Limitations of Syndromic Surveillance Data

Syndromic surveillance uses existing heath data sources for the purposes of near real-time surveillance of public health issues. The primary use of emergency department (ED) and urgent care (UC) visit information is for clinical care of patients by the health care facility. When this information is used by the Virginia Department of Health (VDH) for syndromic surveillance, it is considered a secondary use. This secondary use is subject to limitations that should be considered when interpreting these data.

For syndromic surveillance, the following information is reported to VDH: location and time of ED or UC visit, patient demographics (e.g. sex, race), patient residential zip code, chief complaint, and diagnosis.

Chief Complaint Variability: The chief complaint captures the patient's primary reason for seeking medical care in near real-time and is commonly recorded as a free text field, which may include misspellings or abbreviations. It may also lack context that could assist public health with interpretation of the reason for visit. For example, the chief complaint may state "sick" or "feels unwell" without mentioning any symptoms such as fever, vomiting, or cough. Variability in the chief complaint across health care facilities can sometimes make it difficult to measure the exact burden of illness or injury in a community.

Diagnosis Coding Delays: Diagnoses for a patient's visit are recorded using standardized coded values outlined by the International Classification of Diseases (ICD) 9th and 10th Revision code sets. These diagnosis codes are used by health care facilities throughout the United States for medical coding, reporting, and billing purposes. Reporting of ICD-9 and ICD-10 values to VDH provides additional information on a patient's health care visit. However, transmission of diagnosis data to VDH can be delayed and thus does not support near real-time surveillance of public health issues. Additionally, some healthcare facilities are not able to send diagnosis codes to VDH.

Data Volume Varies Over Time: The volume of data transmitted to VDH have changed over time. The number of EDs and UCs reporting to VDH has increased from 89 in 2010 to 166 in 2020, leading to improved coverage of Virginia's population in more recent years. This increase in data volume should be taken into consideration when interpreting trends across years.

Data Quality Varies Over Time: The quality of data has also improved over time because a national syndromic surveillance data reporting standard was established in 2011. This standard specifies what pieces of information should be sent to VDH to ensure consistency in the format and reporting of syndromic surveillance data. Improvements in data quality as a result of the 2011 standard should be taken into consideration when interpreting trends across years.

COVID-19 Pandemic: During the Coronavirus Disease 2019 (COVID-19) pandemic, a decrease in the total number of ED visits occurred in Virginia. Because of this change in health care seeking behavior, VDH urges caution when comparing 2020 statistics to other years.