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O1214 National surveillance data for respiratory syncytial virus from 2005 through 2017 in the Netherlands and the introduction of the moving epidemic method

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Background: Respiratory syncytial virus (RSV) causes acute respiratory infections. We evaluated changes in seasonality, age and RSV-type distribution over twelve consecutive seasons and validated the Moving Epidemic Method (MEM) for RSV. MEM is a method that is widely used to calculate epidemic thresholds for influenza, can be used prospectively and has the capacity to calculate intensity levels for epidemics.

Materials/methods: We used Dutch national surveillance data from 2005 through 2017, including non-sentinel virological data from up to 21 participating Dutch laboratories, all members of the Working Group for Clinical Virology of the Dutch Society for Medical Microbiology, and sentinel general practitioner (GP) data from patients presenting at a GP participating in the sentinel practices of NIVEL Primary Care Database with influenza-like illness (ILI) or another acute respiratory infection (ARI). We applied MEM using absolute virological confirmed RSV detection numbers per week for all 12 seasons in the Fixed Criterium Model using an expert opinion optimized slope parameter of 1.4.

Results: In non-sentinel laboratory data, RSV was reported 25,491 times (no denominator). Over 12 seasons, sentinel data showed an increase in the RSV positive percentage in ILI/ARI patients (*Figure 1*), which was on average 5.6% (n=13,577). The average epidemic length was 18.0 weeks (95%CI 16.3-19.7) and 16.5 weeks (95%CI 14.0-18.0) for laboratory and sentinel data, respectively. The epidemic timing followed an amplitude-like pattern, starting on average in week 46 (95%CI 45-48) and 47 (95%CI 46-49), respectively. The peak was on average in the first week of January in both datasets, following a similar amplitude-like pattern. MEM showed similar results as regularly used methods. RSV incidence was highest in youngest and oldest age groups, which was stable over time. RSV-A/B type dominance alternated every one or two seasons.

Conclusions: The RSV epidemic period has a uniform duration and a well-defined peak that follows an amplitude-like timing pattern. MEM is a valid method that enables defining the start of the RSV season real-time and describe RSV seasonality. RSV has a stable age distribution, while RSV-type dominance alternates.

Figure 1. *RSV positives per season (week 30 - week 29) for non-sentinel and sentinel data.*