

Title: Comprehensive testing for coronavirus disease 2019 (COVID-19) among residents and staff at long-term care facilities: a blueprint

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The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can cause critical illness and death, particularly among older individuals with chronic health conditions. A proportion of the elderly population, many of them frail, are concentrated in the [over 15,000 nursing homes and other long-term care facilities](#) (LTCFs) in the United States. Efforts to reduce the burden that COVID-19, the illness caused by the SARS-CoV-2 virus, in this setting are particularly important. Residents of LTCFs suffer [particularly high morbidity related to COVID-19](#), and transmission is facilitated by LTCFs' congregate nature.

In the Centers for Disease Control and Prevention's (CDC's) [recently issued guidance](#) for the protection of residents and staff of LTCFs, emphasis is placed on prevention and early identification of COVID-19 infection. Yet whom to test, when to test, and at what [intervals](#) to test remain largely undefined. Because older individuals [often manifest atypical symptoms of COVID-19](#)—or no symptoms at all—symptom-based testing of residents in these settings is insufficient to identify current and future outbreaks. Reports of early outbreaks in LTCFs in the United States have demonstrated the [pervasiveness of asymptomatic spread](#) in these settings. It is important to note that during these outbreaks, there was not an opportunity to conduct universal source control and staff screening. Additionally, LTCF staff, many of whom may work multiple jobs in multiple settings, may acquire COVID-19 infection elsewhere and serve as asymptomatic vectors to LTCF residents. Therefore, comprehensive testing at the facility level is needed to inform the isolation and cohorting of residents and staff.

Guidance, infrastructure needs, and staffing requirements for comprehensive testing in long-term care are not well characterized at present, coincident with the dynamic nature of the COVID-19 pandemic overall. Provided herein is a blueprint for comprehensive testing for COVID-19 in LTCFs drawing from our implementation experiences in which testing was

successfully executed in the setting of cross-sector partnerships. We focus on the essential elements of stakeholder engagement; workflows and personnel; payment; and test result follow-up (**Table**). This blueprint can serve as a guide for clinicians, administrators, and payers seeking to reduce the harm from COVID-19 in LTCFs.

Stakeholder engagement

Comprehensive testing for COVID-19 in LTCFs likely requires a partnership among clinical, laboratory, and public health organizations. LTCFs uncommonly have laboratories on-site and have [historically faced barriers](#) to accessible laboratory assessment and/or swift communication of results. Pre-existing clinical leadership at LTCFs may need additional personnel resources to implement and oversee COVID-19 testing efforts because many medical directors - physicians and advanced-practice providers - who care for patients at LTCFs [work in multiple facilities with different protocols](#). Prioritization for LTCF testing efforts can be guided by state and local health departments that are more comprehensively tracking infection “hot spots.”

Stakeholders required to implement testing strategies therefore include:

1. A personnel resource that is clinically comprehensive and responsible
2. A clinical laboratory
3. State and/or local public health department

In this example case, clinical oversight and personnel were provided by a community health center, which is located near the LTCF and is a trusted organization in the surrounding community. A memorandum of understanding and standing order for testing were crafted *a priori* so that clinical information could be shared securely between the community health center

and the LTCFs (attached and available for use, provided in appendix). The laboratory was notified of the initiative and agreed to prioritize the processing of results to inform immediate cohorting and staffing decisions. The public health department provided initial identification of the “hot spot,” logistical oversight, and guidance for best practices and cohorting of patients.

Workflows and personnel

Two unique workflows are needed for comprehensive testing at an LTCF: one for the testing of residents and one for staff (either all staff or only those with patient-facing duties, depending on testing capacity) (**Figure**). Testing is most useful to inform cohorting and staff decisions if it is done comprehensively over the shortest period of time. Staff whose COVID-19 results are pending, or who are not tested, may need to be in isolation until their results are known. In this way, two separate days of testing (or another way to test in “waves”) is likely required for staff, assuming a return-time for test results of less than 24 hours (or sooner in the event of point-of-care testing) for prioritized specimens.

In our experience, the community health center deployed staff to this initiative over two-day periods to the LTCF. On day one, two testing teams were required: one team for residents and one team for staff. Each team required one clinical professional to perform the test, wearing recommended personal-protective equipment (PPE), and one non-clinical staff-member who assisted with the preparation and processing of samples (who did not require PPE).

Resident testing needs an additional team-member deployed by the LTCF who has pre-existing relationships with the residents, especially for residents with cognitive impairment for whom patient identification and engagement can be challenging. This individual can assist in verifying residents’ identity and introduction of the testing process and the clinical team as well,

and provide an additional layer of respect for residents being tested by clinicians who do not have pre-existing clinical relationships. In our experience, in a typical LTCF, 100-150 patients can be tested in a six-hour period. We suggest this process begin at approximately 10am when residents are awake and morning rounds are completed.

On day 2, one clinical team (one clinical professional and one non-clinical staff-member) from the health care organization return to the LTCF to complete testing of the other staff who had not been tested on day 1 (“wave 2” of testing for staff).

Payment

In April 2020, the [Families First Coronavirus Response Act \(FFCRA\)](#) and the [Coronavirus Aid, Relief, and Economic Security \(CARES\) Act](#) mandated that private and public health insurers as well as employer group health plans cover COVID-19 testing with no out-of-pocket expenses; uninsured patients are also exempt from charges. Testing therefore incurs no direct cost to patients nor to staff.

Health care organizations (community health centers, hospitals or other clinical enterprises) providing staff to perform testing have three options regarding reimbursement for the services. First, they can choose to not provide any billable services. Second, they can construct billable visits out of testing encounters for all staff by performing brief clinical assessments including vital signs, a physical exam and counseling. Third, they can choose to provide billable visits to a subset of those staff being tested, for example, those with positive symptoms or with greater likelihood for morbidity from COVID-19 due to age or health conditions. Because of the bundled payment-structure of LTCF care, payment for testing residents is unlikely to be a productive avenue of timely reimbursement.

Follow-up

Due to community spread of COVID-19, follow-up testing is required to ensure that threats of new infection are mitigated. Once comprehensive testing of residents and staff is complete, those at highest risk for new infection are those entering and exiting the LTCF with the highest frequency: staff members. The incubation period of COVID-19 is thought to be approximately five days, so re-testing staff at 10 to 14-day (approximately biweekly) increments is likely an appropriate and feasible strategy (**Figure**). This can again be accomplished over a two-day period with one clinical team.

Retesting

The topic of retesting is a dynamic one and guidance will likely change as new evidence becomes available. Despite this, it remains advisable that there likely should be continued re-testing of initially-negative COVID-19 residents and staff until point prevalence surveys (PPS) fail to identify new cases of COVID-19. Retesting of staff should likely occur at a frequency of 7-14 days until there is a steady and prolonged decrease or absence of new community-based COVID-19 cases.

We suggest the following considerations, [based on the best available evidence at present](#), for retesting of residents:

- Retest any resident who develops symptoms consistent with COVID-19, regardless of when the last test was.

- Retest all residents who previously tested negative at some frequency shortly (i.e. 3-10 days after the initial PPS) and then approximately weekly thereafter to detect those with newly developed infection; consider continuing retesting until PPSs do not identify new cases.
- If testing capacity is not sufficient for retesting all residents, retest those who frequently leave the facility for dialysis or other services and those with known exposure to infected residents (such as roommates) or staff/health care personnel.
- Use retesting to inform decisions about when residents with COVID-19 can be moved out of COVID-19 wards consistent with [CDC guidance](#) on discontinuation of transmission-based precautions in health care settings.
- In all of these re-testing scenarios, local needs and resources dictate intervention.

The bottom line—and looking forward

Comprehensive testing and follow-up for COVID-19 in LTCFs is feasible. Public health departments can use epidemiologic data to inform which LTCFs should be prioritized and when, and can facilitate linkages between LTCFs and health care organizations with the capacity to perform testing if not available within the LTCF. Payment options for health care organizations who are deploying clinical staff to LTCFs for comprehensive testing are limited. Given that the [majority of LTCF residents' care is paid for by Medicaid](#), and that these patients [historically represent the costliest patients for Medicaid and Medicare](#), we recommend that all payers, including the Centers for Medicare and Medicaid Services, allocate resources to support [increased safety, quality and testing in LTCFs](#) as it is recognized that [reopening long term care facilities across the country](#) is a unique effort. These efforts will support decisions that will save

lives of patients in LTCF and facilitate the ongoing partnerships between health care organizations and LTCF to better respond to future outbreaks.

Table

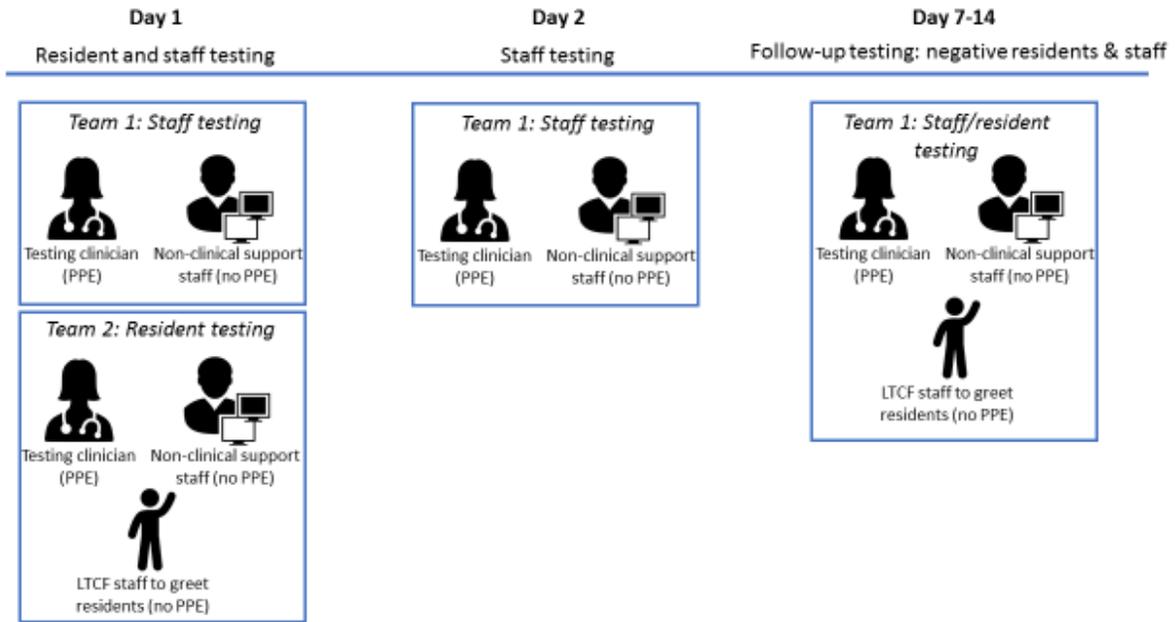
Essential elements for implementing comprehensive screening for COVID-19

in long-term care facilities (LTCFs).

Domain	Essential Element
Stakeholder engagement	Partnership between LTCF, health care organization, clinical laboratory, and health department
	Memoranda of understanding between LTCF and health care organization (see Appendix)
	Standing order from facility medical director for mass-testing of COVID-19 (see Appendix)
	Potential resolution from leadership/board[s] of directors to support partnership and testing, if needed
	List of names and dates of birth/two identifiers for all residents and staff
	List of already-tested and positive residents and staff to prevent needless retesting
	Up-front agreement of testing implications and quarantine decisions based on symptoms-based or test-based methodology
Workflows and personnel	Unique workflows for testing residents and for testing staff
	Testing labels pre-printed to maximize efficiency on testing day
	Extra testing swabs for on-site add-ons (~10% from baseline numbers)
	Temperature regulated storage container or cooler with ability to check and document temperature hourly
	Two days/waves of services provision: one for all residents and first half of staff; one for second half of staff
	Two clinical professionals and two non-clinical staff on day (“wave 1”); one clinical professional and one non-clinical staff on day (“wave two”)
Payment	Constructing billable visits out of some or all testing encounters, as appropriate
Follow-up	Retesting of staff at weekly intervals with one clinical professional and one non-clinical staff

	Ideally and if able, fit-test all clinical staff for N95 masks to further support cohorting effectiveness
	Workflow for positive result communication, to involve LTCF leadership and HR staff
	Workflow for negative result communication to involve LTCF leadership notification for cohorting decisions

Figure



Personnel requirements for comprehensive testing for COVID-19 at long-term care facilities.

Abbreviations:

LTCF: long-term care facility

PPE: personal protective equipment

Example Standing Order

Policy Name: COVID-19 Testing of Residents and Staff of Organization X

Effective: x/x/xx

Policy: Testing for COVID-19 is able to be done. Once a test for COVID-19 is ordered by a Physician/APRN/PA providing care to a resident or employee, the Medical Director has developed a standing order and protocol to allow the test to be ordered and completed.

Rationale: Testing can be conducted easily and allows for expansion of testing to more individuals if done with a standing order.

Procedure: A nasal swab or other antigen-based test will be collected for all appropriate persons. A focused history may be performed, and should include vital signs and background questions specific to COVID-19 risk. A COVID-19 test will be ordered by the medical director or designee for any patient or staff member/employee. Results will be communicated to facility administration and medical leadership and appropriate, person-focused clinical decisions that support decreased COVID-19 spread will be made on an individual basis. Consent for procedure is like other lab-based testing, and is verbal. Residents or staff may refuse testing verbally as well.

Example Memorandum of Understanding

This Memorandum of Understanding (MOU) dated x/x/xx sets forth the terms and understanding between Organization X and Organization Y.

Background

This mission of Organization X, a long-term care facility, is to ...

The mission of Organization Y is to...

Both agencies agree there is a need for additional testing of residents and staff for COVID-19 at Organization X.

Purpose

The MOU will establish a collaborative relationship between Organization X and Organization Y. The goal of the collaborative is to enhance patient care by managing patients who may be at risk for COVID-19 infection.

The above goals will be accomplished by undertaking the following activities:

Organization Y will provide on-site COVID-19 testing services at Organization X.

Frequency of services will be determined by need.

Results of testing will be provided to medical and organizational leadership of Organization Y by Organization X for the purposes of supporting cohorting of patients and staff to decrease COVID-19 infection rates.

Funding

This MOU does not indicate a commitment of funding in any way.

Duration

This MOU is at-will and may be modified by mutual consent of authorized officials from Organization X and Organization Y. This MOU shall become effective upon signature by the authorized officials from Organization X and Organization Y and will remain in effect for 1 year from date of signature until modified or terminated by any one of the partners by mutual consent.