH1N1 (Seasonal)	AH1N1 (Pandemic)	A H3N2	A H5N1	Total Samples Tested
Lusaka	UTH Filter	18	15	0	4	1	0	530
	UTH Pediatric	30	8	0	4	7	0	316
	Chipata C Chart Area	17	34	0	20	18	0	435
Ndola	Ndola Central	33	7	0	1	6	0	484
	Arthur Davison	38	14	0	11	9	0	335
	New Masala	69	13	0	26	34	0	624
Others Sites	Other Hospital/Clinic	0	0	0	0	0	0	0
	Total	**205**	**91**	**0**	**66**	**75**	**0**	**2724**

The total number of samples collected as at 30th November 2019, is 2751. 95% (2702/2751) of the received samples were tested and 16.2% (438/2702) were positive for influenza virus while 83% (2268/2702) were negative. Half of the total patients investigated were aged 10 years.

Fig: 6: Reported Influenza Cases among ILI patients Visits at two (2) sentinel sites in 2019
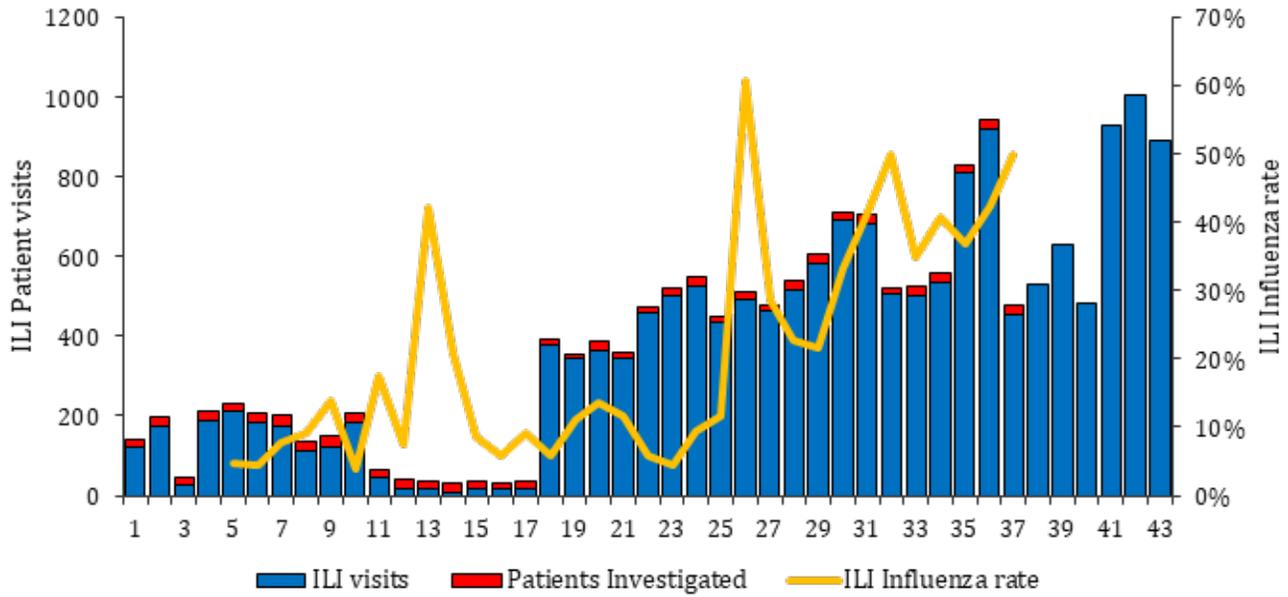
Fig: 7: Reported Influenza Cases among SARI patients' admissions from sentinel sites in 2019.