NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

RSV ALERT FOR HEALTH CARE WORKERS

23 March 2022

Centre for Respiratory Diseases and Meningitis
National Institute for Communicable Diseases

Alert to clinicians - 2022 respiratory syncytial virus (RSV) season has started and may be associated with higher than usual RSV circulation

RSV is the most common cause of bronchiolitis and lower respiratory tract illness (LRTI) among young children. It is highly contagious and infection with RSV does not result in permanent or long-term immunity and re-infections can occur.

Before the COVID-19 pandemic, the RSV season in South Africa usually preceded the influenza season with the usual average onset at the end of February (range early February – mid-March) over the last 10 years. However, since the start of COVID-19 pandemic, with non-pharmaceutical interventions to prevent SARS-CoV-2 transmission in place, RSV circulation has been disrupted, with fewer cases and out of season outbreaks reported (Figure 1).

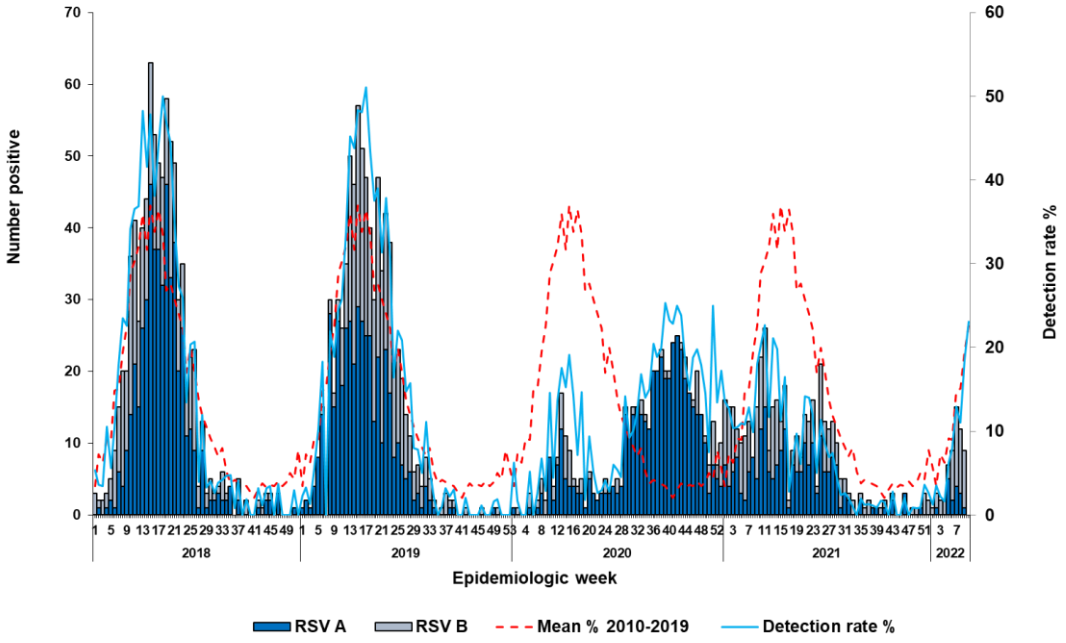

Figure 1: Number positive for RSV and detection by week and year, pneumonia surveillance, 2018-2022

In 2022 to date, RSV has been detected in 19% (105/529) of children aged <5 years, hospitalised with LRTI at sentinel pneumonia surveillance sites, site details summarised in weekly respiratory pathogens surveillance report. The number testing positive for RSV among children aged <5 years started to increase in week 5 (week ending 13 February) and continues to increase, with 35% (28/81) and 32% (24/74) of children hospitalised with LRTI at sentinel sites in week 9 (week ending 6 March) and 10 (week ending 13 March) testing RSV positive, respectively. The 2022 RSV season started in week 7 (week ending 20 February 2022) when the RSV detection rate breached the low threshold level [using the

Moving Epidemic Method (MEM), a sequential analysis using the R Language, to calculate the duration, start and end of the annual epidemic] (Figure 2).

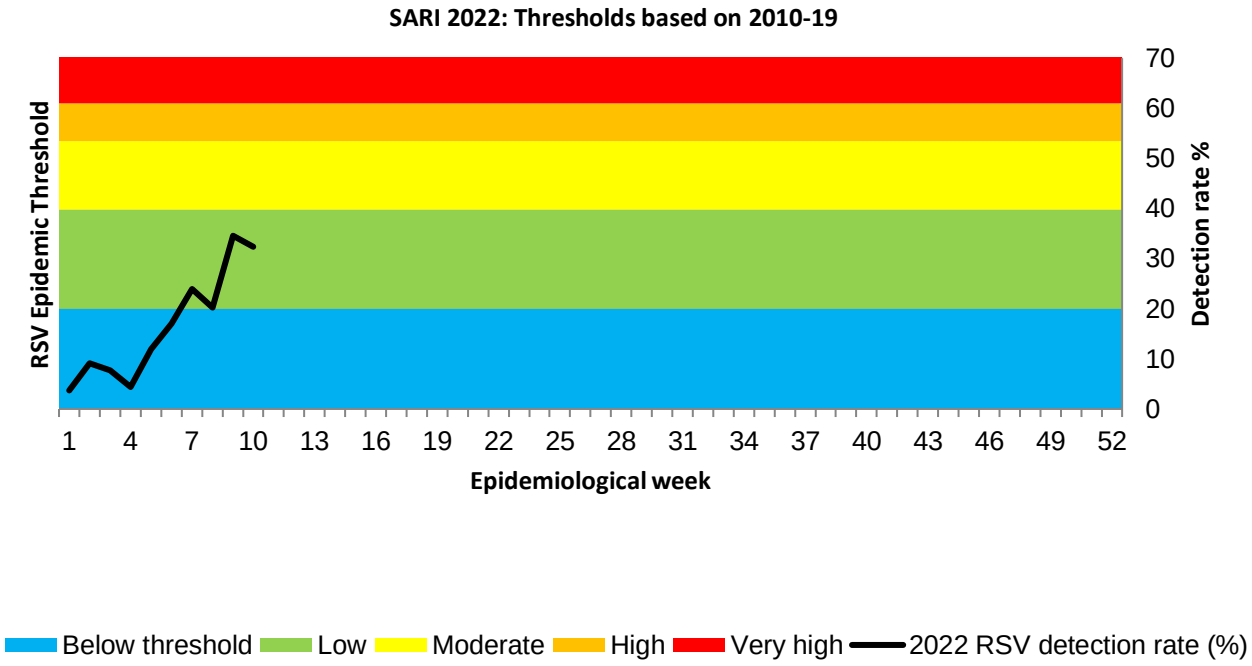

Figure 2: RSV detection rate in 2022 and epidemic thresholds among cases aged < 5 years hospitalised with severe respiratory illness, pneumonia surveillance programme, thresholds based on 2010-2019 data

To understand the magnitude and timing of potential RSV resurgence in 2022, age – structured epidemiological models were fitted to national surveillance data from South Africa to predict the 2022 RSV outbreak following the 2-year period of low RSV transmission (2020-2021). The models predicted an overall 32% increase in peak number of monthly hospitalisations compared to the average for 2015-2019, with an intense RSV outbreak in 2022 and largest percent increase in hospitalisations among older children (Figure 3) [1].

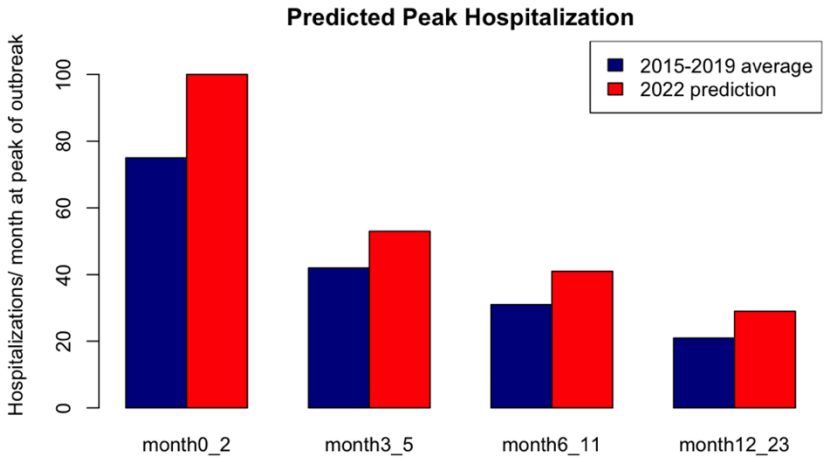

Figure3: Predicted 2022 peak hospitalizations by age group compared to the average recorded for 2015-2019 [1]

Bronchiolitis is mostly self –limiting with patients presenting with upper respiratory tract illness signs, low grade fever and wheezing. The majority of infants with RSV-associated bronchiolitis do not require hospitalisation, but certain children are at risk of severe disease or require supplemental oxygen. Infants aged <6 months may develop severe disease (hypoxia, severe respiratory distress (tachypnoea, nasal flaring or lower chest retractions), inability to feed or apnoea) requiring hospitalisation. In very young infants, irritability, decreased activity, and breathing difficulties may be the only presenting symptoms. Risk factors for severe RSV-associated disease include prematurity, congenital heart disease, chronic lung disease of prematurity, neurological disease, infants aged <6 months, immunodeficiency and lack of breast feeding [2, 3]. Environmental factors that are risk factors for severe RSV-associated disease include overcrowding, poverty and day care centre attendance.

Prevention

Prevention, including isolation of children with influenza-like symptoms (sick children should not go to crèches or schools for a few days), and teaching children (and adults looking after infants) to practice sneeze and cough hygiene, is important. Use of prophylactic antibiotics for children with upper respiratory tract infections is not recommended. The monoclonal antibody, palivizumab, administered monthly throughout the RSV season to infants and children at high risk of severe RSV disease, has been shown to be effective for prevention. However, high costs and the need for monthly intramuscular injections throughout the RSV season, limit its use. Clinicians and paediatric hospitals/ intensive care units are reminded to anticipate an increase in paediatric admissions during the 2022 RSV season. The results from the models, suggested an intensive RSV season in 2022 with a higher and earlier than usual peak number of RSV-related hospitalizations in early April[1]. Healthcare providers are encouraged to prepare and allocate adequate resources to respond to the surge in RSV cases.

1. Bents S, Viboud C, Grenfell B, Hogan A, Tempia S, Gottberg Av, *et al.* The impact of COVID-19 non-pharmaceutical interventions on future respiratory syncytial virus transmission in South Africa. *medRxiv* 2022:2022.2003.2012.22271872.
2. Shi T, Balsells E, Wastnedge E, Singleton R, Rasmussen ZA, Zar HJ, *et al.* Risk factors for respiratory syncytial virus associated with acute lower respiratory infection in children under five years: Systematic review and meta-analysis. *Journal of global health* 2015,**5**:020416-020416.
3. Moyes J, Cohen C, Pretorius M, Groome M, von Gottberg A, Wolter N, *et al.* Epidemiology of respiratory syncytial virus-associated acute lower respiratory tract infection hospitalizations among HIV-infected and HIV-uninfected South African children, 2010-2011. *J Infect Dis* 2013,**208 Suppl 3**:S217-226.