The Role of PCR testing in the Diagnosis of Post-Pandemic Respiratory Infections

Dr. Madison Orsburn, MD

- Compare the similarities and differences in the way influenza, RSV, and covid-19 present clinically

- Briefly review IDSA guidelines for diagnosis of influenza

- Describe how rapid molecular testing can help clinicians efficiently manage the logistical challenges of the upcoming busy respiratory season

- Discuss the future role we play in surveillance of community spread at the individual clinician level

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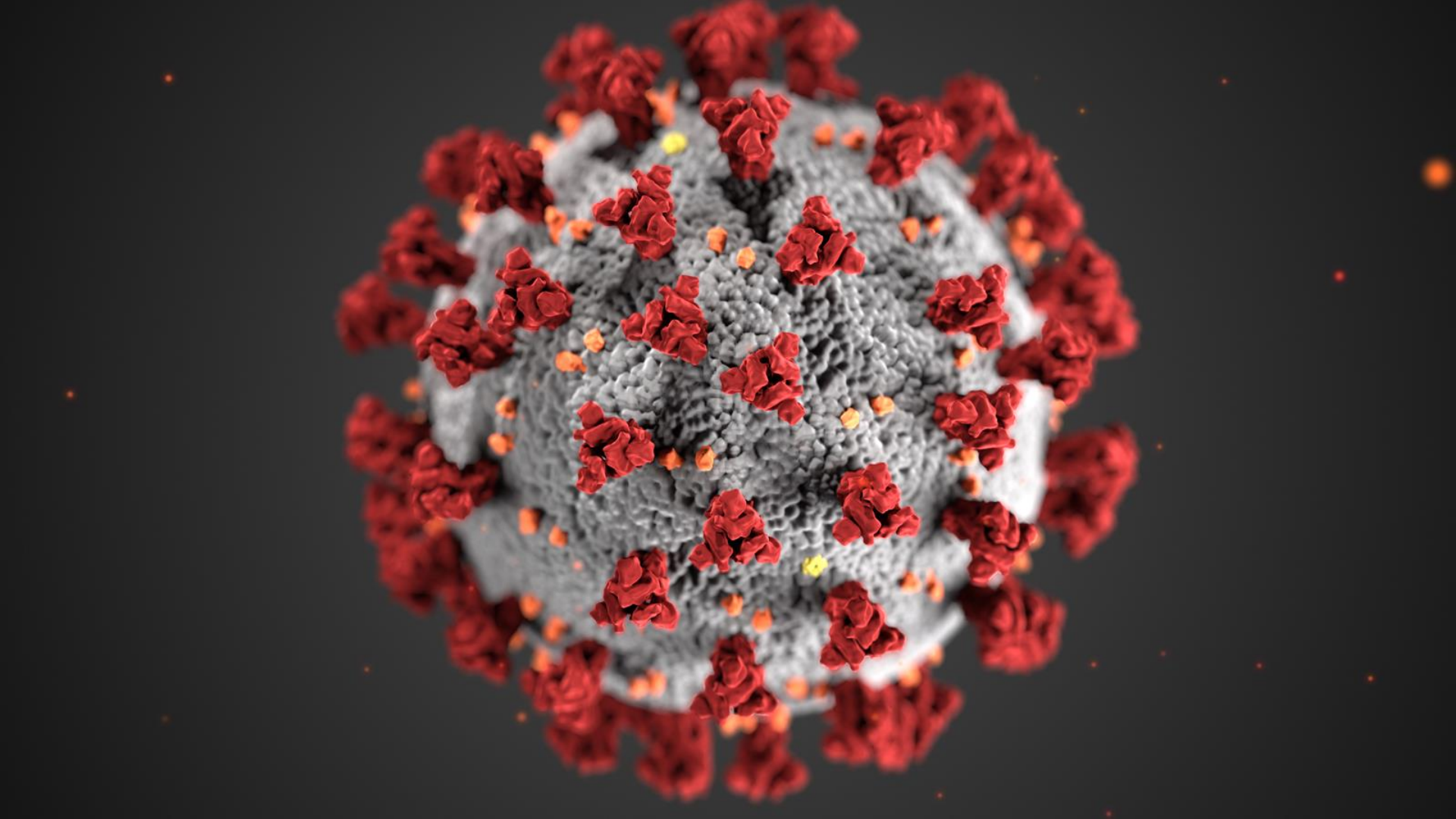
- Quality & satisfaction



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Incubation period: 2-14 days

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Common Presenting Symptoms: [variable!]
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Pulmonary: cough, **shortness of breath**
Constitutional: fever, body aches, chills, fatigue
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Why it matters:
Life threatening: Pneumonia/ARDS, exacerbation of chronic illness, myocarditis, MIS-C

Quality of life: time off from work/school, long covid

Diagnosis: therapeutic options, prevention of spread

RSV

Incubation period: 3-6 days

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Common Presenting Symptoms:
ENT: **severe congestion and mucous production**
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Why it matters:
Life threatening: 2nd most common cause of death worldwide under age 1 year

High risk: infants/elderly/asthmatics, secondary infections are common

Diagnosis: Prevention of spread to high risk individuals, monitoring reactive airway

Influenza

Incubation period: 1-4 days

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Why it matters:
Life threatening: Pneumonia/dehydration, high risk in pregnancy/prematurity/elderly

Quality of life: time off from work/school, strain on schools/hospitals

Diagnosis: Therapeutic options/prophylaxis, prevention of spread

IDSA Guidelines Flu: Who needs a test?

Outpatients

If the flu is high in your area:

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During periods of low flu activity: test before assuming it's the flu

IDSA Guidelines Flu: Who needs a test?

Hospitalized Patients

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- They have worsening cardiopulmonary issues that could be correlated to flu[asthma, COPD, heart dz]

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- Develop acute onset of respiratory symptoms with or without fever while in the hospital

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- Look like flu and have a link to someone with flu or have traveled where flu is spreading

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During periods of low influenza activity:

- Look like flu and have a link to someone with flu or have traveled where flu is spreading
- Acute febrile respiratory tract illness especially children and adults who are immunocompromised or at high risk of complications

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-If RIDTs are used, then you shouldback up negatives with PCR

https://www.idsociety.org/practice-guideline/influenza/

Benefits of PCR Testing?

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- Sensitivity
- Improving turnaround times & cost
- Panel options
- Role of surveillance

Benefits of PCR Testing

Sensitivity:

Influenza: Sensitivities of RIDTs are generally approximately 50-70% compared to 95-100% for PCR testing
https://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm

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Covid-19: “Typically, the sensitivity of a single antigen test is 30% to 40% lower than for RT-PCR, depending on whether tested subjects were symptomatic or asymptomatic”

https://www.idsociety.org/covid-19-real-time-learning-network/diagnostics/rapid-testing/

Benefits of PCR Testing

Real world benefit of increased sensitivity?

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- We had a 10% false negative rate for flu

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Real world benefit of increased sensitivity?

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- We had a 10% false negative rate for flu
- Discovered an additional 8% were RSV+

https://p.widencdn.net/fhd4k4/Cepheid-Millard-Henry-Clinic-Case-Study-US-IVD-0716-English

Benefits of PCR Testing

Real world benefit of increased sensitivity?

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Real world benefit of increased sensitivity?

- **Confidence in results**
  - *Decreased patient anxiety*
  - *Less antimicrobial use*
  - *Guides additional testing?*

Benefits of PCR Testing

- Sensitivity

- **Improving turnaround times & cost**


Panasonic
DVD
DIRECTV
RCN+

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Benefits of PCR Testing

- Sensitivity

- **Improving turnaround times & cost**

  - PCR has always been better technology..
  - Our typical turnaround time is 45 minutes from swab to discussion with patient
  - Reimbursement has improved

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- Sensitivity
- Improving turnaround times
- **Panel Options**

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Real world benefit of **panel options**?

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Real world benefit of **panel options**?

- Fewer swabs
- Patient Satisfaction
- Sometimes I am wrong…

Benefits of PCR Testing

- Sensitivity
- Improving turnaround times
- Panel options
- **Role of surveillance?**

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Role of PCR panels in **surveillance**?

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- 2021 Summer RSV

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- 2021 Summer RSV
- Post omicron mini flu season[Spring 2022]

Benefits of PCR Testing

Role of PCR panels in **surveillance**?

- 2021 Summer RSV
- Post omicron mini flu season[Spring 2022]
- What does the future hold?