

# COVID in Senior Living Sites

IPALTC Webinar

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John Mielke MD, CMD and Sandy Turbes MD

# Objectives

- Share the experience of Genevive, a geriatric practice in Minnesota
- Facility preparation
- Resident clinical presentation
- Initial outbreak management
- Testing

# Disclosures

- Dr Turbes and Mielke have no conflicts of interest to disclose.



# Genevive medical practice

- A value based geriatric practice established in 2003
- Late 2019, new EHR was introduced to Genevive
- March 1, 2020 three practices merged (Allina, Optage and Genevive)
- 200 facilities and 5,000 patients, 180 employees (61 providers)
- Early April 2020, decision to meet daily for COVID planning.
- Daily meetings for four months to discuss every aspect of COVID management

# Genevive's clinical experience

- April 13: 22 COVID positive cases, 10 deaths in 15 facilities
- July 13: 116 cases, 175 deaths, 228 recovered
  - Genevive had >10% of deaths in Minnesota
- Current: 620 total cases, 98 active cases, 198 deaths, 306 recovered
- No providers or nurses with COVID disease

# Our group's response to COVID-19

- Scrambled to find, make, beg and borrow: PPE
- Went into “lock down” mode early: No visits to facilities
- Developed telehealth templates, apps (FaceTime, Zoom, Skype)
- Outside lab for testing, nursing “swab team,” weekly COVID testing clinic
- Statewide advocacy with MAGIC (Minnesota Association of Geriatrics-Inspired Clinicians):
  - Developed policies and protocols for PPE, telehealth, lock down, COVID management
  - State level advocacy for COVID focused units
  - Testing protocols
  - <https://www.minnesotageriatrics.org/cpac-and-resources.html>
- Daily meetings April – July 2020

# COVID response: Phase 2

- Providers invited back to facilities
  - Some facilities were too challenged to do telehealth visits
- More availability of PPE
- Helped organizations with Point Prevalence Survey testing
- Kept updated on changing guidance/testing/shortages
- Utilizing PPE resources appropriately
  - Providers bring PPE supplied by our practice - not using facilities' supplies
- Use COVID specialty units effectively

# Facility level preparation

- Finding and maintaining adequate PPE supplies:
  - Gloves, masks, face shields, gowns, disinfectant wipes
- Identifying a COVID wing/unit/floor for your large-scale outbreak
  - Cohorting residents
  - Staff training
  - Ending transmission-based precautions: time and symptom-based
- Identifying an external COVID facility
  - Facilitating rapid transfer of the isolated individual(s)
- New patient admitting policies
  - Quarantine for 14 days
- Patients exposed or potentially exposed, awaiting results:
  - Isolation?
  - PPE use



# Facility level preparation

- Reduce risk to staff and residents
  - Eliminate all nebulizer treatments if possible
  - No outside visitors
  - Limit outside vendors to essential services
  - Stop all group activities
- Limit unguarded staff interactions
  - Break rooms, social events
- Limit multi-facility workers
- Coach staff on personal safety when away from work

# Facility Preparation: Medical Director role

- Proactive, anticipate the outbreak
- Preparation checklist
- Help them find resources: PPE, CDC guidance, Testing labs
- Case by case decision-making: hospitalization/transfer to a COVID unit
  - Decisions about ending transmission-based precautions (10/14/20 day timelines), or quarantine for exposed and new residents
  - ACP: Prognosis/Care Plan mismatches
  - CPR policy for COVID+ patients:
    - fit-tested N95? HEPA filter for bag-valve mask?
- Attend remote meetings when possible

# Over to Sandy Turbes . . .

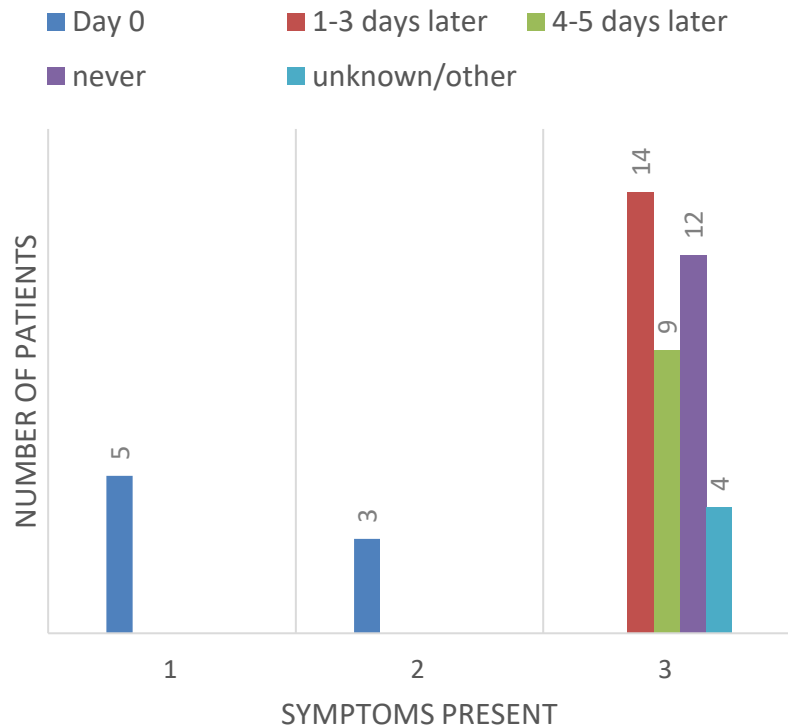


# Resident presentation

- Identify positive residents
  - Symptomatic
  - Exposed
  - PPS (point prevalence survey) screening
- Negative results
  - If very suspicious symptoms, or somewhat suspicious and in an outbreak – retest, 24-72 hours later
- Positive/asymptomatic may later become symptomatic

# Symptoms at time of test

## PRESENCE/ABSENCE OF SYMPTOMS AT TESTING



- Outbreak with 47 of our patients:
  - 5 had symptoms prior to testing
  - 3 had symptoms noted on day of testing
  - 39 had no symptoms at time of test
    - 14 had symptoms develop 1-2 days after testing
    - 9 had symptoms develop 4-5 days after testing
    - 12 never had any documented or significant symptoms
    - 4 not known/other
      - Eventually had symptoms but very either delayed, not documented, or not clear in the documentation
- **Most of those with positive test had no symptoms at the time but went on to develop symptoms.**

# Subtle signs and symptoms

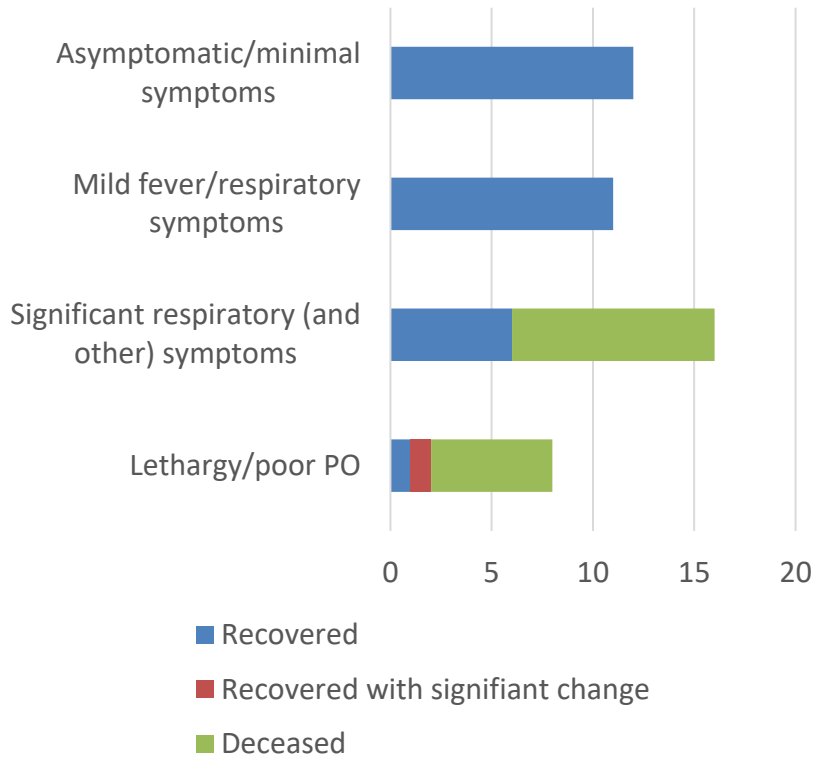
- Lethargy
  - Sleeping more, not wanting to get out of bed
- Decreased PO intake
  - Not initiating eating due to lethargy
  - Decreased appetite
  - Loss of taste/smell
- Often not dramatic
- Staffing issues may make these changes hard to detect
  - Staff may not know baseline
  - Less charting in crisis mode

# Typical signs and symptoms

- Hypoxia
  - May not be picked up as significant
- Fever
  - Low grade fever is the norm
- Next slide groups the same 47 residents in terms of their overall clinical picture, and outcome

# Residents' primary symptoms and outcomes

Residents' primary symptoms and outcomes



•Asymptomatic/minimal symptoms: 12/47

•Mild fever/respiratory symptoms: 11/47

•Significant respiratory and other symptoms: 16/47

•Lethargy and poor PO: 8/47



# Outbreak – Initial management

- Staffing
  - If crisis staffing: have standing “medications to hold” orders ready to deploy (*example available*)
- Outbreak level testing
  - Rapid turnaround is key
  - Frequency
- Cohorting residents
  - Moving residents - masking during move
  - Takes significant time
- Review and enhance IPC
  - Buddy system
  - Audits

# Outbreak – Patient management

*How will providers know how patients are doing?*

- Nurse communication to providers
  - Do staff know the resident's baseline
  - Will they be able to call provider
  - EHR documentation
- Provider visits/check-in
  - Telehealth
  - In-person

*Regular proactive communication based on facility stress level*

# Outbreak – Patient management

- Goals of care: talk to families about COVID-specific plan
  - Hospitalize vs comfort focus
  - ACP appropriate for goals of care
- Monitoring VS and PO intake
  - VS are part of COVID monitoring, but not always all VS (blood pressure)
  - O2 saturation:
    - Standing house orders to start O2
    - Emphasize importance of calling and charting when starting O2, or increasing O2 needs
  - Emphasize importance of charting and calling for decreased PO intake

# Outbreak – Patient management

- Labs and imaging
- When to consider hospitalization
- Nonpharmacologic treatments
  - Oxygen
  - Position changes
- IV fluids
- Medications
  - Review all medications
    - Coumadin
    - Insulin
    - Hold non-essential
  - Treatments for COVID-19
    - We review literature and try to practice evidence-based medicine
    - Consultant options – hospitalist, ID
  - Comfort medications for end of life
    - Can be rapid

# Testing

- **Diagnostic** – identify current infection
  - Symptoms or
  - Exposure
- **Screening** – identify infected persons to prevent transmission
  - No symptoms or known exposure
  - Example: SNF
- **Surveillance** – identify prevalence and trends at population level
  - No individual results

# Rapid antigen test for COVID-19

- Devices distributed by federal government to increase testing in SNFs
- Have FDA EUA for testing symptomatic individuals (first 5-7 days)
- CDC providing guidance for use in SNF screening, given delays in result reporting of PCR tests
- Lower sensitivity, similar specificity to PCR

# COVID-19 tests: PCR vs Antigen

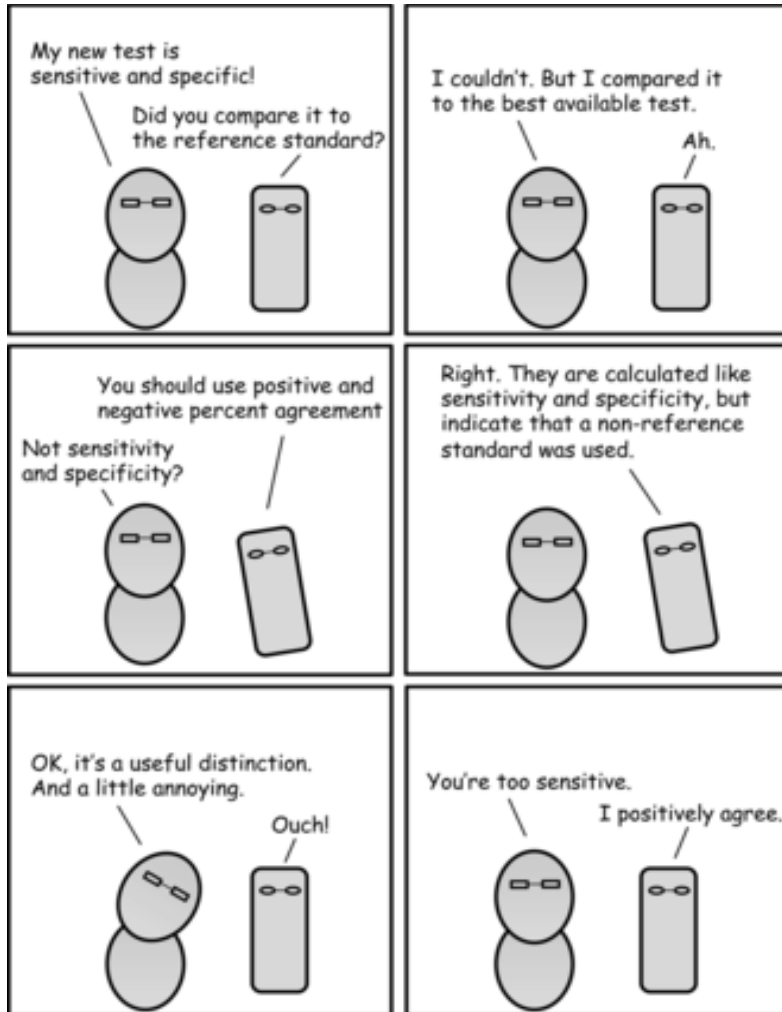
	<b>MOLECULAR (SWAB/PCR)</b>	<b>ANTIGEN TEST</b>
<b>Also called</b>	NAAT (nucleic acid amplification test) = PCR test	Rapid test (some PCR tests are rapid, but the term “rapid test” usually means this one, antigen)
<b>Specimen type</b>	Nasal, nasopharyngeal, or throat (or saliva)	Nasal, nasopharyngeal, or throat
<b>Use of test</b>	Active infection, testing asymptomatic individuals	Active infection ? asymptomatic
<b>Test shows</b>	Presence of virus RNA	Proteins (antigens) on surface of virus
<b>When to test</b>	5-14 days after exposure; within about 10 days of onset of symptoms	Within 5-7 days days of onset of symptoms
<b>Turnaround time</b>	1 to several days Rapid/point-of-care in some cases	Rapid/point-of-care: one hour or less

# COVID-19 tests: PCR vs Antigen

	<b>MOLECULAR (SWAB/PCR)</b>	<b>ANTIGEN TEST</b>
<b>Result shows</b>	Positive/Detected; Indeterminate; Negative/Not Detected	Positive, Negative
<b>LAB sensitivity</b>	Very high	84-98% Varies between the available tests
<b>LAB specificity</b>	Very high	96-100%
<b>Real life (clinical) sensitivity</b>	Probably around 80% Range 60% to 95% Depends on: what test is used; where/how specimen obtained and handled; and time in the infection	Lower... probably 60-80% *Not enough experience to know for sure.  Confirm a negative test with PCR, if high pretest probability
<b>Real life (clinical) specificity</b>	High specificity; low false positives  (If they occur, lab errors or cross- contaminating specimens)	Probably high specificity *Not enough experience to know for sure.  Confirm a positive test with PCR, if very low pretest probability



# Sensitivity? Or Positive Percent Agreement?



## How the SARS-CoV-2 EUA Antigen Tests Work

“Limited evidence on performance and use. There is very little literature available that discusses test performance of antigen testing for COVID-19. Guidance on the use of these tests in the pandemic setting may be limited.”

<https://asm.org/Articles/2020/August/How-the-SARS-CoV-2-EUA-Antigen-Tests-Work>

Image source:  
<https://jcm.asm.org/content/55/11/3153>

# Interpreting antigen test results

- Sensitivity 70%; Specificity = 96%  
Moderately high pre-test probability – 30%

*Sensitivity is lower than for PCR test.*

	REALLY HAVE COVID-19	REALLY DON'T HAVE COVID-19	
POSITIVE TEST	21	0.8 (False positive)	PPV: 96.3% (21/21.8)
NEGATIVE TEST	9 (False negative)	67.2	NPV: 88.2% (67.2/76.2)
Total	30	70	

*Example:  
Symptomatic person  
or  
Roommate of a  
known COVID +  
resident*

*If high pretest  
probability– good  
positive predictive  
value (PPV).*

*Move the resident to  
COVID unit without  
delay*

# Interpreting antigen test results

- Sensitivity 70%; Specificity = 96%  
Low pre-test probability = 5%

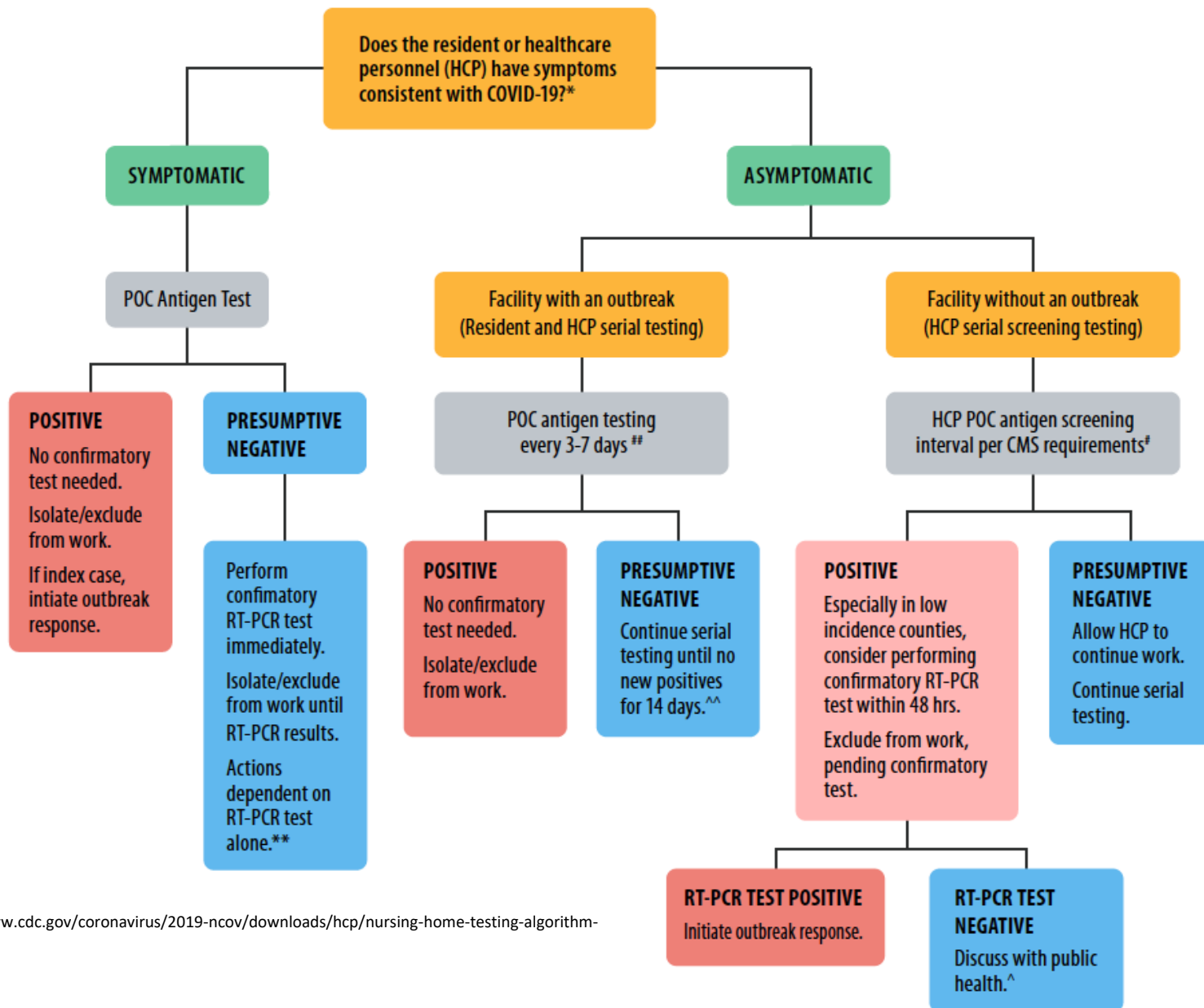
	REALLY HAVE COVID-19	REALLY DON'T HAVE COVID-19	
POSITIVE TEST	3.5	3.8 (False positive)	PPV: 47.9% (3.5/7.3)
NEGATIVE TEST	1.5 (False negative)	91.2	NPV: 98.3% (91.2/92.7)
Total	5	95	

*Example:  
Weekly screening in a facility*

*In low prevalence or low pretest probability – good negative predictive value (NPV).*

*Staff person can go work.*

# CONSIDERATIONS FOR INTERPRETING ANTIGEN TEST RESULTS IN NURSING HOMES



<https://www.cdc.gov/coronavirus/2019-ncov/downloads/hcp/nursing-home-testing-algorithm-508.pdf>



# New screening requirements in SNF

- Must test residents and staff (including contracted workers)
  - When symptomatic
  - In outbreak
  - Routine (staff and contracted workers)

**Table 1: Testing Summary**

Testing Trigger	Staff	Residents
Symptomatic individual identified	Staff with signs and symptoms must be tested	Residents with signs and symptoms must be tested
Outbreak (Any new case arises in facility)	Test all staff that previously tested negative until no new cases are identified*	Test all residents that previously tested negative until no new cases are identified*
Routine testing	According to Table 2 below	Not recommended, unless the resident leaves the facility routinely.

\*For outbreak testing, all staff and residents should be tested, and all staff and residents that tested negative should be retested every 3 days to 7 days until testing identifies no new cases of COVID-19 infection among staff or residents for a period of at least 14 days since the most recent positive result.

Source: <https://www.cms.gov/medicareprovider-enrollment-and-certificationsurvey/certificationgeninfo/policy-and-memos-states-and/interim-final-rule-ifc-cms-3401-ifc-additional-policy-and-regulatory-revisions-response-covid-19>

# Outbreak testing

- New case of COVID-19 infection in any staff, or resident (facility-acquired)
  - All staff and residents should be tested
  - All staff and residents that tested negative should be retested every 3 days to 7 days until no new positives among staff or residents for a period of at least 14 days.
  - Do not retest if positive, or positive in last 3 months
  - If positive over 3 months ago – test again
- Outbreak containment – ideal practice to get under control:
  - Results in **24 hours\***
  - Test frequency **every 3 days\***
  - **Resources (tests, supplies, staff time) make this very difficult**

\*discussion with CDC epidemiologist

# Routine testing

- Test staff on routine basis
  - Consider testing volunteers; not required
  - Not residents, but consider if out frequently (such as dialysis)
- Based on county positivity rate

**Table 2: Routine Testing Intervals Vary by Community COVID-19 Activity Level**

<b>Community COVID-19 Activity</b>	<b>County Positivity Rate in the past week</b>	<b>Minimum Testing Frequency</b>
<b>Low</b>	<b>&lt;5%</b>	<b>Once a month</b>
<b>Medium</b>	<b>5% - 10%</b>	<b>Once a week*</b>
<b>High</b>	<b>&gt;10%</b>	<b>Twice a week*</b>

\*This frequency presumes availability of Point of Care testing on-site at the nursing home or where off-site testing turnaround time is <48 hours.

Source: <https://www.cms.gov/medicareprovider-enrollment-and-certificationsurvey/certificationengeninfopolicy-and-memos-states-and/interim-final-rule-ifc-cms-3401-ifc-additional-policy-and-regulatory-revisions-response-covid-19>

# Saliva test – future use?

- In Health Affairs Blog Sept. 11, 2020:
  - <https://www.healthaffairs.org/doi/10.1377/hblog20200909.430047/full/>
- Saliva antigen test
  - 70% sensitive, but:
- As a mass screening test
  - Easy to collect
  - Identifies people with higher antigen levels = infectivity
  - Highly specific, low false positives
  - Inexpensive, as low as \$1.00
  - Turnaround time - hours



# A word about ventilation

- Some of our largest outbreaks occurred very quickly
- These buildings are older:
  - Smaller rooms
  - double occupancy, shared bathrooms
- Low cost changes – big benefits:
  - Increase outside air
  - Maximize airflow, replace air in rooms every 10 minutes
  - Install MERV 13 filters (80% removal of aerosols)
  - Schools are considering HEPA filter units in classrooms

# Lessons Learned

- Expect an outbreak
- Have a detailed plan in place
- Assist facilities in testing decisions
- Develop external resources: State dept of health, COVID acilities, PALTC/CDC guidelines

# Lessons learned

- Be aware of subtle and atypical symptoms and signs
- Emphasize communication between facility and provider
- Understand how to use and interpret rapid antigen test
- Focus on frequent testing and rapid result turnaround to contain an outbreak

# Questions Discussion



[John.Mielke@genevive.org](mailto:John.Mielke@genevive.org)  
[Sandra.turbes@genevive.org](mailto:Sandra.turbes@genevive.org)