

# Seasonal Respiratory Viruses



# Who's Who in the Zoo?

## Influenza Vaccine treatment

- Zoonosis
- Infection of 5-15% of world /year
- Genetic drift
  - New strains q3-5 years
- Genetic shift
  - Pandemic potential



## RSV

- Human pathogen
- Near universal infection by age 3
- Adults, asymptomatic or URTI
- Immune compromised
- Elderly
- Infants/toddlers



## COVID Vaccine treatment

- ?Zoonosis
- Near universal infection
- Morbidity lower vaccine/omicron
- Children largely spared
- 60% asymptomatic
  - Elderly



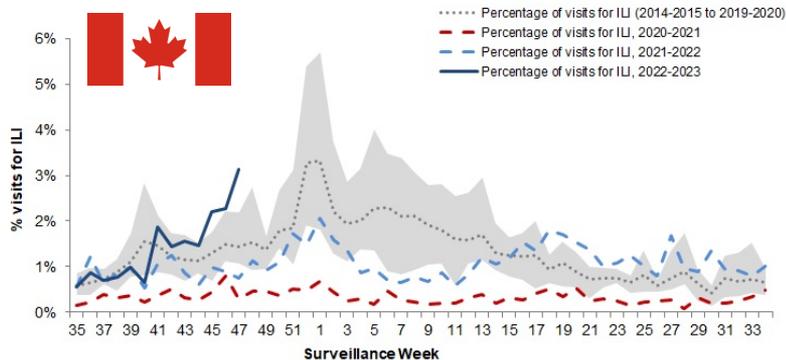
## Enterovirus

- Human Pathogen
- Late-summer/Fall
- 100 serotypes
  - Polio-like illness
  - Hand-foot-mouth
  - D68 more severe
  - Viral meningitis
- Rapid mutation/shift

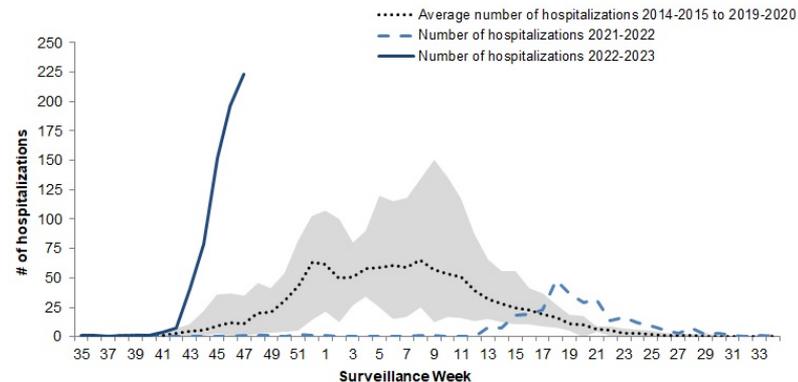


# What's up with Kids this year?

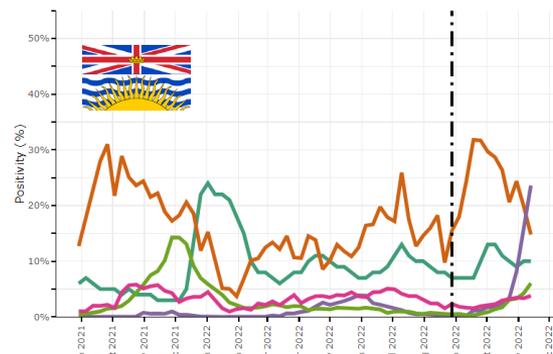
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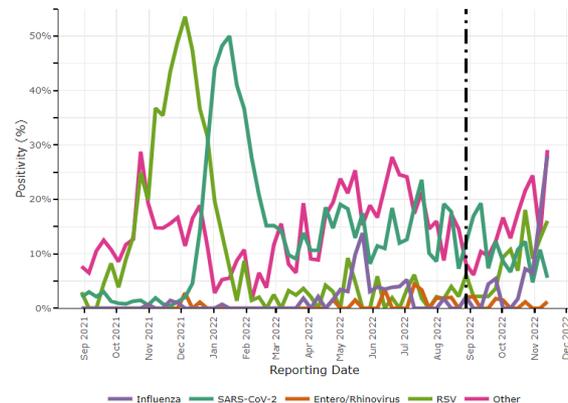
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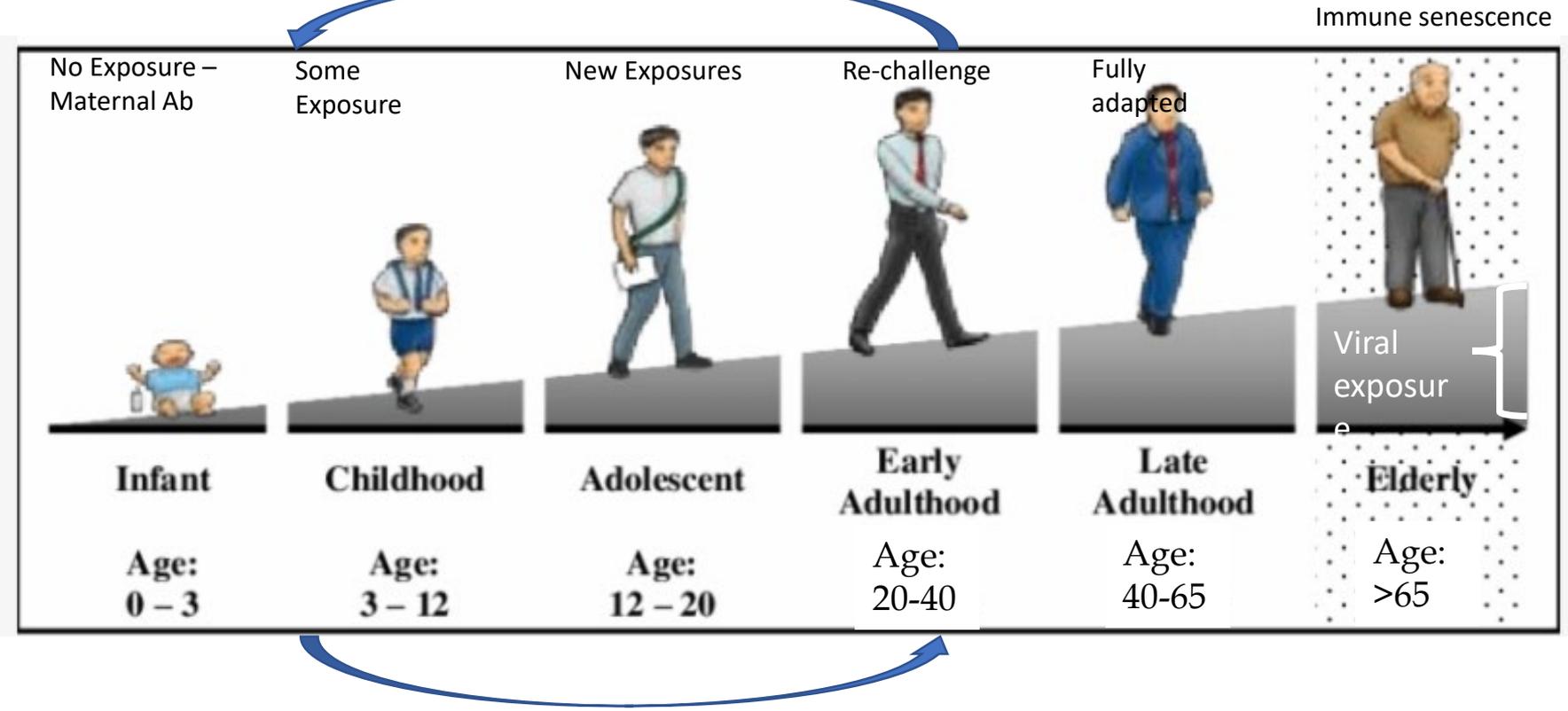
Positivity of respiratory viruses since 2021-2022 Season, in BC



Positivity of respiratory viruses since 2021-2022 Season among children  
 BCCCH Laboratory

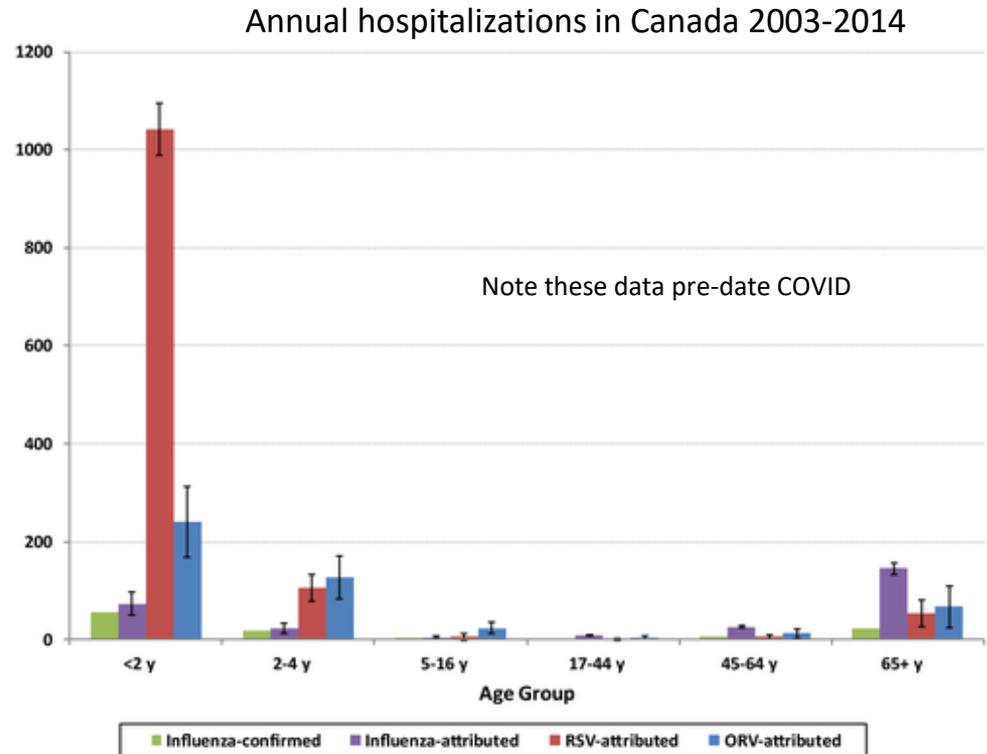


# Our immune journey through life



# RSV (Paramyxovirus)

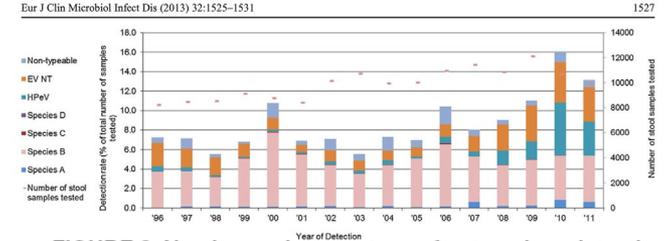
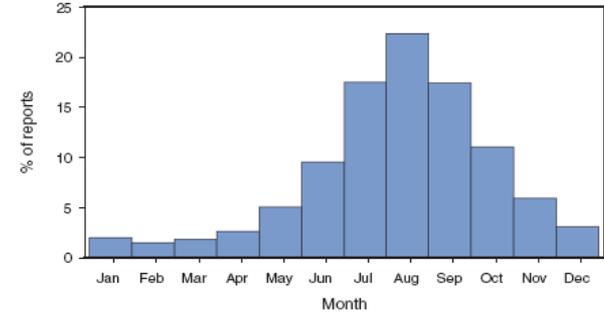
- Hospitalization <2 years
- Much higher than flu in <2
- Some residual in 2-4y
- Second small peak >65
  - 10% of hospitalizations
  - 6-8% mortality
- Almost none 5-65



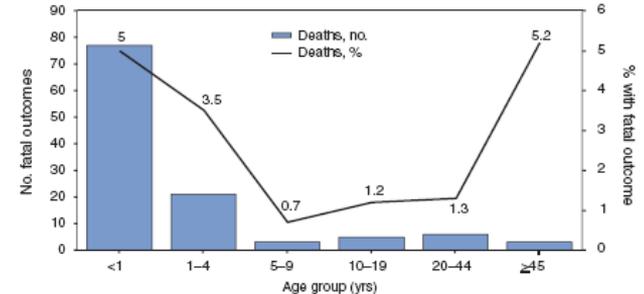
# Enterovirus (picornavirus)

- Ubiquitous
  - Seasonal late summer/fall
  - 10-30 million known cases in USA/yr
  - Up to 7.6% of stools tested in NL (summer)
  - 12% infection in neonatal period
- Mostly children under age 1 hospitalized
- URTI in adults
  - Early post-transplant
  - Frail elderly

**FIGURE 2. Percentage of enterovirus reports, by month of specimen collection — United States, 1983–2005**

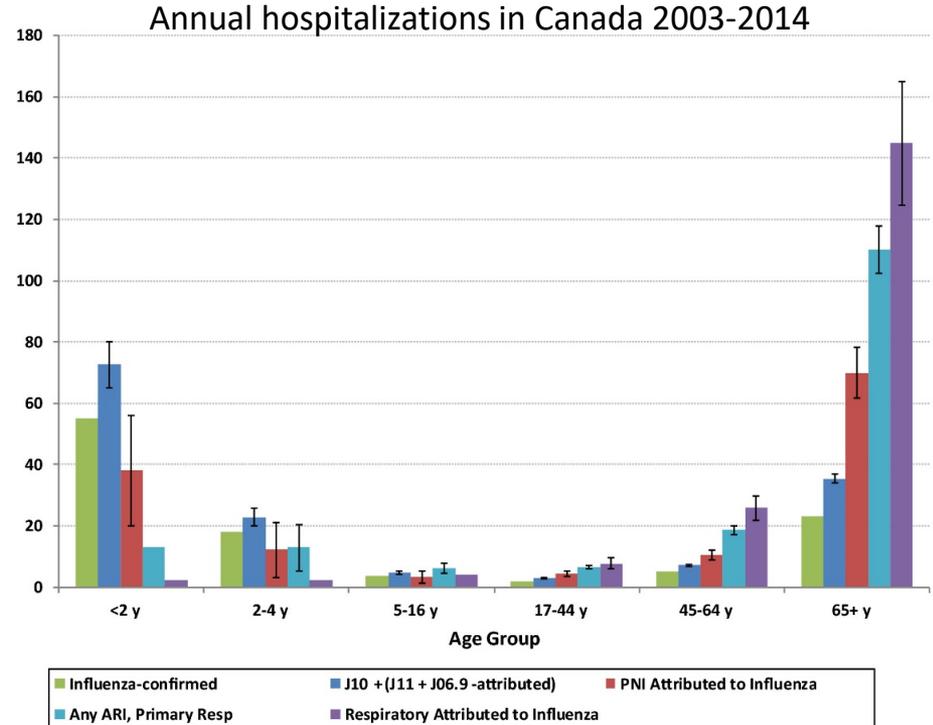


**FIGURE 3. Number and Percentage of enterovirus detection reports with fatal outcomes, by age group — National Enterovirus Surveillance System, United States, 1983–1998**



# Influenza (Orthomyxovirus)

- J- or hockey-stick hospitalizations
  - Particularly elderly
  - Young children
  - Specific groups 2-65
- Vaccination
- Osteltamivir
  - High risk (e.g. LTC outbreaks)
  - Hospitalized
  - Not generally for healthy adults



# COVID-19 (coronavirus)

- Very clear age gradient
- Decreasing morbidity
  - Vaccination
  - Immunity from infection
  - Lower pathogenic strain
  - 75% admitted cases “incidental”
- Nirmeltrivir/rt – outpatients
- Remdesivir – high-risk OP and inpatients
- In hospital – anti-inflammatories
- Others: budesonide, colchicine

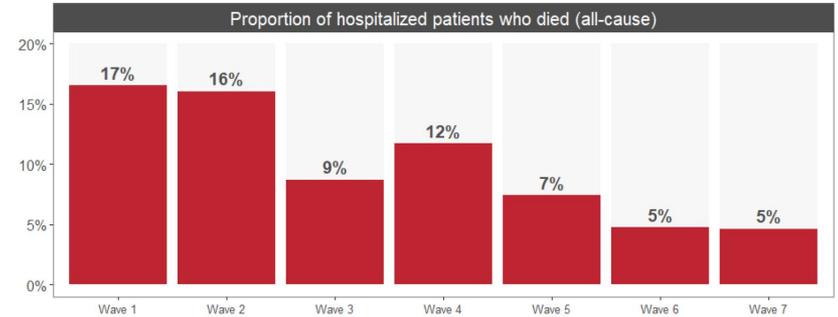
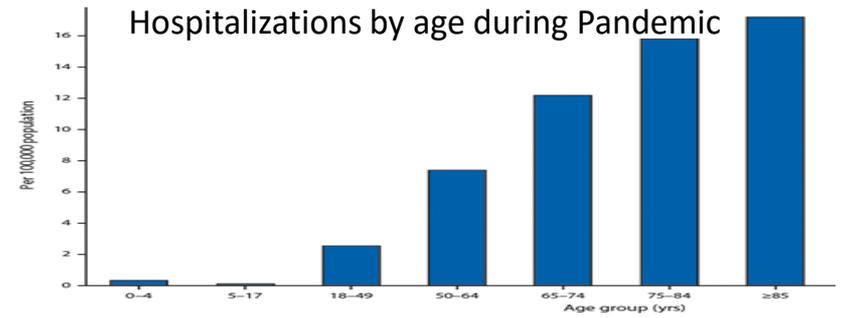
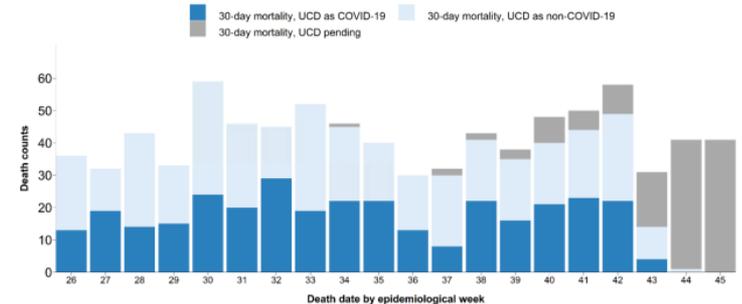


Figure 7. Post-transition deaths by underlying cause of death, BC, Jun 26, 2022 (week 26) – Nov 12, 2022 (week 45)<sup>a,b</sup>



# Planning with patients

- Know that viral infections are inevitable
  - Vaccinate when appropriate
  - Reassure patients who are low risk
- Support prevention discussions
  - What is family preference if someone is ill
- Symptom management and when to consult
  - Identify high risk patients
  - part of well baby visits
  - Bacterial superinfection esp. children
- Prepare for testing and treatment
  - Create treatment plans



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# Planning with high risk patients

- Baseline bloodwork (creatinine)
- Supportive measures/ ED visit
- Discussion of patient preferences:
  - Testing: How? Where?
  - Treatment
    - COVID
    - Influenza
  - Manage DDI (if present)
- Responsible physician
- Off-hours contacts
- Communication with call group

## COVID-19 ACTION PLAN

The colors on the traffic light will help you manage illness from COVID-19



- GREEN means Go Zone!**  
Use standard measures to protect yourself against COVID-19
- YELLOW means Caution Zone!**  
Follow these steps when feeling sick
- RED means Danger Zone!**  
Seek urgent medical attention

Name:	Date:
Prescriber:	PHN #:
Prescriber Contact Information:	
Pharmacy:	
Prescriber Signature:	

Instructions: Patient: Please retain a copy of this action plan and the accompanying Paxlovid prescription for your records.

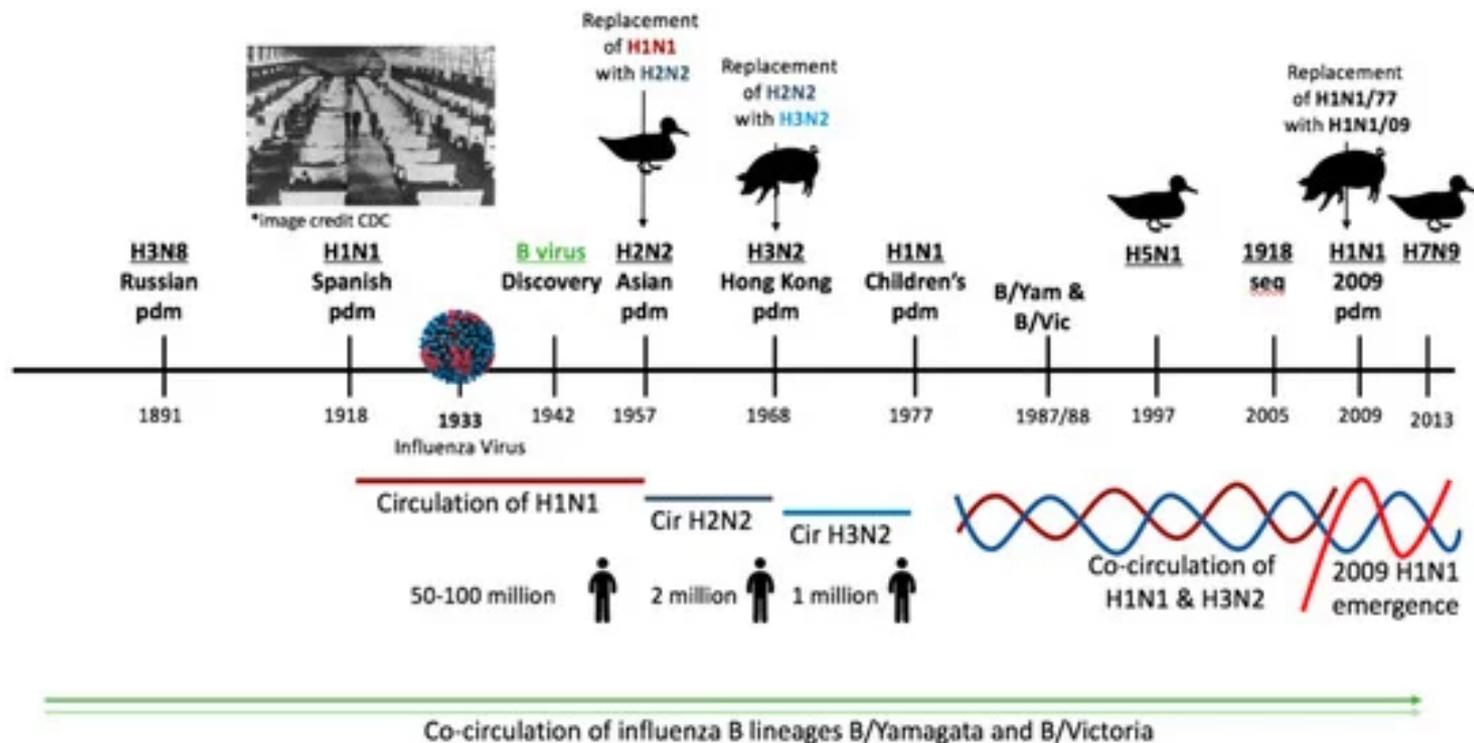
Doctor: There is a new [temporary fee code](#) for physicians. This fee is payable for patient care related to COVID-19 treatment.

GO	Follow these measures to protect yourself against COVID-19
<p>You have:</p> <ul style="list-style-type: none"> <li>• No signs and symptoms of COVID-19</li> <li>• Had contact with a sick person but are not sick yourself</li> <li>• Traveled or are traveling but have no symptoms of COVID-19</li> <li>• Stable health otherwise</li> </ul>	<p><input type="checkbox"/> You are eligible for your next COVID-19 Vaccine on: _____ or <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Obtain 5 rapid antigen tests from your local pharmacy. Do not test if you do not have symptoms of COVID-19.</p> <p>Your COVID-19 Prescription is:</p> <p><input type="checkbox"/> <a href="#">Nirmatrelvir/ritonavir</a> ((Paxlovid) (<a href="#">Special prescription form covered under Plan Z</a>):</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 300/100 mg (eGFR greater than or equal to 60 mL/min) medication is taken by mouth twice daily X 5 days</li> <li><input type="checkbox"/> 150/100 mg (eGFR 30-59 mL/min) medication is taken by mouth twice daily X 5 days</li> </ul> <p><input type="checkbox"/> <a href="#">Remdesivir</a> (call your doctor or nurse practitioner for referral when you test positive).</p> <p><input type="checkbox"/> Lab requisition required for serum creatinine if not available &gt; 2 yrs (a blood test to test your kidney function).</p>

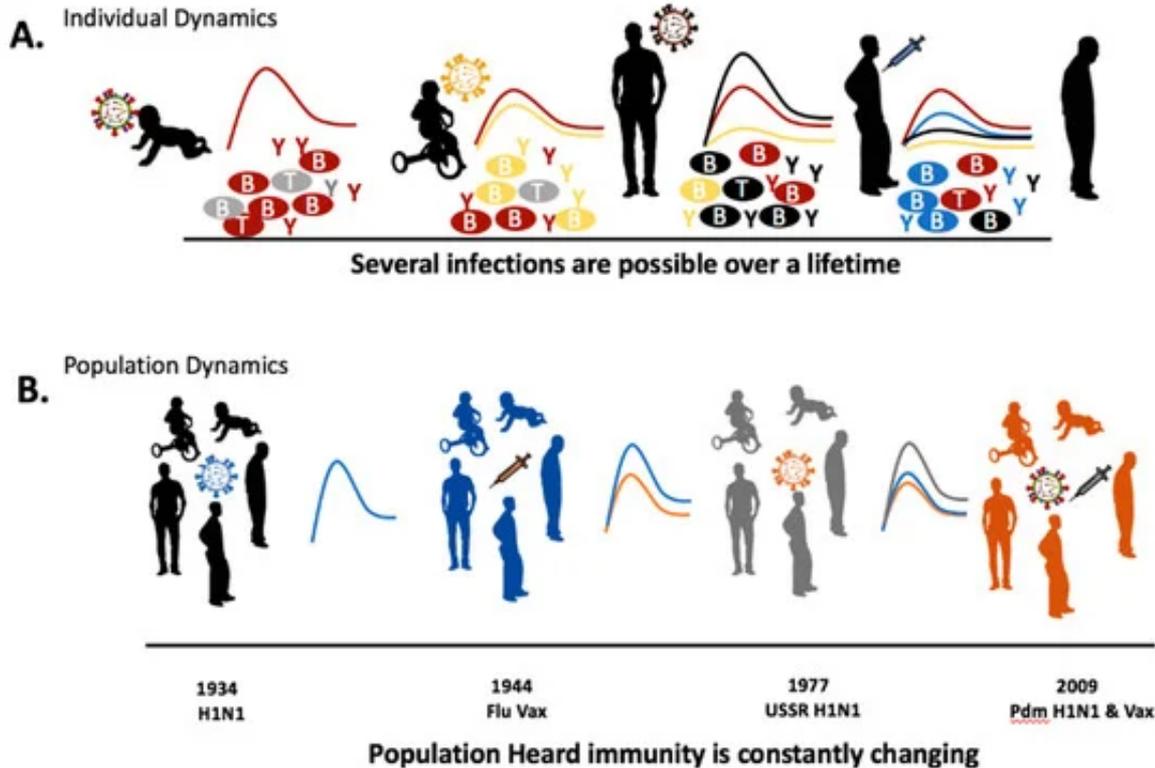
[http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID-treatment/COVID-19\\_Action\\_plan.pdf](http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID-treatment/COVID-19_Action_plan.pdf)

Ready for questions

# History of Influenza A and B viruses



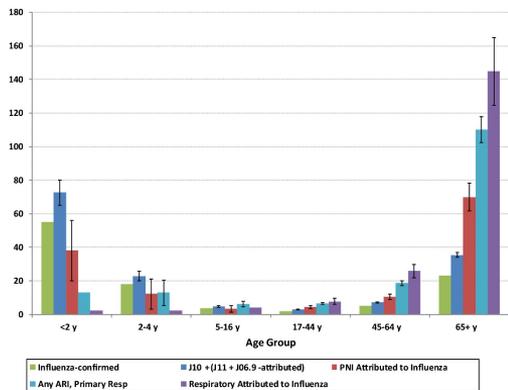
# Influenza individual and population dynamics



# Getting to know the 3 players

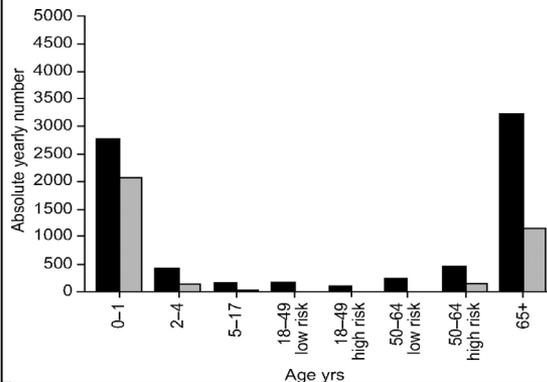
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- Infection of 5-15% of world /year
- New variants every 3-5 years
- J- or hockey-stick hospitalizations
- Elderly particularly impacted



## RSV (Paramyxovirus)

- Near universal infection by age 3
- First infection can be quite severe
- Adults, asymptomatic or URTI
  - Immune compromised
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