
Infection prevention and control (IPC) measures taken by Connecticut Nursing Homes (NHs) have contributed to reductions in COVID-19 cases. As we further contain COVID-19, testing and continued IPC vigilance will be mainstay strategies to prevent further outbreaks.

The Centers for Disease Control and Prevention (CDC) and Centers for Medicare and Medicaid Services (CMS) have updated guidance about the role of testing in reopening of NHs.1,2 This guidance from the Connecticut Department of Public Health (DPH) Infectious Diseases Section supplements and updates prior DPH guidance and addresses common questions regarding resident quarantine/isolation, cohorting, and testing. Further guidance on reopening NHs is forthcoming.

Immediate steps NHs should take to strengthen IPC include:1
- Provide additional support to the Infection Preventionist as needed. At least one person with IPC training should be dedicated to on-site management of the IPC Program; Infection Preventionists should be involved in staff/resident/visitor education, staff and resident testing, cohorting, environmental cleaning, and more.
- Create a plan to ensure resident and staff testing occurs in accordance with CDC/DPH recommendations and results are tracked in an organized way.
- NH leadership should become familiar with the latest CDC and CMS guidance for NHs (See References).

Cohorting Guidance
DPH recommends cohorting residents into three separate units/areas, each with its unique PPE use strategy, as outlined in interim guidance from May 11.3

Cohort descriptions are as follows:
- “Positive”: residents within their infectious period4 after testing positive for COVID-19.
- “Negative/unexposed”: asymptomatic residents with no known exposures to COVID-19 during the 14 days prior to their negative test for COVID-19.
  o These residents are COVID-naive and need to be physically separated from those potentially infectious.
  o Recovered residents who meet criteria for lifting of transmission-based precautions4 can also be placed in this cohort.
- “Negative/exposed”: residents under a 14-day quarantine due to exposure or potential exposure to COVID-19.
  o This cohort includes individuals who tested COVID-negative but had roommates who tested COVID-positive, and new admissions or readmissions, even with negative test results.
  o Persons Under Investigation (PUIs) may be moved into this cohort while awaiting test results, or they may stay in place.
New Admissions and Readmissions

New admissions and readmissions with confirmed COVID-19 should be cohorted based on CDC criteria for discontinuation of Transmission-Based Precautions.\textsuperscript{4}

- New admissions and readmissions with confirmed COVID-19 who have NOT met criteria for discontinuation of Transmission-Based Precautions should be placed in the COVID-positive cohort.
- New admissions and readmissions with confirmed COVID-19 who have met criteria for discontinuation of Transmission-Based Precautions can be placed in the “negative/unexposed” cohort because we can assume that they are no longer infectious. They do not have to be quarantined for observation upon admission.

CDC recommends that for new admissions and readmissions with an unknown COVID-19 status, depending on community prevalence of COVID-19, consider placing the resident in observation for 14 days.\textsuperscript{1,5} For individuals who did not have a previous diagnosis of COVID-19 arriving with one or more recent negative COVID-19 test results, the negative result simply indicates that the resident is not positive upon admission; it does not guarantee that they will not start shedding the virus in a few hours to a few days.

- DPH recommends placing new admissions with unknown COVID-19 status in the “negative/EXPOSED” cohort for 14 days upon admission. This recommendation will remain in place until community incidence of COVID-19 is consistently low throughout CT.
  - Single rooms and transmission-based precautions are recommended for this cohort, which can include residents who are asymptomatic and potentially contagious AND residents who do not have COVID-19.
  - Testing at the end of the 14-day quarantine can increase certainty that the resident did not acquire COVID-19 before moving into the “negative/UNexposed” cohort, however this is not a requirement.
- Readmission of residents who have been COVID-negative returning to the NH after a non-COVID acute care hospitalization can be placed into either “negative” cohort. A risk assessment to inform the placement decision should be conducted and documented. Considerations for this risk assessment should include (but not be restricted to) evaluation of:
  - Extent of COVID-19 activity and infection control measures in the hospital. In general, hospitalizations should be considered low-risk for COVID-19 exposure.
  - Transportation mode and potential for unprotected (others unmasked) exposures during transportation.
  - Extent of exposure from potentially higher-risk procedures including IV infusion and dialysis.
  - Level of potential exposure from other procedures performed.
  - Level of physical distancing and source control of others who interacted with the resident.
  - Degree to which the resident can maintain physical distancing.
  - Degree to which the immune system of the resident might be compromised.
  - Risks and benefits of making a room change.

Residents Leaving for Medical Appointments and Other Visits

Previously, DPH had recommended that any resident leaving a NH for any reason should be placed in observation/quarantine for 14 days. With adequate IPC measures, medical appointments are in fact a low-risk activity. Thus, “negative/unexposed” residents who leave a NH for a medical visit do not necessarily need to move to the “negative/exposed” cohort upon return. A risk assessment to inform the placement decision should be conducted and documented. See considerations for hospitalization risk assessment above, which can be adapted to medical appointments and other visits.

Testing of Staff and Residents for Outbreak Control

CDC recently updated their recommendations for testing within nursing homes\textsuperscript{6} and also updated their infection control FAQs to include a section dedicated to testing in nursing homes.\textsuperscript{7} CMS similarly has recommendations for staff and resident testing as part of reopening guidance for NHs.\textsuperscript{2} DPH testing guidance below for nursing home staff and residents is aimed at stopping the transmission of COVID-19 within NHs by identifying potential asymptomatic transmission.
Antigen testing (or “rapid antigen” testing) is not to be used for testing of long-term care staff and residents. There is currently one antigen test with FDA Emergency Use Authorization (EUA), the Quidel Sofia SARS Antigen FIA test. While specificity is high, sensitivity is significantly lower than that of molecular/PCR testing.\(^8,9\) Thus, the package insert states: “Negative results should be treated as presumptive and confirmed with an FDA authorized molecular assay, if necessary, for clinical management, including infection control.” In the long-term care setting where test results play a vital role in infection control, antigen testing is not useful and should not be used due to the need to pursue PCR testing to confirm negative results in any case.

**Nursing Home Testing Contractors**

DPH and the State of Connecticut are committed to assisting long-term care facilities with testing of long-term care residents and staff to prevent and control outbreaks of COVID-19. The State of Connecticut has contracted healthcare organizations to work as “Care Partners” for nursing homes. Care Partners are generally responsible for the following mass testing services during the implementation period (specific responsibilities may vary):

- Bring staff and collection materials to the nursing home required for mass testing.
- Oversee specimen collection for COVID-19 testing, ensuring collection procedures are consistent with CDC guidance\(^10\) and specimen labeling is conducted in accordance with laboratory requirements.
- Submit laboratory specimens and requisitions per laboratory requirements.
- Provide staff with their results and appropriate counseling for positive, negative, or indeterminate results.
- Report testing data to DPH to fulfill reportable disease mandates.

NHs will need to prepare a few items before the specimen collection date:

- Provide Care Partner with a complete list of ALL current residents and staff and any test results. During mass testing of asymptomatic individuals, only staff and residents who have not previously tested positive for COVID-19 should be tested.
- Communicate about the testing process with residents/staff to be swabbed. Resident conservators should be notified as applicable. NHs should discuss with their Care Partner specific items that need to be communicated.

**Staff Testing**

Executive Order No. 7AAA from the Office of the Governor mandates weekly testing of all NH staff who have not previously tested positive for COVID-19 until no new NH-onset positives are found within the NH (among staff or residents) for at least 14 days since the most recent positive result.\(^11\)

While awaiting test results, staff who remain asymptomatic may continue to work.\(^7\) Staff who test positive for COVID-19 and are asymptomatic should be excluded from work until 10 days have passed since the date of specimen collection, assuming they do not become symptomatic. Contact tracing should also be conducted for any staff who test positive (see Contact Tracing section below). Staff who develop symptoms of COVID-19 should follow CDC’s symptom-based protocol for return-to-work.\(^12\)

**Resident Testing**

Baseline COVID-19 testing of all NH residents should be completed.

- Facilities experiencing an outbreak (any resident with NH-onset positive ≤ 28 days, or 2 incubation periods) should test residents (those not previously positive) weekly until no new positives are detected among residents for 14 days.
- If a staff member is found to be COVID-positive, weekly testing of all residents who have not previously tested positive should be conducted until no new positive results are found among staff and residents for 14 days.
- If residents continue to test positive:
  - Each case should be investigated to identify possible infection source(s) and infection control gaps.
  - Contact tracing should be conducted for each case (see Contact Tracing section below), contacts should undergo an evaluation of the exposure, and contacts should be quarantined if appropriate.

   \(^1\) For additional details, please refer to the full document.
Weekly retesting of previously-negative residents should continue until no new NH-onset positives are identified for 14 days (among staff and residents). NHs should document dates of testing and testing results. NH-onset positives are those determined to have been exposed to COVID-19 within the facility.

Residents should be tested in their rooms, and extended use of respirators (or facemasks), eye protection, and gowns can be practiced during serial collection. Gowns should be changed when there is more than minimal contact with the person being tested or their environment. Gowns should be changed if the person being tested coughs on or has significant contact with the gown. Gowns should also be changed if the person being tested is on contact precautions for any reason (C. difficile, MDROs, or transmission-based precautions for residents quarantined in the “negative/exposed” cohort).

Specimens from mass testing (PPS or mass staff/resident testing) should not be submitted to the CT State Public Health Laboratory (SPHL), as rapid turn-around-times for a high volume of specimens cannot be guaranteed. SPHL will process tests in small amounts should a NH suspect an outbreak (>1 individual with suspected COVID-19) and a commercial laboratory is not available to the NH.

Beginning Monday June 22, negative COVID-19 results from SPHL will no longer be communicated by telephone; positive results will continue to be called out. All results are faxed; SPHL can be contacted at 860-920-6500 if results are not received within 72 hours of arrival at SPHL.

Contact Tracing Within the Nursing Home
For residents and staff who test positive for COVID-19, contact tracing should be conducted to identify staff and residents who might have had a significant unprotected exposure within the facility. NHs are responsible for contact tracing and notifying contacts who had significant exposure within their facilities; notifying contacts outside of the facility is the responsibility of the local health department.

Contact tracing is important for controlling outbreaks. Close contacts should be quarantined and tested if there was significant unprotected exposure. Trace close contacts during the period of infectivity of the COVID-positive individual: 2 days prior to symptom onset (or prior to positive test for asymptomatic individuals) until the individual meets CDC criteria for release from transmission-based precautions.

- For healthcare personnel who might have been exposed to an individual with COVID-19, refer to CDC guidance for risk assessment and work restrictions for healthcare personnel with potential exposure to COVID-19.

- For patients and visitors who might have been exposed to an individual with COVID-19, refer to CDC’s community-related exposure guidance.

- Note that unprotected exposures from asymptomatic staff can occur if source control is not consistently used or if staff members are in close contact while eating.

- CDC has resources for patient/family notification when transmission of an infectious disease is suspected in a healthcare setting:
  - Evaluating an Infection Control Breach (for bloodborne pathogens, but can be adapted): https://www.cdc.gov/hai/outbreaks/steps_for_eval_ic_breach.html

NHSN Reporting
On May 8, 2020, the Centers for Medicare and Medicaid Services (CMS) required all nursing homes to report COVID-19 data to CDC’s National Healthcare Safety Network (NHSN). Data submitted to NHSN are shared with CMS on a weekly basis, enabling the agency to evaluate requirement compliance and publicly publish facility-level information. CMS requires facilities to submit data through the NHSN at least once every seven days. Facilities may choose to submit daily or once a week, but the method should be consistent.
DPH is planning to publish NHSN data on a weekly basis and requests that all CT NHs who choose to report weekly do so on Wednesdays by NOON. Doing so will allow for consistency in reports across NHs on a weekly basis. NHs that have decided to submit daily can continue to do so or transition to weekly reporting.

**Use of Air Conditioning (AC) and Fans**

Ensuring comfortable ambient temperatures is important for prevention of heat stroke and dehydration. While there is no official CDC guidance about fans and heating, ventilation, and air conditioning (HVAC) use, there are several considerations that NHs should consider:

- In COVID-positive and COVID-negative/exposed rooms, fans can potentially spread infectious droplets beyond a normal range. HVAC and window AC units have air return vents to reduce the air pressure gradient and are thus a lower risk.
- Air should flow from clean to dirty areas. Exhaust from AC units should be kept away from areas where people may pass by this unfiltered air.
- AC units should have dampers open to maximize outdoor air being brought in, and vents pointed away from individuals who may be infected.
- Window fans should be pointed to exhaust air out the window rather than bring it in, because the large volume of air brought in by fans can push air from the room into common areas.
- Free standing fans not in a window should not be used because they are just blowing air around the room and not providing any dilution benefit.
- NHs should develop a policy or process whereby the Infection Control Practitioner oversees risk assessment, cleaning and maintenance, and safe placement of AC units and fans.

**Resident Room Doors:** On May 29, DPH blast-faxed guidance about resident room doors. Doors are only required to be closed for aerosol-generating procedures conducted in the COVID-positive and “negative/exposed” cohorts.

**Recreation and Visitation**

NH administrators should review CMS’s Nursing Home Reopening Recommendations for State and Local Officials, which includes recreation and visitation guidance. Connecticut-specific guidance on reopening NHs is forthcoming.

**Indoor Recreation and Outdoor Time by Cohort**

Recreation and time outdoors are important for the well-being of NH residents. All NH residents can safely enjoy both indoor recreation and outdoor time; effective cohorting helps with infection control during these activities. Recreation should occur at least once per week, be with others from the same cohort, and involve physical distancing (> 6 feet) and face coverings as tolerated.

- “Negative/unexposed” residents should be allowed to have group activities, including outdoor time, with physical distancing, face coverings, and handwashing as appropriate.
- “Negative/exposed” residents are under quarantine and thus should be kept to their rooms as much as possible.
  - This cohort should not have any communal activities; residents in this cohort should not interact with each other whether within the facility or outside.
  - This group should be provided recreational services inside their room and be allowed outside their room on an individual basis with staff accompanying them in full transmission-based precautions to ensure these potentially contagious residents do not expose others.
- “Positive” residents can have group activities and outdoor time with appropriate control measures, in addition to staff with full transmission-based precautions.

If “exposed” and “positive” residents must pass through other units to reach the outdoor area, then the hallways must be clear of residents, and the residents must wear face coverings (as tolerated) and not touch any surfaces as they pass through.
If common areas are shared between cohorts:
- “Negative/unexposed” residents should use the area first, before the “Positive” residents. (Exposed residents under quarantine should not have communal activities).
- Deep cleaning should occur between cohorted usage, in addition to daily terminal cleaning.
- Enough time should be allowed for adequate air exchange\(^{18}\) after the “positive” residents use the common area. A NH’s Engineer or Infection Preventionist can help determine how long an area should be vacated after use by individuals with COVID-19.

**Outdoor Visitation for Residents in the “Negative/Unexposed” Cohort**
When NHs have effectively cohorted residents, the “negative/unexposed” cohort can have outdoor visits given a “Visitation Plan” is in place, taking into consideration:
- Visitors are screened per facility policies and not allowed into the interior of the building(s).
- All visitors and residents wear cloth face coverings or procedure masks. Ensure the availability of hand sanitizer and extra facemasks.
- Physical distancing (at least 6 feet apart) is adhered to.
- Adequate staff are present outside during the entirety of the outdoor visitation period to monitor compliance with mask wearing and physical distancing.
- Visitor limits are instituted to minimize the number of people to which a resident is exposed.
- Visitations should be scheduled such that the total number of visitors present does not exceed maximum established visitor limits. The visitor limits should be determined by the facility based on availability of outdoor space adequate to maintain appropriate physical distancing and the ability to monitor for infection control measures.

Residents from the “positive” and the “negative/exposed” cohort under quarantine should be allowed visitation via virtual platforms or window visits, but not the outdoor visitation described above.

**Short-Term Rehabilitation (STR) and Rehabilitation Gym Use**
Quarantining STR patients for 14 days after admission in accordance with the guidance above can potentially interfere with rehabilitation plans. Every effort should be made to conduct rehabilitation in the room of the quarantined STR patient. Should a patient require use of the rehabilitation gym equipment before meeting criteria to lift transmission-based precautions, DPH offers the following infection control considerations:
- Schedule quarantined residents for the last rehab session(s) of the day.
- Full transmission-based PPE must be worn by the therapist(s); these staff should be trained in PPE use.
- If multiple residents are allowed in the gym at the same time, they should be appropriately physically distanced, and any equipment used is adequately disinfected between uses.
- Thorough disinfection of all gym equipment should be conducted after each use.

**References: Note that COVID-19 websites are updated regularly.**
11. CT OTG. Executive Order 7AAA: https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7AAA.pdf
18. CDC. Guidelines for Environmental Infection Control in Health-Care Facilities (2003), Appendix B. Air. Table B.1. Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency. https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1