**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

[Graph showing percentage of influenza positive ILI cases 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 Cases per Epi-Week against Epidemic Threshold.

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.
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.

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.