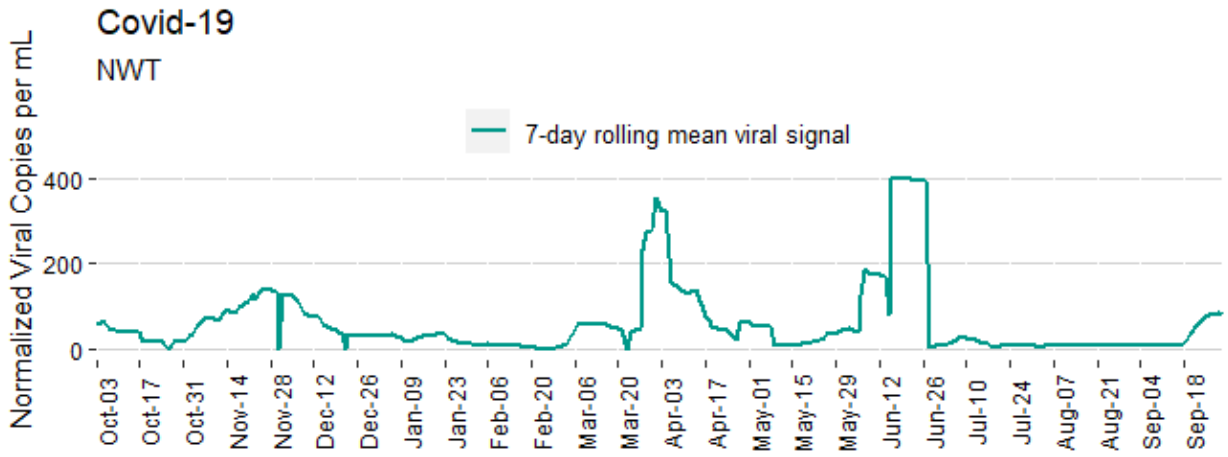
Government of
Northwest Territories

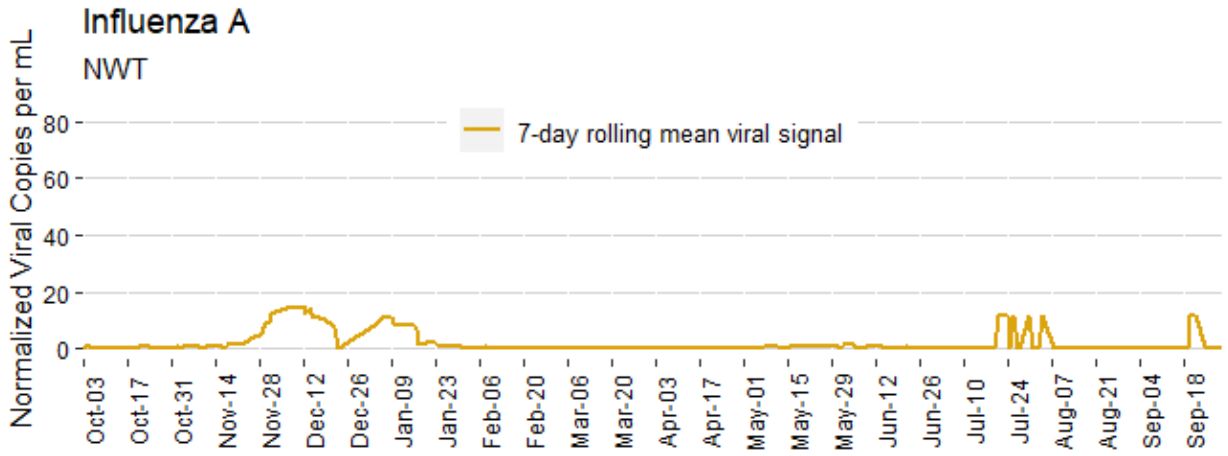
NWT Wastewater Monitoring Report

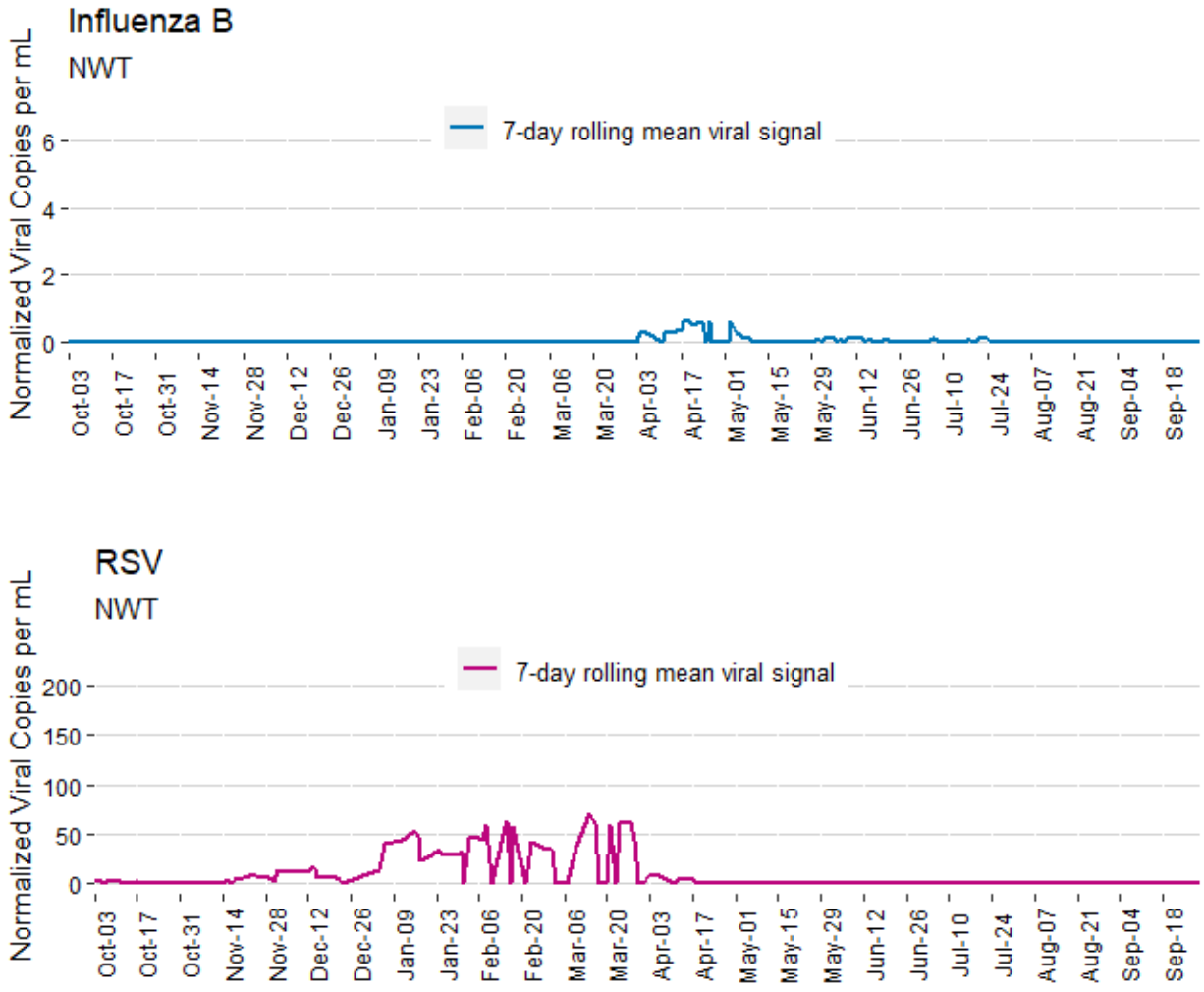
Office of the Chief Public Health Officer

2023-10-03

Northwest Territories



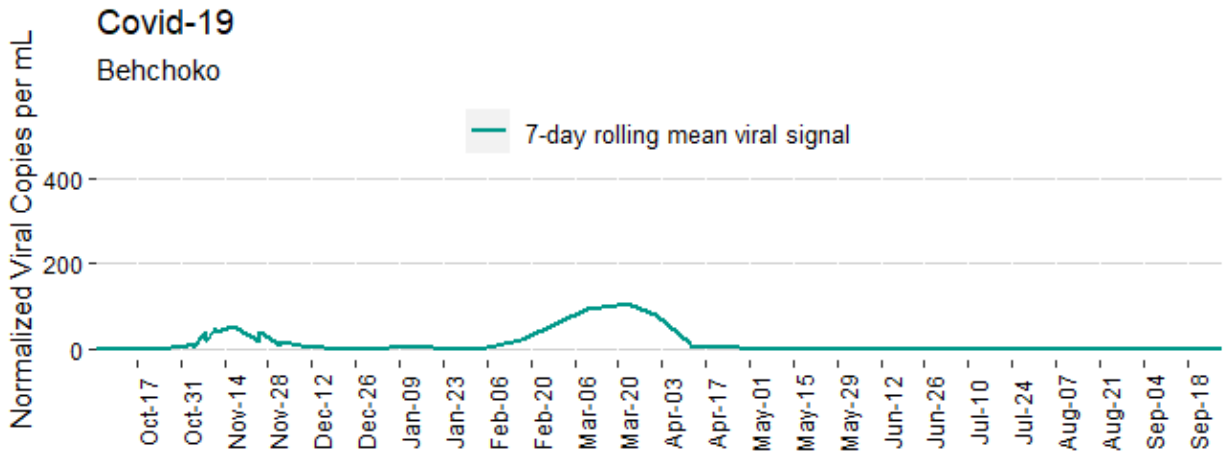


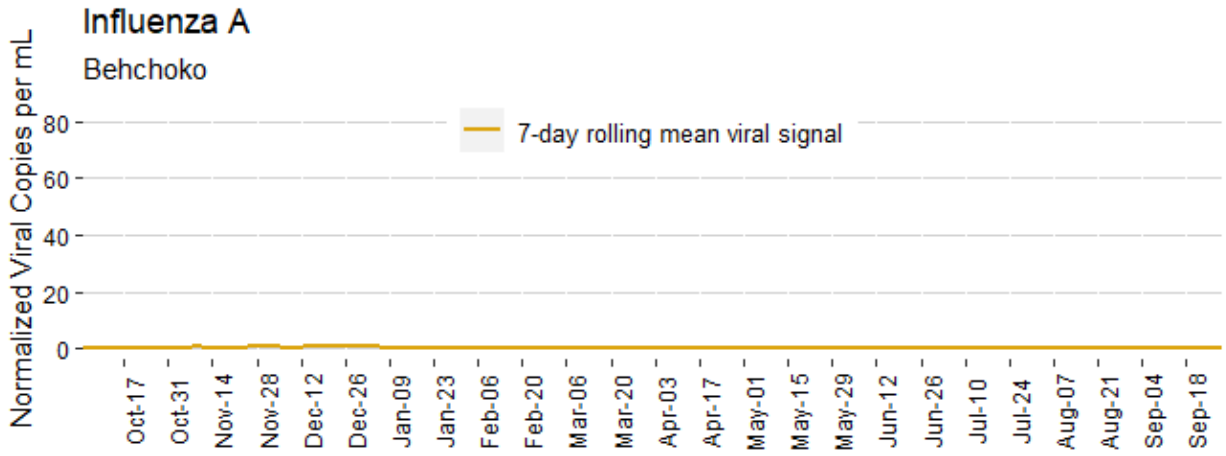


Wastewater is handled in the NWT in one of two ways. Some communities have traditional piped or plumbed sewage systems (e.g., Yellowknife, and Inuvik). For some communities an internal tank in homes holds wastewater until a truck collects and delivers to the communities' wastewater treatment location. In communities using trucked wastewater systems, there can be uneven collecting or discharge of wastewater which can result in results that can be hard to follow. To address these spikes in results, a method to address these has been used.[1]

1 Active lift stations refer to communities in the NWT providing wastewater data to the GNWT. Currently these communities are Yellowknife, Behchokǫ̀, Norman Wells, Fort Smith, Fort Simpson, and Inuvik. Due to the sporadic nature of wastewater, modified z score was used to analyze outlier strength. Consider the following equation, where x

Behchoko





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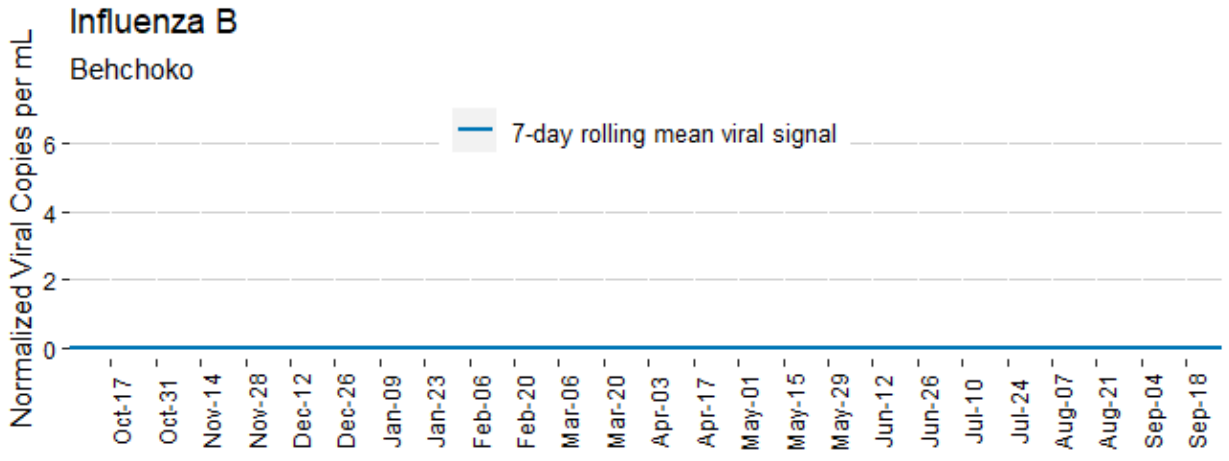
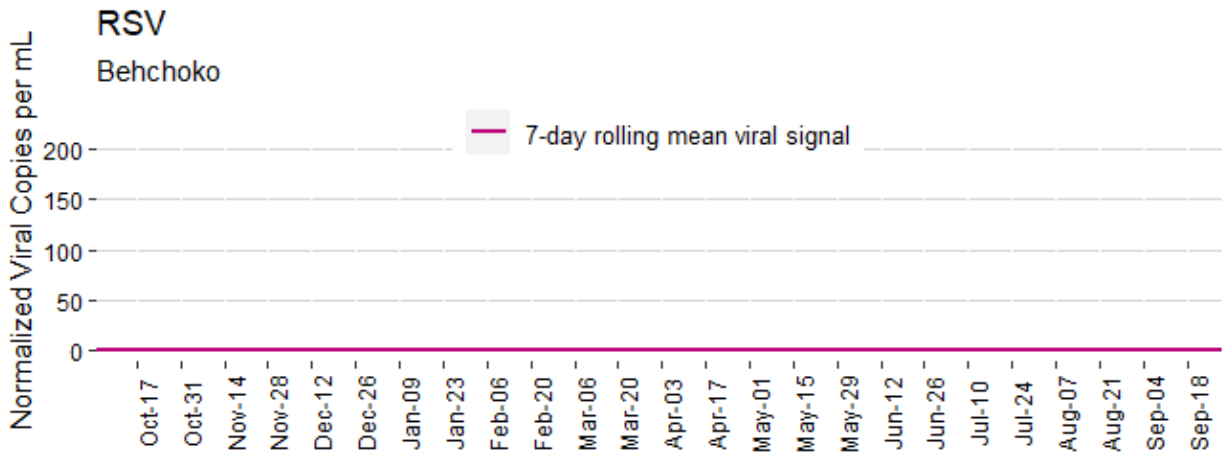
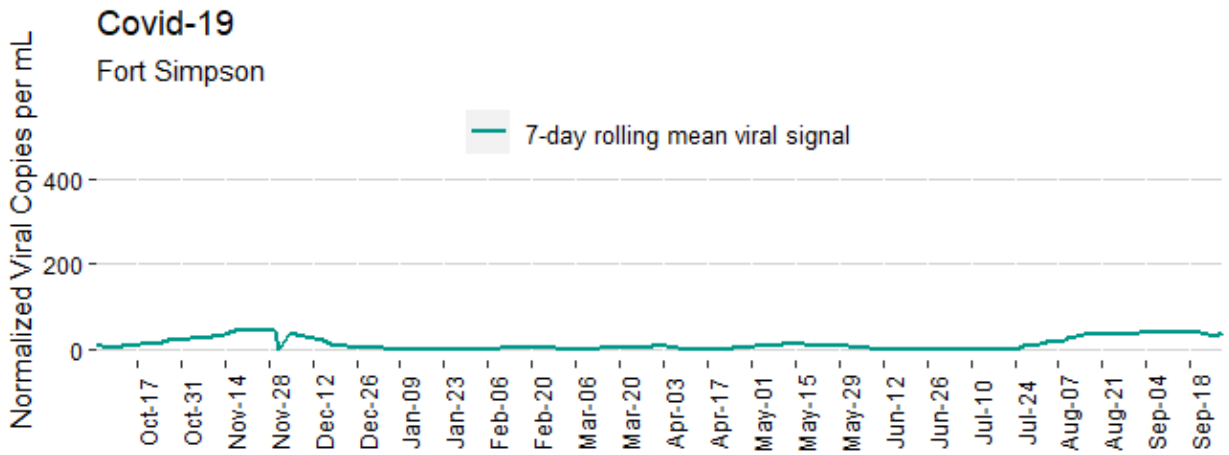
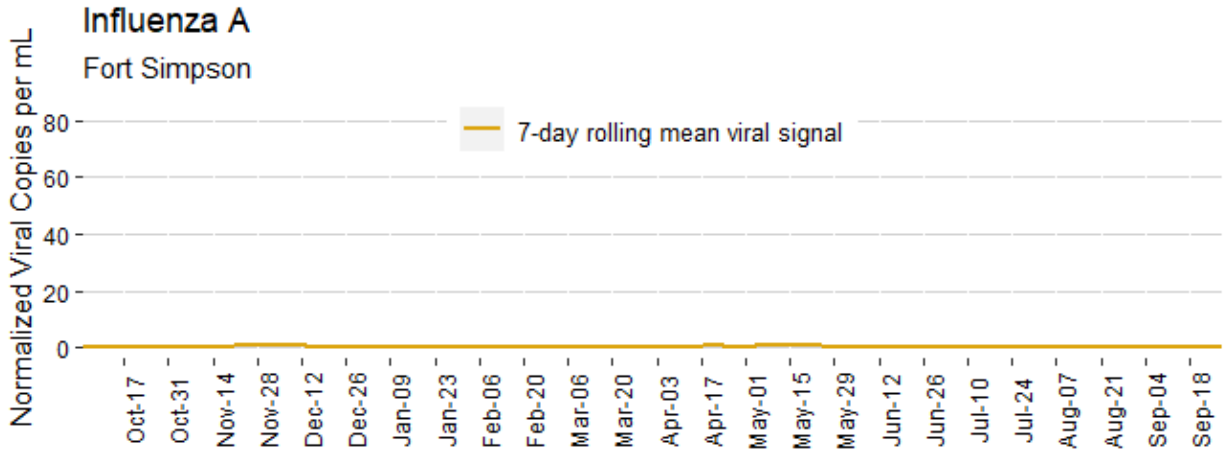
is equal to the daily viral shed in cp/ml; $ModZ = \left(x - median(x)/sqrt(x)\right)$. From there we calculated the standard deviation (SD) and filtered out data +/-2 SD units. This allows us to portray the viral shed copies in a more clear and concise way. Once the outliers were removed, a rolling 7-day average was applied.

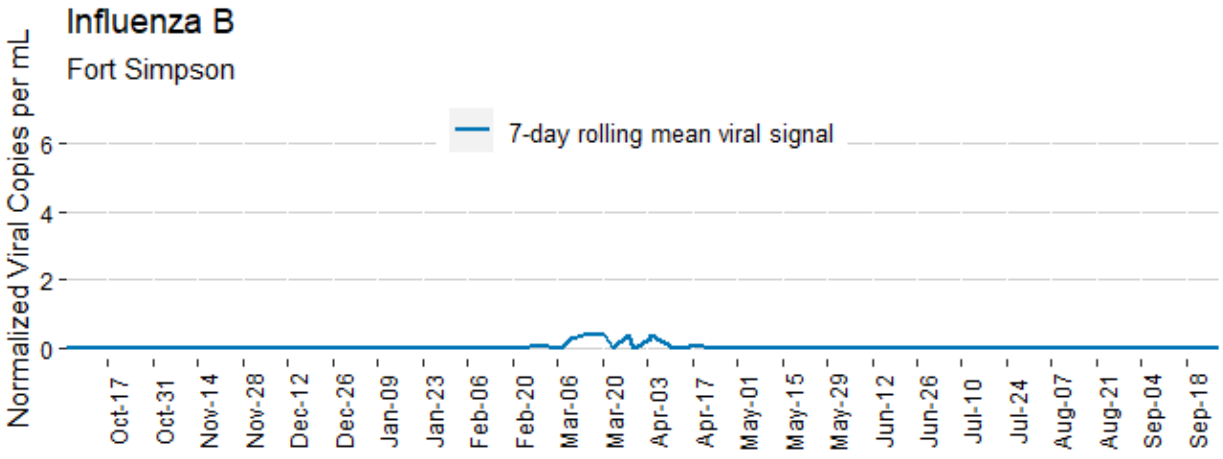

Influenza B
Behchoko
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
2
4
6
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
Mar-20
Apr-03
Apr-17
May-01
May-15
May-29
Jun-12
Jun-26
Jul-10
Jul-24
Aug-07
Aug-21
Sep-04
Sep-18


RSV
Behchoko
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
50
100
150
200
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
Mar-20
Apr-03
Apr-17
May-01
May-15
May-29
Jun-12
Jun-26
Jul-10
Jul-24
Aug-07
Aug-21
Sep-04
Sep-18

Fort Simpson






Influenza B
Fort Simpson
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
2
4
6
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
Mar-20
Apr-03
Apr-17
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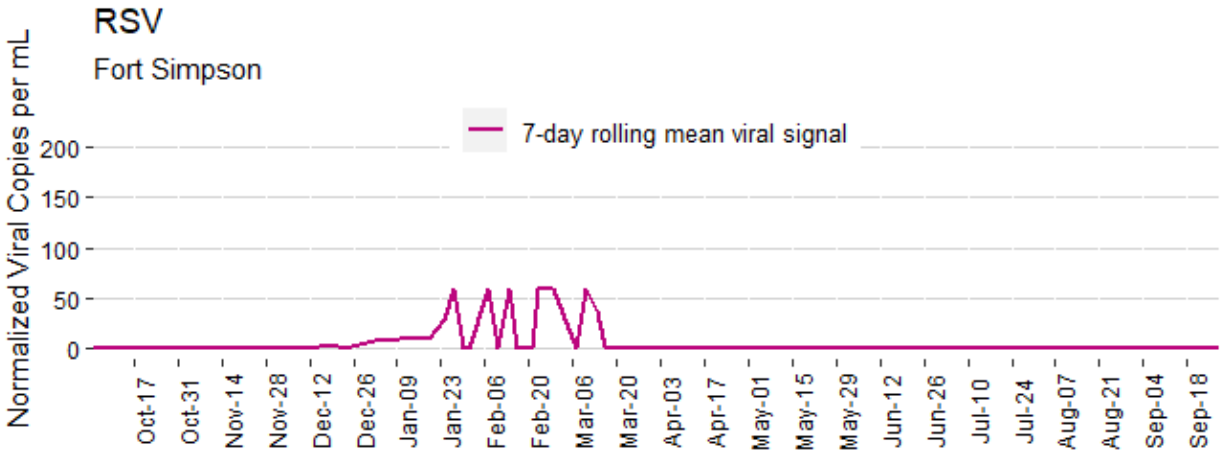
May-15
May-29
Jun-12
Jun-26
Jul-10
Jul-24
Aug-07
Aug-21
Sep-04
Sep-18


RSV
Fort Simpson
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
50
100
150
200
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
Mar-20
Apr-03
Apr-17
May-01
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May-29
Jun-12
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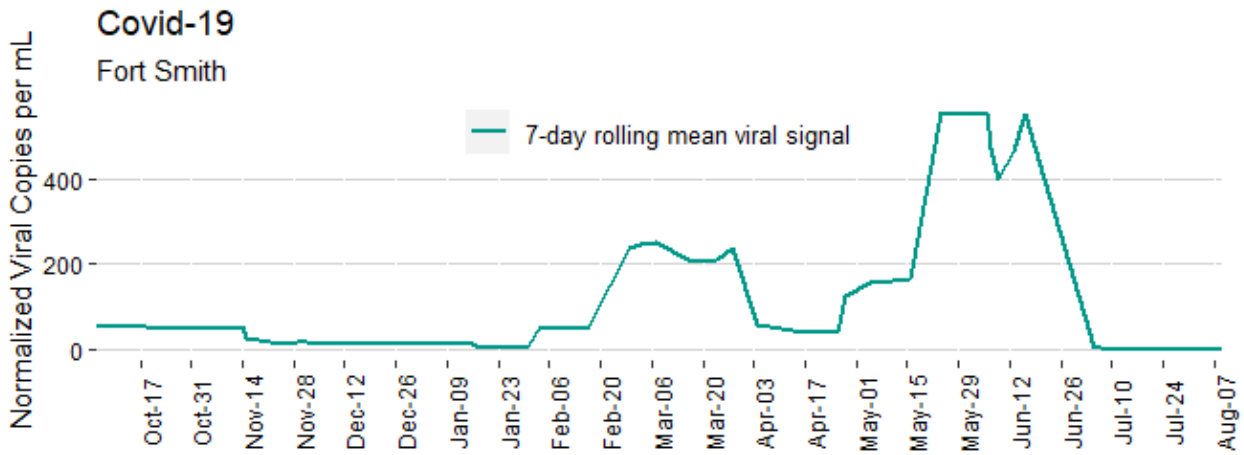
Jul-10
Jul-24
Aug-07
Aug-21
Sep-04
Sep-18

Fort Smith


Covid-19
Fort Smith
7-day rolling mean viral signal
Normalized Viral Copies per mL
400
200
0
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
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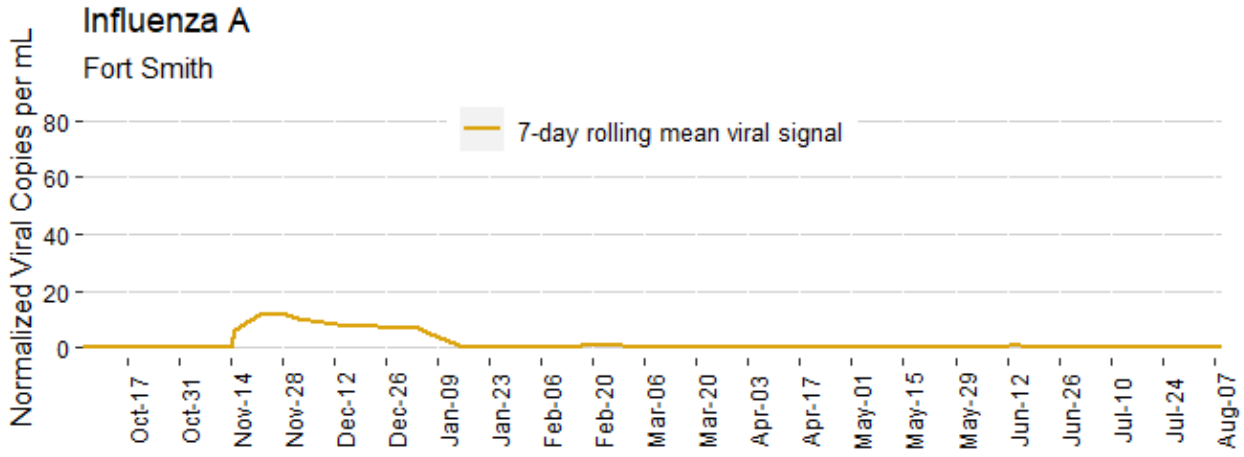
Jul-10
Jul-24
Aug-07


Influenza A
Fort Smith
7-day rolling mean viral signal
Normalized Viral Copies per mL
80
60
40
20
0
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
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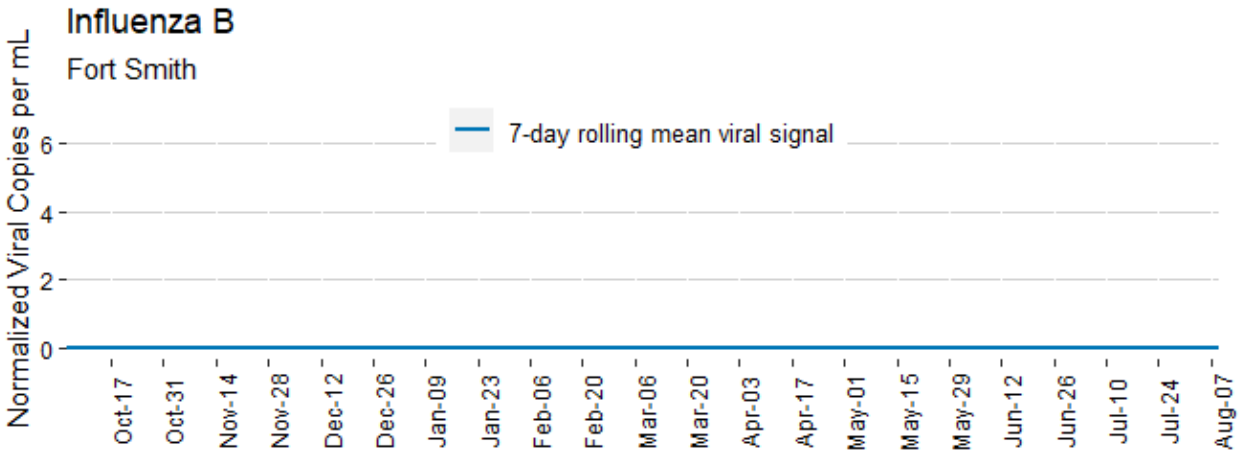
Jun-12
Jun-26
Jul-10
Jul-24
Aug-07


Influenza B
Fort Smith
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
2
4
6
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
Jan-23
Feb-06
Feb-20
Mar-06
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Apr-03
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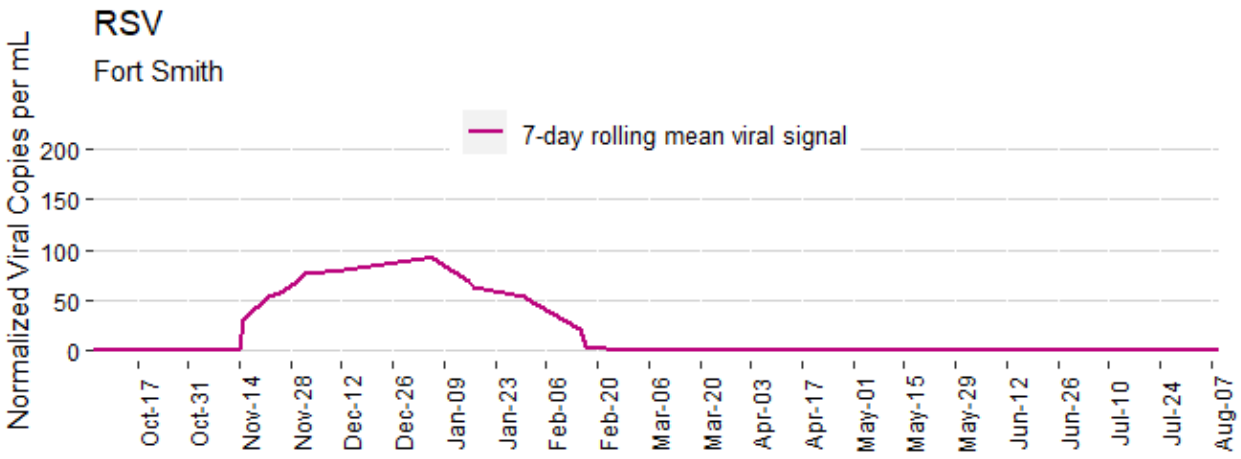
May-29
Jun-12
Jun-26
Jul-10
Jul-24
Aug-07


RSV
Fort Smith
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
50
100
150
200
Oct-17
Oct-31
Nov-14
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Jan-23
Feb-06
Feb-20
Mar-06
Mar-20
Apr-03
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May-01
May-15
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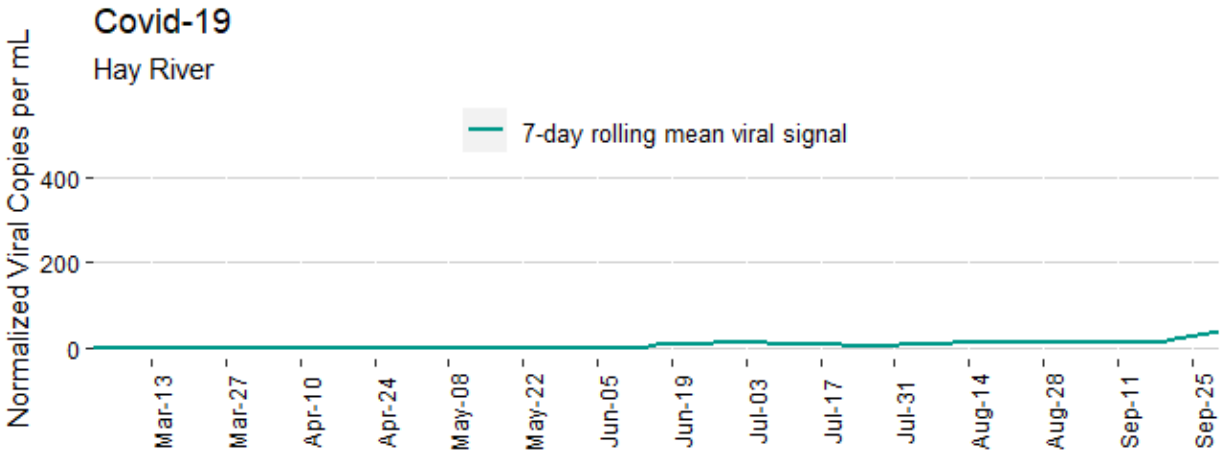
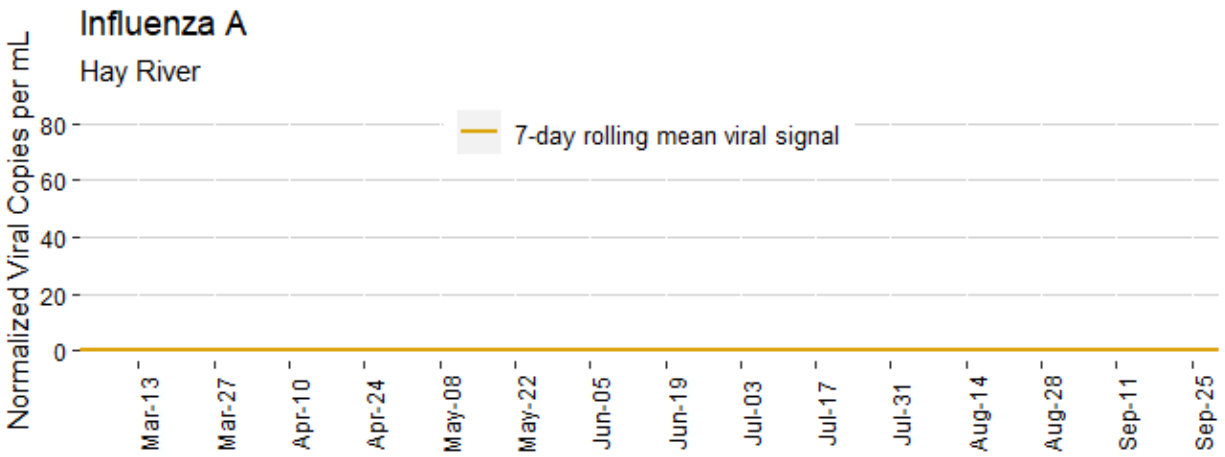
Jun-26
Jul-10
Jul-24
Aug-07

Hay River


Covid-19
Hay River
7-day rolling mean viral signal
Normalized Viral Copies per mL
400
200
0
Mar-13
Mar-27
Apr-10
Apr-24
May-08
May-22
Jun-05
Jun-19
Jul-03
Jul-17
Jul-31
Aug-14
Aug-28
Sep-11
Sep-25


Influenza A
Hay River
7-day rolling mean viral signal
Normalized Viral Copies per mL
80
60
40
20
0
Mar-13
Mar-27
Apr-10
Apr-24
May-08
May-22
Jun-05
Jun-19
Jul-03
Jul-17
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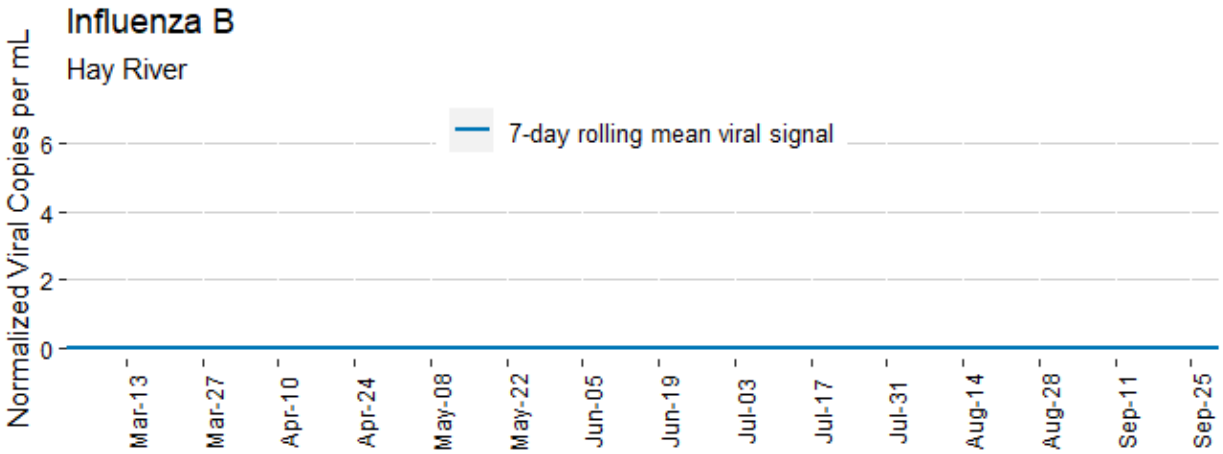
Aug-14
Aug-28
Sep-11
Sep-25


Influenza B
Hay River
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
2
4
6
Mar-13
Mar-27
Apr-10
Apr-24
May-08
May-22
Jun-05
Jun-19
Jul-03
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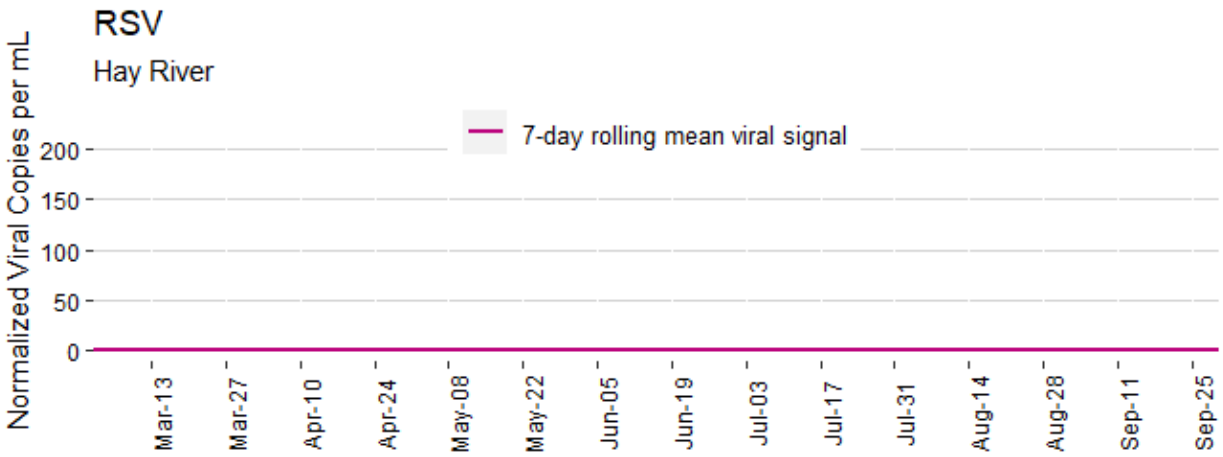
Aug-28
Sep-11
Sep-25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Hay River
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
50
100
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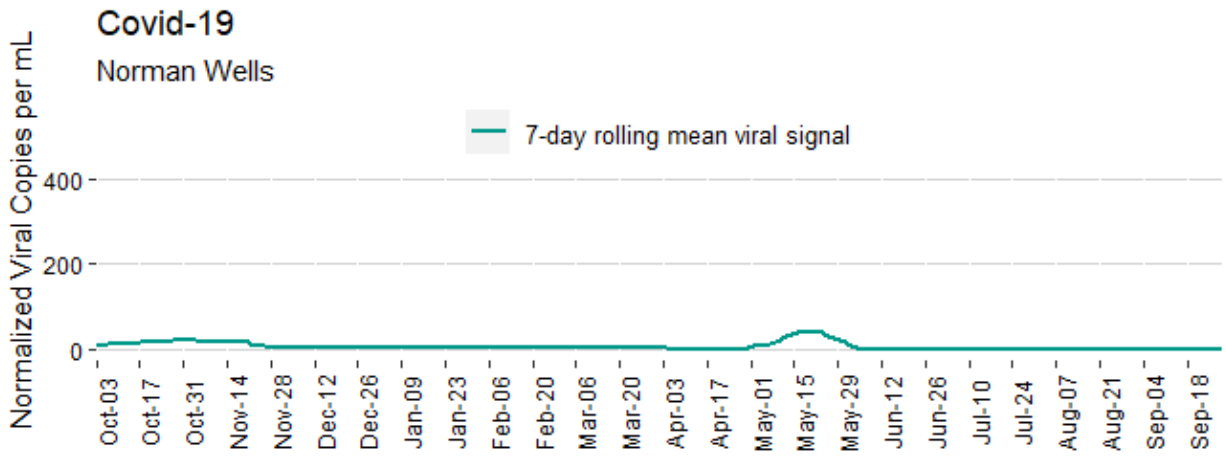
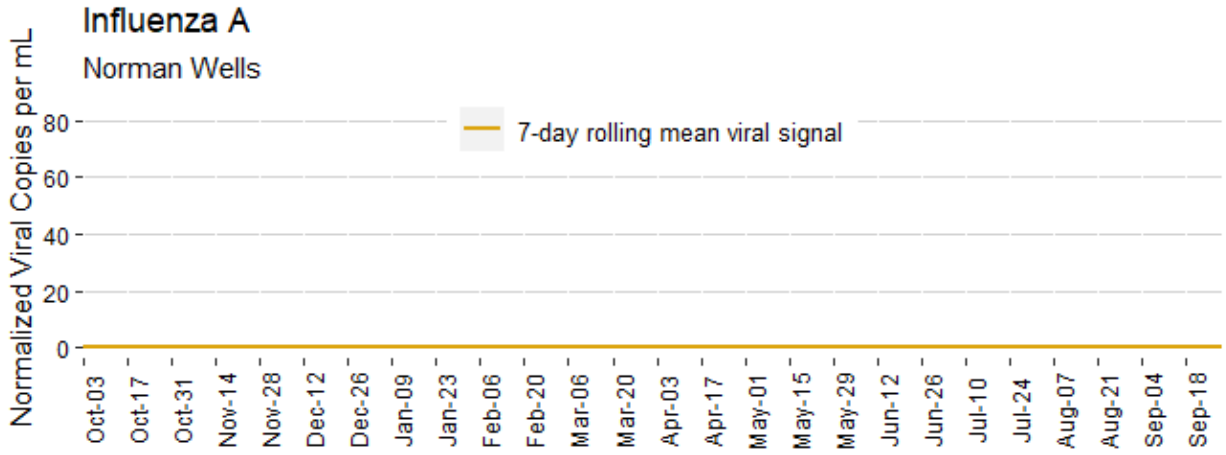
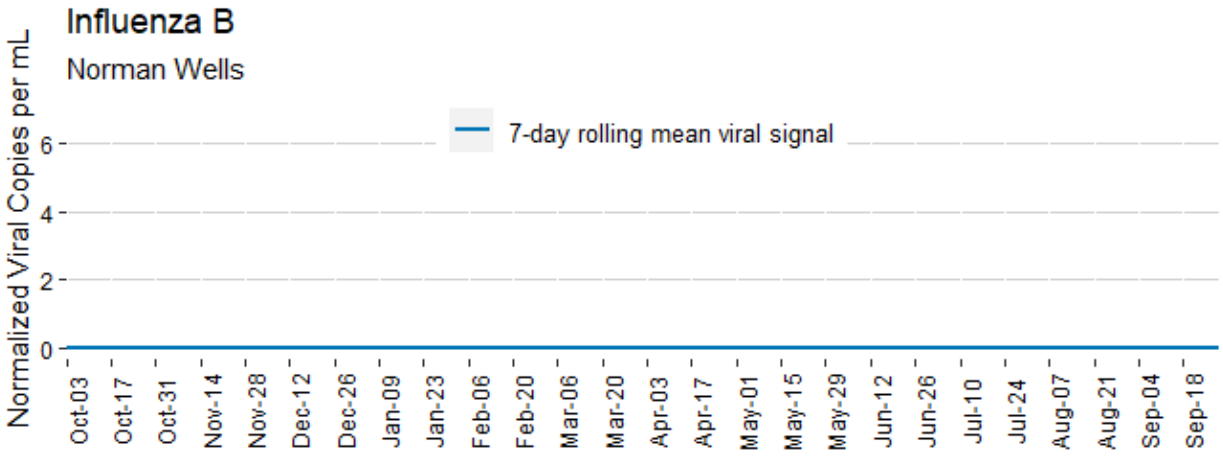
Sep-25

Norman Wells






Influenza B
Norman Wells
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
2
4
6
Oct-03
Oct-17
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Nov-14
Nov-28
Dec-12
Dec-26
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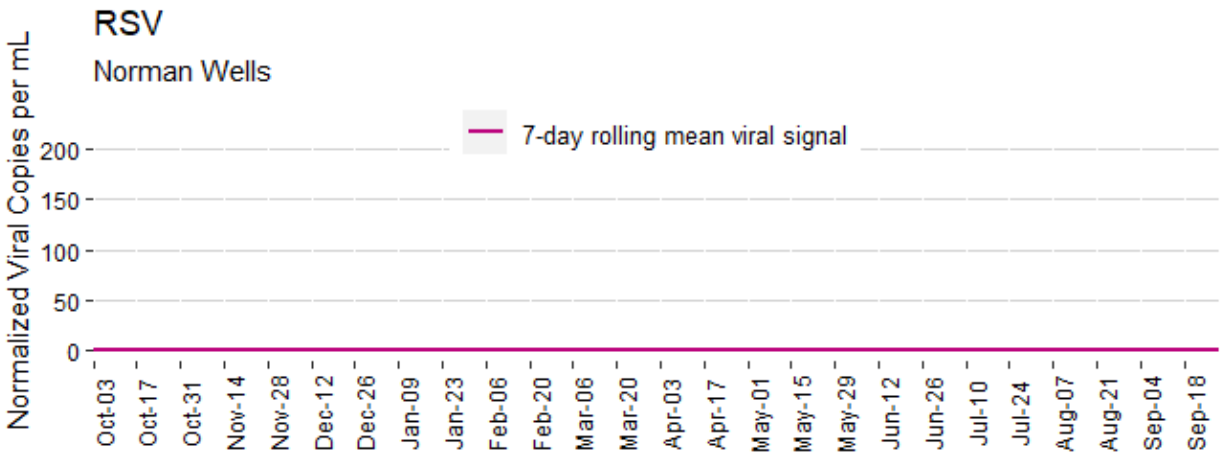
RSV
Norman Wells
7-day rolling mean viral signal
Normalized Viral Copies per mL
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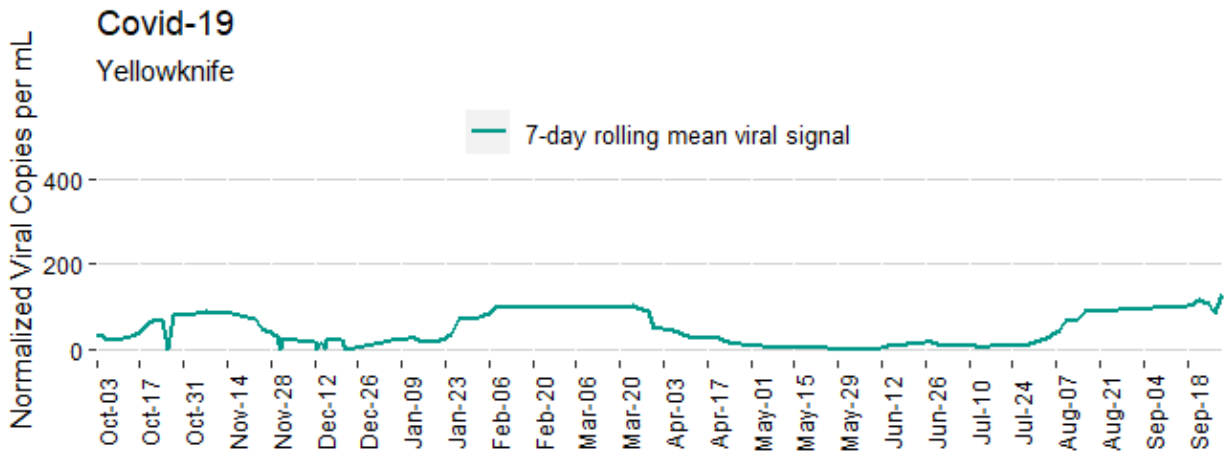
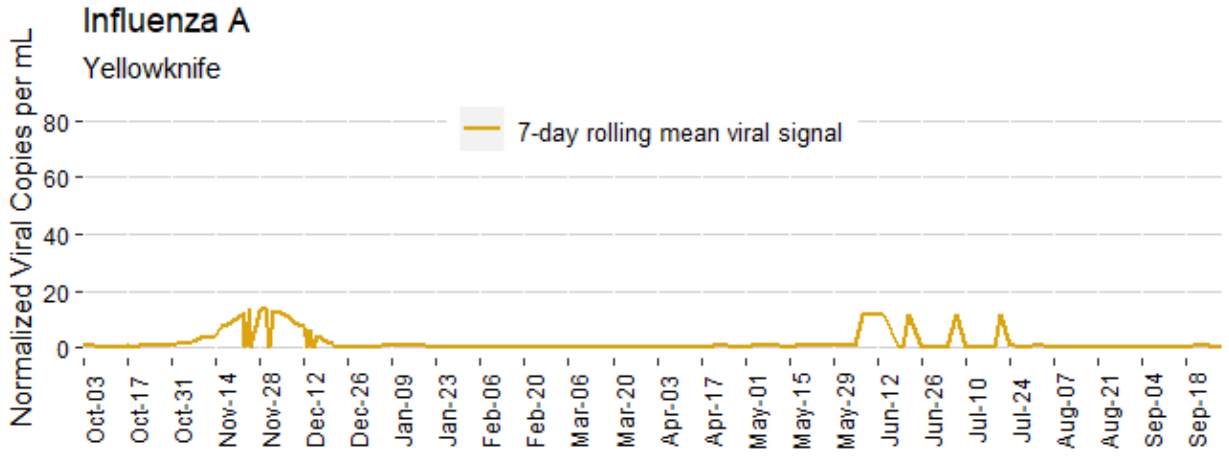
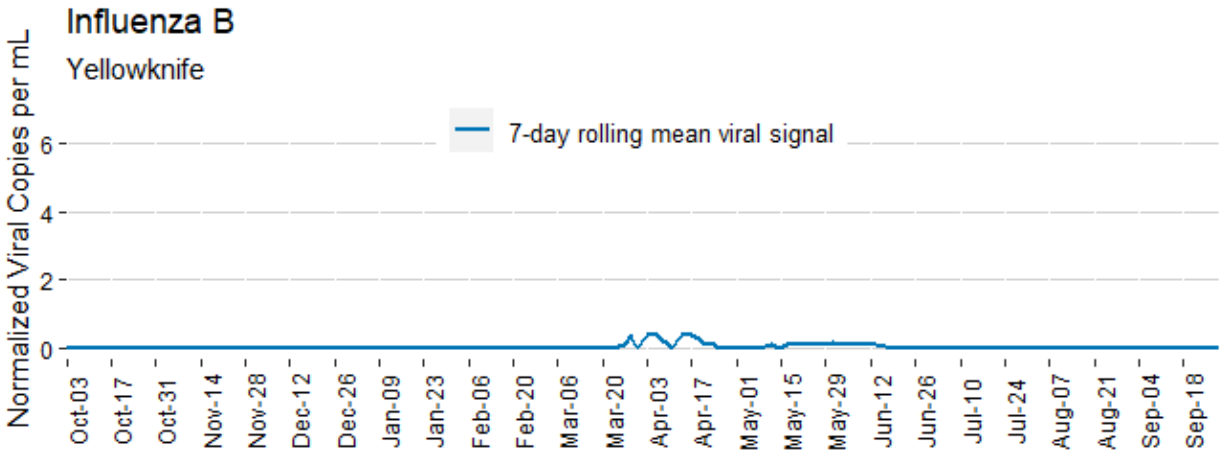
Sep-18

Yellowknife






Influenza B
Yellowknife
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
2
4
6
Oct-03
Oct-17
Oct-31
Nov-14
Nov-28
Dec-12
Dec-26
Jan-09
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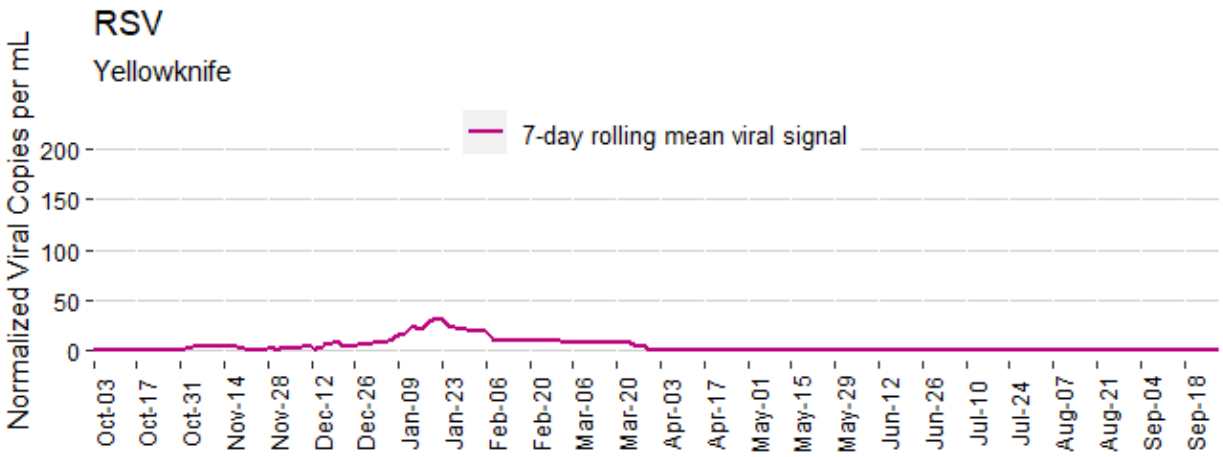
RSV
Yellowknife
7-day rolling mean viral signal
Normalized Viral Copies per mL
0
50
100
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200
Oct-03
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