

## Layman's Summary of Changes in Respiratory Syncytial Virus seasonality during the SARS-CoV-2 pandemic

Starting end 2019 and throughout 2020, the COVID-19 virus spread throughout the world becoming a pandemic. Because this was a new strain there were no vaccines available. So, countries all over the world implemented non-pharmaceutical interventions (NPIs). NPIs are health intervention which are not primarily based on medication, examples aimed to slow down and stop the spread of the new Corona virus are enforcing a curfew, limiting the amount of people allowed in a room, and closing schools & non-essential businesses.

Researchers all over the world monitor not only COVID-19 but all kinds of viruses, especially seasonal ones and dangerous ones. One these viruses is human respiratory syncytial virus (RSV), this virus mostly affects children aged 0-2 and the elder. In most countries RSV is active during the autumn and winter. But in 2020 researchers and doctors noticed that the seasonal trend of RSV was significantly changed.

Countries that implemented NPIs (aimed against COVID-19) during an ongoing and seasonal RSV epidemic, saw that the RSV season ended earlier than expected. And the number of infected people reached 0 weeks earlier than in previous years. Following the early end of the 2019-2020 RSV epidemic, the next 2020-2021 RSV epidemic did not happen all together or was delayed with 8 – 12 weeks.

Countries where the expected seasonal RSV epidemic did not happen, experienced an out-of-season RSV epidemic. 20 to 37 weeks after the usual timeframe of the RSV epidemic a peak in the number of people infected with RSV was noted. This meant that some countries experienced a RSV epidemic in the middle of the summer, while normally it would occur in the winter. The characteristics of the patients during the out-of-seasons peaks were also different. The average age of children infected during these peaks was significantly higher. But the course of the disease was less severe, with less patients needing severe medical interventions or admissions to the intensive care unit.

Remarkably, the out-of-seasons peaks generally did not happen after schools reopened even though the major group carrying this virus are children. Researchers did saw that the rhinovirus, a common-cold virus also often carried by children, did peak right after the schools opened. The out-of-seasons RSV peak did often happen after most NPIs were let go and adults & adolescent could mingle and move about more freely. This indicates that adults and adolescent might be a RSV reservoir, meaning they are the group that might carry and spread the RSV virus, but this warrants more research.

The changes in the respiratory syncytial virus seasonality during the SARS-CoV-2 pandemic has shown that health care systems and authorities should prepare for both on- and out-of-season RSV epidemics when new long lasting NPIs are implemented.