

Public Health Emergency Preparedness and Response: Non-Pharmaceutical Interventions to Reduce Transmission of Viral Respiratory Infections in Long-Term Care Communities, Updated 2026

Community Preventive Services Task Force Finding and Rationale Statement Ratified June 2024

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CPSTF Finding and Rationale Statement

Context

Long-term care (LTC) communities provide a broad range of health, personal care, and supportive services to residents who may have limited selfcare capabilities due to physical, cognitive, or mental disability. Individuals may receive long-term care services in a variety of settings, including residential care communities or group homes, continuing care retirement or life care communities, assisted living, nursing homes, or skilled nursing facilities. Services offered may include nursing care, 24-hour supervision, three meals a day, and assistance with activities of daily living (Harris-Kojetin 2019, NIH National Institute on Aging 2019).

The COVID-19 pandemic highlighted the vulnerability of residents in LTC communities to viral respiratory infections. LTC community residents make up less than 1% of the U.S. population but accounted for more than 23% of all COVID-19 deaths as of January 2022 (Kaiser Family Foundation 2022).

CDC's guidance to prevent and slow the spread of viral respiratory infections includes vaccination, treatment, and nonpharmaceutical interventions (CDC 2024a). Nonpharmaceutical interventions (NPIs) are actions, apart from getting vaccinated and taking medicine, that people and communities can take to help slow the spread of infections (CDC 2024b, Qualls 2017). A combination of individual, community, and environmental NPIs can be part of the response to respiratory infection outbreaks or pandemics (Qualls 2017).

Individual NPIs (CDC 2024b, 2024c, Qualls 2017) are everyday preventive actions such as:

- Proper hand hygiene: clean hands using an alcohol-based hand sanitizer in healthcare settings when hands are not visibly dirty; or washing with soap and water if hands are visibly dirty.
- Using personal protective equipment (PPE): covering nose and mouth with a mask, staff using gloves, gowns, goggles, face shields when appropriate.
- Staff not coming to work when sick: instructing sick staff not to report to work.

Community NPIs (CDC 2007, 2024b, Qualls 2017) are policies and strategies, such as:

- Testing and screening: identifying affected individuals.
- Physical distancing: creating ways to increase distance between people (e.g., limiting group activities, isolating infected individuals, cohorting or placing people together in the same room)
- Visitor restriction: temporarily restricting visitors' access to the LTC communities. Restriction could range from not allowing any visitors, reducing the number of visitors, or limiting how long visitors can stay or where they can meet the residents.
- Resident admission or transfer restriction: limiting admission of new patients, and transport and movement of patients.

Environmental NPIs (CDC 2007, 2023, 2024b, 2024d, Qualls 2017) include the following:

- Cleaning and disinfecting: cleaning surfaces (e.g., floors, tabletops) on a regular basis, and when visibly soiled (e.g., spills); disinfecting frequently touched surfaces and objects on a regular basis and following the cleaning process when visibly soiled.

- Ventilation: circulating indoor air to dilute viral particles using natural (e.g., open windows to allow air circulation) or mechanical methods (e.g., using high-efficiency particulate filters, installing ultraviolet germicidal irradiation systems)..

Intervention Definition

Long-term care communities for adults with disabilities and older adults can adopt non-pharmaceutical interventions as strategies to prevent, slow, or stop the spread of viral respiratory infections. NPIs may be directed to residents, staff, and visitors and applied at the:

- Individual level (e.g., use personal protective equipment such as gloves, masks, and others, proper hand hygiene, and staff not coming to work when sick),
- Community level (e.g., testing, physical distancing, visitor restriction, and resident admission or transfer restriction), or
- Environmental level (e.g., cleaning and disinfecting, and improving ventilation).

CPSTF Finding (June 2024)

The Community Preventive Services Task Force (CPSTF) recommends non-pharmaceutical interventions in long-term care communities based on sufficient evidence of effectiveness in decreasing viral respiratory infection incidence among LTC community residents and staff.

Evidence shows that during a viral respiratory infection outbreak or pandemic, combinations of NPIs can reduce the risk of infection among LTC community residents and staff.

Evidence is inconsistent for impact of visitor restriction alone or in combination with physical distancing on residents' mental health and quality of life.

Rationale

Basis of Finding

The CPSTF recommendation is based on evidence from a systematic review of 42 studies (search period database inception to January 2024), conducted by a review team (the Team) consisting of specialists in systematic review methods and subject matter experts.

All included studies examined LTC communities that had baseline NPIs in place to comply with standard infection control and prevention protocols. Additional NPIs were implemented in these communities in response to viral respiratory infection outbreaks or pandemics (38 studies) or as part of quality improvement efforts (5 studies).

The Team examined the impact of added NPIs on viral respiratory infection incidence (number of people infected among people at risk), viral infection-related morbidity (e.g., hospitalization or ED visits), and mortality (Table 1). NPIs implemented in LTC communities reduced viral infection in residents and staff. These interventions also decreased hospitalization and mortality due to infection.

The Team also examined the impact of community level NPIs on residents' mental health (Table 2) and quality of life (Table 3) during the COVID-19 pandemic (8 studies). All studies were conducted outside the U.S. and examined the impact of visitor restriction alone, visitor restriction followed by physical distancing, or visitor restriction and physical distancing implemented at the same time. The results were inconsistent across the eight studies, and no conclusion

could be drawn. Four of the eight studies used the interrupted time series study design to account for the impact of COVID pandemic. They found that visitor restriction alone or in combination with physical distancing didn't significantly impact the residents' mental health or quality of life.

LTC communities in the included studies added different combinations of NPIs based on their needs and resources and were generally successful in improving respiratory viral infection-related outcomes. However, it could not be determined which NPI or NPI combination was the most effective. Ten studies with a cross-sectional study design examined the association between individual NPIs and downstream health outcomes, and the results were inconsistent.

Table 1. Impact of NPIs in LTC Communities on Respiratory Infection-Related Outcomes

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
Incidence	17	Relative difference or change: Median decrease of -46.0% (IQI: -77.7%, -16.0%) 10 studies with 11 datapoints Absolute difference or change: Median decrease of -1.7 pct pts (IQI: -13.7, -1.3) 5 studies with 5 datapoints 6 studies reported on viral infection incidence: 5 favorable, NS; 1 no change 5 studies reported on the proportion of communities with an outbreak: 4 favorable, sig; 1 no change 1 study reported on environmental contamination and was favorable, NS	Favors the intervention
Hospitalization and ED Visits	5 ^a	Relative difference or change: Median decrease of -56.5% (IQI: -69.3%, -34.1%) 5 studies with 6 datapoints Absolute difference or change: Median decrease of -4.8 pct pts (IQI: -9.3 pct pts, -0.61 pct pts) 4 studies with 4 datapoints 1 study provided narrative result that was favorable, sig	Favors the intervention

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
Mortality	6	Relative difference or change: Median decrease of -33.1% Min to max: -77.8% to -23.0% 3 studies with 3 datapoints 3 studies provided narrative results: 1 favorable, sig; 1 favorable, NS; 1 no change	Favors the intervention

Incidence: number of viral respiratory infections/ number of people at risk for viral respiratory infection over time (specified by study authors).

Hospitalization due to infection: number hospitalized due to viral respiratory infection / number of people infected or the number of people at risk for viral respiratory infection.

Mortality due to infection: number of deaths due to viral respiratory infection / number of people infected or at risk for viral respiratory infection.

CI: confidence interval

Min: minimum

Max: maximum

NS: not statistically significant

IQI: interquartile interval

Pct pts: percentage points

Sig: statistically significant

^aStudies reported multiple outcomes.

Table 2. Impact of Visitor Restriction Alone or in Combination with Physical Distancing on LTC Community Residents' Mental Health.

Outcome	Number of Studies ^a	Summary Effect Estimates
Anxiety	2	2 improved anxiety (1 sig, 1 NS). 1 worsened anxiety, NS.
Aggressive behavior	3	1 improved aggressive behavior, NS. 1 worsened aggressive behavior, NS. 1 no change.
Cognition	3	3 worsened cognition, sig. 1 no change.
Delirium	2	1 worsened delirium, NS. 1 no change.

Outcome	Number of Studies ^a	Summary Effect Estimates
Depression	5	1 improved depression, sig. 1 improved depression, NS. 1 worsened depression, sig. 1 worsened depression, NS. 3 no change.
Loneliness	2	2 no change.
Withdrawal	1	No change

Sig: statistically significant

NS: not statistically significant

^aStudies reported multiple mental health outcomes.

Table 3. Impact of Visitor Restriction Alone or in Combination with Physical Distancing on LTC Community Residents' Quality of Life.

Outcome	Number of Studies ^a	Summary Effect Estimates
Emotional well being	1	2 worsened emotional well-being, NS.
Functional status	1	No change
Self-determination	1	1 improved self-determination, NS. 1 worsened self-determination, NS.
Social interactions	2	2 improved interpersonal relationship and social inclusion, NS. 1 worsened social inclusion, NS. 2 no change.

NS: not statistically significant

^aStudies reported multiple quality of life outcomes.

Applicability and Generalizability Issues

Intervention Settings

The CPSTF finding is applicable to LTC communities across the United States. The finding is mostly based on responses to SARS-CoV-2, the virus that causes COVID-19, but can be applied to infections caused by other respiratory viruses.

The included studies evaluated interventions implemented in the United States (14 studies), the Netherlands (5 studies), the United Kingdom (4 studies), Canada (3 studies), France (3 studies), Spain (3 studies), Germany (2 studies), Italy (2 studies), Australia (1 study), Belgium (1 study), Cyprus (1 study), Hong Kong, China (1 study), Israel (1 study), Sweden (1 study), and Taiwan (1 study). U.S. studies were implemented in the Northeast (6 studies), South (4 studies), and Midwest

(2 studies) regions as defined by the [U.S. Census Bureau](https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf) [https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf]. Two U.S. studies were implemented in multiple regions. While a few of the 43 studies exclusively evaluated NPIs in LTC communities located in rural (2 studies) or urban settings (2 studies), most were in a mix of urban, suburban, and rural settings (24 studies). Many studies did not report on urbanicity (15 studies).

Studies included all types of LTC communities (21 studies), nursing homes or skilled nursing facilities only (17 studies), or residential LTC communities only (2 studies). Three studies did not specify the type of LTC community examined. Most studies examined NPIs implemented in response to SARS-CoV-2 (38 studies), with the rest examining respiratory illnesses caused by flu or other viruses that produced flu-like illnesses (2 studies), upper respiratory illnesses (2 studies), or pneumonia (3 studies).

Population Characteristics

The CPSTF finding is applicable to adults residing in LTC communities.

Few studies reported on population characteristics and those that did only provided demographic information for residents.

Twelve of the included studies reported residents' age, with a median average age of 83 years. Three studies reported age groups with a median 62% of residents aged 80 years or more; small proportions of the residents were below 60 years (8%) or 65 years of age (7%). Included studies examined LTC communities serving older adults (31 studies), older adults and people with dementia (5 studies), adults with disabilities (3 studies), older adults and adults with disabilities (2 studies), or older adults, people with dementia, and adults with disabilities (2 studies).

Only 15 studies reported residents' gender, with a median of 65% being females. Eleven of the included studies reported residents' underlying conditions, including dementia (4 studies), intellectual disability (2 studies), mobility issues (4 studies), and chronic conditions such as cardiovascular disease or chronic respiratory disease (2 studies).

Four studies conducted in the United States reported residents' race and ethnicity. Three studies evaluated LTC communities with predominantly White resident populations (median of 85% White) residents. The fourth study served a population that was 65% White, 32% Black or African American, and 1% Hispanic. One of the four studies performed a stratified analysis and reported NPIs were effective across LTC communities with different proportions of non-White residents.

Intervention Characteristics

The CPSTF finding is likely applicable across different numbers, types, and levels of NPIs implemented.

Thirty-three of the included studies evaluated the impact of adding NPIs at the individual (2 studies), community (21 studies), environmental (2 studies), or a mix of the different levels (8 studies). Some of the studies examined a single NPI, including individual level NPIs such as improving access to alcohol-based hand sanitizer and staff adherence to proper hand hygiene (2 studies); community level NPIs such as testing (12 studies), physical distancing (1 study), visitor restriction (2 studies), or relaxing of visitor restriction (1 study); and environmental level NPIs such as cleaning and disinfecting using ultraviolet light (1 study) or installation of ultraviolet air purification in ventilation system (1 study).

The remaining studies evaluated different combinations of NPIs, five of which examined NPIs from all three levels. There was reduction in infection across different numbers, types, and levels of NPIs implemented.

NPIs evaluated in the included studies were implemented based on decisions made within the LTC communities (13 studies), at the local or state level (9 studies), or at the national level (11 studies). Such decisions followed guidance produced by the LTC community (1 study); local or state (3 studies), national (13 studies), or global (1 study) institutions or organizations; or a combination of guidelines (10 studies). Five studies did not report on the guidelines used to inform LTC communities' decisions.

NPIs that were implemented in response to outbreaks or pandemics lasted fewer than three months (14 studies), between three and six months (6 studies), or between six and nine months (4 studies). Three studies examined NPI implementation as part of quality improvement efforts and lasted more than one year. Five studies did not report on intervention duration.

Ten of the included studies accessed national (3 studies) or regional (7 studies) databases for LTC communities and examined the association between individual NPIs and health outcomes. The NPIs examined include proper hand hygiene (2 studies), use of PPE (5 studies), physical distancing (8 studies), testing (1 study), resident admission or transfer restriction (1 study), and cleaning and disinfecting (2 studies). The results were inconsistent.

Data Quality

Study designs included group randomized trials (4 studies), group non-randomized trial (1 study), before-after with concurrent comparison groups (6 studies), simple time series with concurrent comparison groups (2 studies), interrupted time series (6 studies), retrospective cohort (1 study), single group before-after (10 studies), simple time series (3 studies), and cross-sectional (10 studies).

The most common study limitations include lack of description of study population or unclear description of intervention; unclear description of sampling frame; and confounders that were not discussed or addressed.

Eight studies examined impact of visitor restrictions with or without physical distancing on residents' mental health during the COVID-19 pandemic. Studies evaluating mental health outcomes would ideally have concurrent comparison groups to account for the generalized impact of the COVID pandemic. No study had a concurrent comparison group, but four studies used an interrupted time series design to account for the changes in mental health due to the pandemic. Compared with studies that used single group before-after or simple time series study design, these four studies were more likely to report that NPIs didn't change or even slightly improved residents' mental health. Studies used a wide array of questionnaires to examine multiple mental health outcomes, making it difficult to summarize results.

Other Benefits and Harms

CPSTF considered potential additional benefits and harms associated with implementing NPIs in LTC communities.

Postulated potential benefits, identified from the included studies:

- Early testing of LTC staff could help identify new variants of SARS-CoV-2 (Sagerman 2021) and contribute to the lower mortality in the LTC communities' surrounding areas (Geeraedts 2022).
- Reduction in non-respiratory infections (Kovach 2017, Yeung 2011, Jutkowitz 2022, Makris 2000), all-cause hospitalizations (Kovach 2017), and all-cause mortality (Yeung 2011).
- Increased overall compliance with health care protocols (Schuengel 2020).

Postulated potential harms, identified from the included studies and the broader literature:

Family caregivers

- Increased feelings of anger, frustration, and sadness, and heightened levels of depressive symptoms and anxiety while not being able to see their loved ones in LTC communities during visitor restrictions (Hugelius 2021, Nash 2021, Schneider 2023).
- Lower quality of life associated with negative perceptions of support received from nursing home staff (Schneider 2023).
- Concern about how social isolation was affecting their loved ones (Nash 2021, Schneider 2023).

Healthcare workers

- Burnout associated with intensive NPI implementation and job demands (Hugelius 2021, Jones 2022, Oliveira 2023, Tulloch 2021, White 2021), increased workload caused by staff shortages when required to stay-at-home when sick (Backhaus 2021), and stress associated with protocol breaches (Scheffler 2022).
- Degradation of workplace community and social isolation associated with physical distancing (Fisher 2021, Scheffler 2022).
- Physical discomfort associated with PPE usage (Brainard 2023).
- Challenges associated with hearing and understanding when residents were wearing PPE (Kaelen 2021, Scheffler 2022).

Considerations for Implementation

The following considerations for implementation are drawn from studies included in the existing evidence review, the broader literature, and expert opinion.

Some strategies to alleviate potential harms associated with NPI implementation in LTC communities include:

- Digital technology (e.g., video chats with family and friends) may help reduce social isolation of residents when visitor restriction or physical distancing were implemented (Colas 2022).
- Small group activities may improve residents' health, with physical activity to reduce their functional decline, and arts activities and other group programming may help enhance residents' social engagement (Bethell 2021, Resnick 2021).
- Regular updates to family caregivers may help mitigate anxiety. Keeping family members and caregivers informed about their loved ones as well as the need for and use of NPIs may help reduce their anxiety (Gallant 2022).

Timely and clear communication between LTC communities and public health agencies.

- Effective and regular communication between LTC communities and public health agencies may help to reduce viral transmission and enhance emergency preparedness and outbreak response (Dawson 2021, Jones 2022, Oldfield 2021).
- Virtual or "just-in-time" education programs for LTC staff may provide rapid and real-time dissemination of NPI best practices (Lingum 2021).

Strategies to support LTC community workforce.

- Foster supportive community among LTC community workforce to build morale (Navarro-Prados 2022).

- Provide evidence-based mental health support for staff members (Fisher 2021, Hugelius 2021).
- Consider having a contingency staffing plan to better manage workloads during any emergency response, especially with the need to incorporate additional NPIs into already busy daily routine (Dawson 2021).
- Recognize the challenges facing the LTC workforce that's racially diverse and primarily female. Develop strategies to address issues such as lower pay, the need to hold multiple jobs, and lack of jobs offering paid sick leave, creating barriers to staying home when sick and increasing the risk of infection for themselves and the LTC residents (Dawson 2021, High 2007, Kobayashi 2016, Van Houtven 2020)

Implementation Resources

The following publicly available resources provide guidance on implementing NPIs in LTC communities:

[CDC: Viral Respiratory Pathogens Toolkit for Nursing Homes](https://www.cdc.gov/long-term-care-facilities/hcp/respiratory-virus-toolkit/) [https://www.cdc.gov/long-term-care-facilities/hcp/respiratory-virus-toolkit/]

- Provides strategies to help prepare for and respond to nursing home residents or healthcare personnel who develop signs or symptoms of a respiratory viral infection.
- Links out to other resources for more information on specific respiratory viruses and outbreak resources.

[AHRQ: A Unit Guide to Infection Prevention for Long-Term Care Staff](https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/quality-resources/tools/cauti-ltc/modules/resources/guides/guide-infection-prevention.pdf)

[https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/quality-resources/tools/cauti-ltc/modules/resources/guides/guide-infection-prevention.pdf]

- Provides an overview of infections and infection prevention in LTC communities, a review of standard precautions and ways to implement transmission-based precautions, with a focus on influenza.

[American Health Care Association and National Center for Assisted Living: Long-term Care Quick Start Guide: Preparing for Respiratory Virus Season](https://www.ahcancal.org/Quality/Documents/GetVaccinated/CDC%20Resources/Long-term%20Care%20Quick%20Start%20Guide%20for%20Respiratory%20Virus%20Season.pdf) [https://www.ahcancal.org/Quality/Documents/GetVaccinated/CDC Resources/Long-term Care Quick Start Guide for Respiratory Virus Season.pdf]

- Links out to guidance and recommendations for prevention and management, including the CDC Toolkit.
- Includes posters for masking and hand hygiene that can be posted in LTC communities as quick aids.

Evidence Gaps

CPSTF identified several areas that have limited information. Additional research and evaluation could help answer the following questions and fill remaining gaps in the evidence base.

CPSTF identified the following questions as priorities for research and evaluation:

- What is the impact of these interventions on residents' mental health and quality of life, considering the need for comparative study designs, having U.S.-based studies, and using standardized mental health outcomes?
- How effective are NPIs in the following settings:
 - Rural LTC communities?
 - LTC communities with high proportion of residents from historically disadvantaged racial and ethnic populations?
 - Residential LTC communities?
 - LTC communities for people with disabilities?

- Which individual or combinations of NPIs work the best?

Remaining questions for research and evaluation identified in this review include:

- Does intervention effectiveness vary with the following factors?
 - Compliance with NPI.
 - Population characteristics such as gender, vaccination status.
 - Community characteristics such as size of community, room sharing, staff to resident ratio, staff working in multiple communities.
 - Provision of education or support services to allow better implementation of NPIs.

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Van Houtven CH, DePasquale N, Coe NB. Essential long-term care workers commonly hold second jobs and double- or triple-duty caregiving roles. *Journal of the American Geriatrics Society*. 2020;68:1657-1660.

White E, Wetle M, Reddy T F, et al. Front-line nursing home staff experiences during the COVID-19 pandemic. *Journal of the American Medical Directors Association*. 2021;22:199-203.

Yeung WK, Tam WS, Wong TW. Clustered randomized controlled trial of a hand hygiene intervention involving pocket-sized containers of alcohol-based hand rub for the control of infections in long-term care facilities. *Infection Control & Hospital Epidemiology*. 2011;32(1):67-76.

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

Document last updated July 30, 2026

Appendices of Supporting Documents

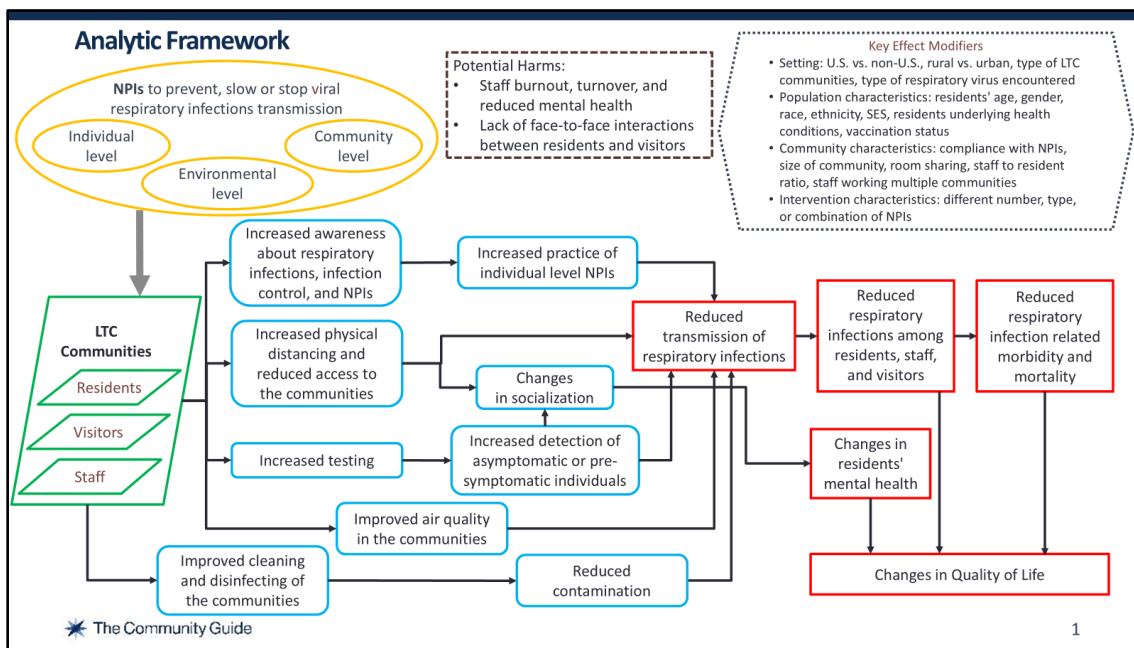
Public Health Emergency Preparedness and Response: Non-Pharmaceutical Interventions to Reduce Transmission of Viral Respiratory Infections in Long-Term Care Communities

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Appendix A

Analytic Framework (Effectiveness Review) Public Health Emergency Preparedness and Response: Non-Pharmaceutical Interventions to Reduce Transmission of Viral Respiratory Infections in Long-Term Care Communities



Analytic Framework Text Description

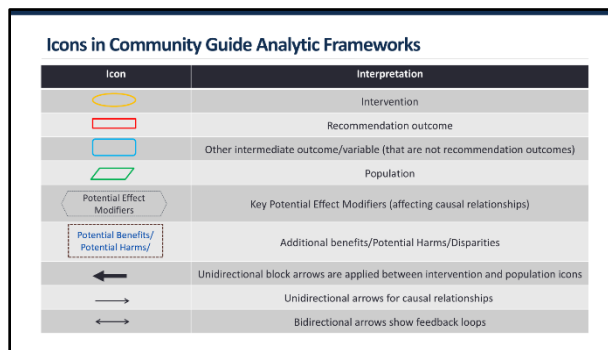
The analytic framework postulates the pathway through which non-pharmaceutical interventions (NPIs) prevent, slow, or stop the spread of viral respiratory infections in long-term care (LTC) communities.

NPIs are delivered to residents, visitors, or staff in LTC communities. NPIs can be delivered at the individual, community, or environmental level, or combination of different levels in a multipronged approach.

Individual-level NPIs could increase awareness about respiratory infections, infection control, and NPIs, leading to increased practice of individual-level NPIs.

Community-level NPIs could increase the practice of physical distancing and reduce access to the LTC communities. These NPIs could also increase testing, leading to increased detection of asymptomatic or pre-symptomatic individuals.

Environmental-level NPIs could improve air quality through better ventilation and improve cleaning and disinfection practices to reduce contamination in the LTC communities.



All NPIs could lead to reduced transmission of respiratory infections, resulting in reduced respiratory infections and reduced respiratory infection-related morbidity and mortality among LTC community residents, staff, and visitors.

Reduced access to the LTC communities and physical distancing could lead to changes in residents' socialization and impact their mental health.

Change in residents' mental health along with reduced respiratory infections and reduced infection-related morbidity and mortality may lead to changes in their quality of life.

Some key effect modifiers include setting (include inside or outside the U.S., rural vs. urban, type of LTC communities examined, and type of respiratory virus encountered), population characteristics (residents' age, gender, race, ethnicity, SES, underlying health conditions, and vaccination status), community characteristics (compliance with NPIs, size of community, room sharing, staff to resident ratio, and staff working multiple communities), and intervention characteristics (different number, type, or combination of NPIs).

Postulated potential harms associated with NPIs in LTC communities include staff burnout, turnover, and reduced mental health and lack of face-to-face interactions between residents and visitors.

Appendix B

Search Strategy (Effectiveness Review): Public Health Emergency Preparedness and Response: Non-Pharmaceutical Interventions to Reduce Transmission of Viral Respiratory Infections in Long-Term Care Communities

A search was performed to identify potentially relevant publications between database inception to January 2024.

Two team members independently screened each paper to determine eligibility. Uncertainties and disagreements were resolved by consensus among review team members.

Overall Search Results:

Databases	Date	Results	Duplicates	Final Counts
Medline (OVID) 1946-2024	1/16/24	5672	14	5658
Embase (OVID) 1974-2024	1/16/24	3596	430	3166
ClinicalTrials.gov	1/16/24	482	22	460
Cochrane Library	1/16/24	1035	255	780
CINAHL (EbscoHost)	1/16/24	2165	1094	1071
WHO COVID Database	1/16/24	8808	2002	6806
Scopus	1/16/24	3327	2061	1266
Total	1/16/24	25085	5878	19207

Search Strategy Note:

(((((noft(((health OR healthcare OR "health care" OR care) AND (equit* OR disparit* OR inequal* OR accessibilit*))) OR ((noft((socioeconomic OR economic OR poor OR vulnerable OR disenfranchis* OR (social NEAR/3 class))) OR noft((divers* OR minorit* OR ethnicit* OR race OR racial OR black* OR "african american*" OR asian* OR "native american*" OR indian OR hispanic OR latin*)) OR noft((disabled OR challenged OR handicapped)) OR noft(("cultural competency" OR "cultural diversity")) OR noft(((sexual NEAR/3 minorit*) OR homosexual* OR bisexual* OR gay* OR lesbian* OR transgender* OR queer OR lbg*))) AND noft((equit* OR disparit* OR inequal* OR accessibilit*)))) AND (noft((preventive OR prevention OR prevent)) OR noft(("United States Preventive Services Task Force" OR "U.S. Preventive Services Task Force" OR "U.S.P.S.T.F." OR "USPSTF")) OR noft(screen*.))) AND noft((diabetes OR glucose OR aspirin OR cardiovascular OR heart OR coronary OR "myocardial infarction" OR stroke OR colorectal OR colon OR breast OR cervical OR human papillomavirus OR HPV OR diet OR exercise OR "physical activity" OR overweight OR obese OR obesity OR metabolic OR hypertension OR "blood pressure" OR lung OR tobacco OR smoke* OR smoking))) AND noft(("United States" OR USA OR "u.s." OR Alabama OR Alaska OR Arizona OR Arkansas OR California OR Colorado OR Connecticut OR Delaware OR "District of Columbia" OR Florida OR Georgia OR Hawaii OR Idaho OR Illinois OR Indiana OR Iowa OR Kansas OR Kentucky OR Louisiana OR Maine OR Maryland OR Massachusetts OR Michigan OR Minnesota OR Mississippi OR Missouri OR Montana OR Nebraska OR Nevada OR "New Hampshire" OR "New Jersey" OR "New Mexico" OR "New York" OR "North Carolina" OR "North Dakota" OR Ohio OR Oklahoma OR Oregon OR Pennsylvania OR "Rhode Island" OR "South Carolina" OR "South Dakota" OR Tennessee OR Texas OR Utah OR Vermont OR Virginia OR Washington OR "West Virginia" OR Wisconsin OR Wyoming OR "Puerto Rico")))) NOT (stpe.exact("Magazines" OR "Books") AND pd(20190701-20211129))

132

11

Final 121

Literature Search Strategies

Database: Ovid MEDLINE® 1946-2024

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1      ((care or "care home*" or facility or facilities or residen* or residenc* or communit* or housing or
home) adj3 ("senior citizen" or "senior citizens" or "assisted living" or longterm or long-term or "special needs"
or convalescent or disabil* or disabl* or retirement or rest or "residential care" or aged or "extended care" or
"old age" or old people* or charitable or elder* or "continuing care" or "life care" or "skilled nursing")).ti,ab.
103720
2      "care home resident*".mp.      737
3      Skilled Nursing Facilities/      5359
4      assisted living facilities/ 1610
5      homes for the aged/      14833
6      residential facilities/      5756
7      nursing homes/ 39754
8      ((day care or daycare*) adj2 (senior* or adult)).mp.      552
9      (congregat* adj2 (care or "meal service" or "meal program")).mp.      128
10     or/1-9 142290
11     ("public health" or epidemic* or Influenza* or RSV or flu or H1NI or H3N2 or Middle East Respiratory
Syndrome or MERS or Pneumonia* or Coronavirus* or COVID* or SARS-Cov-2 or SARS or Tuberculos* or TB or
Streptococcus* or Legionella* or (respiratory adj3 (infection* or illness* or disease*))).mp.      1783584
12     (response* or prepare* or disaster* or emergenc* or securit* or outbreak* or infection* or pandemic*
or epidemic* or transmi*).mp. 7359359
13     10 and 11      13243
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16     limit 15 to english language      829

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Database: Embase (OVID) 1974-2024

Embase <1988 to 2024 Week 01>

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home) adj3 ("senior citizen" or "senior citizens" or "assisted living" or longterm or long-term or "special needs"
or convalescent or disabil* or disabl* or retirement or rest or "residential care" or aged or "extended care" or
"old age" or old people* or charitable or elder* or "continuing care" or "life care" or "skilled nursing")).ti,ab.
129553
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3      assisted living facility/      3288
4      home for the aged/      8833
5      residential home/      7025
6      nursing home/ 54880
7      ((day care or daycare*) adj2 (senior* or adult)).mp.      661
8      (congregat* adj2 (care or "meal service" or "meal program")).mp.      130
9      or/1-8 175689
10     ("public health" or epidemic* or Influenza* or RSV or flu or H1NI or H3N2 or Middle East Respiratory
Syndrome or MERS or Pneumonia* or Coronavirus* or COVID* or SARS-Cov-2 or SARS or Tuberculos* or TB or
Streptococcus* or Legionella* or (respiratory adj3 (infection* or illness* or disease*))).mp.      2277012
11     (response* or prepare* or disaster* or emergenc* or securit* or outbreak* or infection* or pandemic*
or epidemic* or transmi*).mp. 9044692
12     9 and 10      21869
13     11 and 12      13728

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14 limit 13 to dc=20230301-20240103 1712
15 limit 14 to english language 1664
16 limit 15 to "remove medline records" 608

Database: ClinicalTrials.org

Condition or Disease: respiratory disease OR respiratory illness OR respiratory infection OR Covid 19

Other Terms: (long term care facility OR nursing home OR senior housing OR congregate care OR skilled nursing)
AND (response* OR prepare* OR transmission OR infection)

Database: Cochrane Library

#1 ((care or "care home" OR "care homes" or facility or facilities or residen* or residenc* or communit* or housing or home) NEAR/3 ("senior citizen" or "senior citizens" or "assisted living" or longterm or "long-term" or "special needs" or convalescent or disabil* or disabl* or retirement or rest or "residential care" or aged or "extended care" or "old age" or old people* or charitable or elder* or "continuing care" or "life care" or "skilled nursing")):ti,ab 14464
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#3 MeSH descriptor: [Assisted Living Facilities] this term only 76
#4 MeSH descriptor: [Homes for the Aged] this term only 742
#5 MeSH descriptor: [Nursing Homes] this term only 1733
#6 MeSH descriptor: [Residential Facilities] this term only 198
#7 ((day care OR daycare*) NEAR/2 (senior* OR adult)) 2702
#8 (congregat* NEAR/2 (care OR "meal service" OR "meal program")) 6
#9 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 18183
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#11 (response* or prepare* or disaster* or emergenc* or securit* or outbreak* or infection* or pandemic* or epidemic* or transmi*) 505469
#12 #9 AND #10 AND #11 with Cochrane Library publication date Between Mar 2023 and Jan 2024 121

Database: CINAHL (EbscoHost)

S1 MH "Day Care") OR (MH "Nursing Homes") OR (MH "Assisted Living") OR (MH "Residential Facilities")
S2 TI (((care OR "care home*" or facility or facilities or residen* or residenc* or communit* or housing or home) N3 ("senior citizen" or "senior citizens" or "assisted living" or longterm or long-term or "special needs" or convalescent or disabil* or disabl* or retirement or rest or "residential care" or aged or "extended care" or "old age" or old people* or charitable or elder or "continuing care" or "life care" OR "skilled nursing"))) OR AB (((care OR "care home*" or facility or facilities or residen* or residenc* or communit* or housing or home) N3 ("senior citizen" or "senior citizens" or "assisted living" or longterm or long-term or "special needs" or convalescent or disabil* or disabl* or retirement or rest or "residential care" or aged or "extended care" or "old age" or old people* or charitable or elder or "continuing care" or "life care" OR "skilled nursing")))
S3 TX "care home resident" OR "care home residents"
S4 ((day care OR daycare*) N/2 (senior* OR adult))
S5 (congregat* N/2 (care OR "meal service" OR "meal program"))
S6 S1 OR S2 OR S3 OR S4 OR S5
S7 ("public health" or epidemic* or Influenza* or RSV or flu or H1NI or H3N2 or "Middle East Respiratory Syndrome" or MERS or Pneumonia* or Coronavirus* or COVID* or "SARS-Cov-2" or SARS or Tuberculos* or TB or Streptococcus* or Legionella* or (respiratory N3 (infection* or illness* or disease*)))
S8 S6 AND S7

S9 (response* or prepare* or disaster* or emergenc* or securit* or outbreak* or infection* or pandemic* or epidemic* or transmi*)

S11 S8 AND S9

Limiters - Publication Date: 20230301-20240131

English Language

WHO COVID Database

(ti:("retirement homes" OR "retirement home" OR "congregate care" OR "congregated meal plan" OR "congregated meal program" OR "long-term care facility" OR "long-term care facilities" OR "long-term care residences" OR "long-term care residence" OR "nursing home" OR "nursing homes" OR "rest home" OR "rest homes" OR "extended care homes" OR disable* OR disabili* OR "extended care facilities" OR "assisted living" OR "residential care" OR "old age home" OR "old age homes" OR "homes for the aged" OR "life care facilities" OR "adult day care" OR "senior day care" OR "old age residences" OR "retirement residences" OR "retirement residencies" OR "elder care" OR "continuing care retirement community" OR "charitable home" OR "charitable homes" OR "skilled nursing" OR "care home")) OR (ab:("retirement homes" OR "retirement home" OR "congregate care" OR "congregated meal plan" OR "congregated meal program" OR "long-term care facility" OR "long-term care facilities" OR "long-term care residences" OR "long-term care residence" OR "nursing home" OR "nursing homes" OR "rest home" OR "rest homes" OR "extended care homes" OR disable* OR disabili* OR "extended care facilities" OR "assisted living" OR "residential care" OR "old age home" OR "old age homes" OR "homes for the aged" OR "life care facilities" OR "adult day care" OR "senior day care" OR "old age residences" OR "retirement residences" OR "retirement residencies" OR "elder care" OR "continuing care retirement community" OR "charitable home" OR "charitable homes" OR "skilled nursing" OR "care home")) AND (response* OR prepare* OR disaster* OR emergenc* OR securit* OR outbreak* OR transmission OR infection* OR pandemic*) AND la:("en") AND year_cluster:("2023") AND (year_cluster:[2023 TO 2024])

Scopus

(TITLE-ABS ((care OR "care home" OR facility OR facilities OR residen* OR residenc* OR communit* OR housing OR home) W/3 ("senior citizen" OR "senior citizens" OR "assisted living" OR longterm OR "long-term" OR "special needs" OR convalescent OR disabil* OR disabl* OR retirement OR rest OR "residential care" OR aged OR "extended care" OR "old age" OR "old people" OR charitable OR elder* OR "continuing care" OR "life care" OR "skilled nursing")) OR INDEXTERMS ("assisted living facilities") OR INDEXTERMS ("homes for the aged") OR INDEXTERMS ("residential facilities") OR INDEXTERMS ("nursing homes") OR TITLE-ABS-KEY (("day care" OR daycare) W/2 (senior OR adult)) OR TITLE-ABS-KEY (congregat* W/2 (care OR "meal service" OR "meal program"))) AND (TITLE-ABS-KEY ("public health" OR epidemic* OR influenza* OR rsv OR flu OR h1ni OR h3n2 OR "Middle East Respiratory Syndrome" OR mers OR pneumonia* OR coronavirus* OR covid* OR sars-cov-2 OR sars OR tuberculos* OR tb OR streptococcus* OR legionella* OR (respiratory W/3 (infection* OR illness* OR disease*)))) AND (TITLE-ABS-KEY (response* OR prepare* OR disaster* OR emergenc* OR securit* OR outbreak* OR infection* OR pandemic* OR epidemic* OR transmi*)) AND PUBYEAR = 2023 AND PUBYEAR = 2023 AND (LIMIT-TO (LANGUAGE , "English"))

Appendix C

Included Studies (Effectiveness Review):

Public Health Emergency Preparedness and Response: Non-Pharmaceutical Interventions to Reduce Transmission of Viral Respiratory Infections in Long-Term Care Communities

Abu-Fraiha Y, Robinson SG, Maimon M, Hassan L, Grotto I, et al. National weekly SARS-CoV-2 RT-PCR screening of all workers in long-term care facilities associated with decrease in resident mortality rate. *Gerontology* 2023;69(5):541-8.

Allan-Blitz L, Aboabdo B, Turner I, Klausner JD. Effect of frequent SARS-CoV-2 testing on weekly case rates in long-term care facilities, Florida, USA. *Emerging Infectious Diseases* 2022;28(9):1918-20.

Angevaere MJ, Joling KJ, Smalbrugge M, Hertogh CPM, Twisk JWR, et al. The effects of the 2020 COVID-19 lockdown on mood, behavior, and social cognitive functioning in older long-term care residents. *Journal of the American Medical Directors Association* 2022;23(9):1608.e9-18.

Backhaus R, Verbeek H, de Boer B, Urlings JH, Gerritsen DL, et al. From wave to wave: a Dutch national study on the long-term impact of COVID-19 on well-being and family visitation in nursing homes. *BMC Geriatrics* 2022;21(1):588.

Bakaev I, Retalic T, Chen H. Universal testing-based response to COVID-19 outbreak by a long-term care and post-acute care facility. *Journal of the American Geriatrics Society* 2020;68(7):e38-9.

Balestrini S, Koepp MJ, Gandhi S, Rickman HM, Shin GY, et al. Clinical outcomes of COVID-19 in long-term care facilities for people with epilepsy. *Epilepsy & Behavior* 2020;115:107602.

Belmin J, Um-Din N, Donadio C, Magri M, Nghiem QD, et al. Coronavirus disease 2019 outcomes in French nursing homes that implemented staff confinement with residents. *JAMA Network Open* 2020;3(8):e2017533.

Cazzoletti L, Zanolin ME, Tocco IT, Alemayohu MA, Zanetel E, et al. Risk factors associated with nursing home COVID-19 outbreaks: a retrospective cohort study. *Journal of Environmental Research & Public Health* 2021;18(16):8434-52.

Ehrlich HY, Harizaj A, Campbell L, Colt M, Yuan K, et al. SARS-CoV-2 in nursing homes after 3 months of serial, facilitywide point prevalence testing, Connecticut, USA. *Emerging Infectious Diseases* 2021;27(5):1288-95.

Geeraedts F, Luttje M, Visschedijk J, van Hattem M, Hasper HJ, et al. Low-threshold testing for SARS-CoV-2 (COVID-19) in long-term care facilities early in the first pandemic wave, the Twente region, the Netherlands: a possible factor in reducing morbidity and mortality. *Journal of Applied Gerontology* 2022;41(8):1802-11.

Gil-Llario MD, Diaz-Rodriguez I, Fernandez-Garcia O, Estruch-Garcia V, Bisquert-Bover M, et al. Mental health of people with intellectual disabilities living in residential care before, during, and after lockdown. *Behavioral Sciences* 2023;13(8):21.

Green R, Tulloch JSP, Tunnah C, Coffey E, Lawrenson K, et al. COVID-19 testing in outbreak-free care homes: what are the public health benefits? *Journal of Hospital Infection* 2021;111:89-95.

- Gustafsson PE, Schröders J, Nilsson I, San Sebastián. Surviving through solitude: a prospective national study of the impact of the early COVID-19 pandemic and a visiting ban on loneliness among nursing home residents in Sweden. *The Journals of Gerontology: Series B* 2022;77(12):2286-95.
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- McGarry BE, Gandhi AD, Barnett ML. COVID-19 surveillance testing and resident outcomes in nursing homes. *New England Journal of Medicine* 2023;388(12):1101-10.
- Oliveira ACS, Gallego MG, Martínez CG, EC Martínez, Molina JM, et al. Psychosocial changes during COVID-19 lockdown on nursing home residents, their relatives and clinical staff: a prospective observational study. *BMC Geriatrics* 2023;23(71).
- Orlando S, Mazhari T, Abbondanzieri A, Cerone G, Ciccacci F, et al. Characteristics of nursing homes and early preventative measures associated with risk of infection from COVID-19 in Laxio region, Italy: a retrospective case-control study. *BMJ Open* 2022;12(6):e061784.
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- Reyné B, Selinger C, Sofonea MT, et al. Analysing different exposures identifies that wearing masks and establishing COVID-19 areas reduce secondary-attack risk in aged-care facilities. *International Journal of Epidemiology* 2021;50:1788-94.

Rolland Y, Lacoste MH, de Mauleon A, Ghisolfi A, de Souto Barreto P et al. Guidance for the prevention of the COVID-19 epidemic in long-term care facilities: a short-term prospective study. *Journal of Nutrition, Health & Aging* 2020;24(8):812-6.

Saegerman C, Donneau AF, Speybroeck N, Diep AN, Williams A, et al. Repetitive salive-based mass screening as a tool for controlling SARS-CoV-2 transmission in nursing homes. *Transboundary & Emerging Diseases* 2022;69(4):e194-203.

Schuengel C, Tummers J, Embregts PJCM, Leusink GL. Impact of the initial response to COVID-19 on long-term care for people with intellectual disability: an interrupted time series analysis of incident reports. *Journal of Intellectual Disability Research* 2020;64(2):817-24.

Shallcross L, Burke D, Abbott O, Donaldson A, Hallatt G, et al. Factors associated with SARS-CoV-2 infection and outbreaks in long-term care facilities in England: a national cross-sectional survey. *The Lancet Healthy Longevity* 2021;2(3):e129-42.

Shimotsu ST, Johnson ARL, Berke EM, Griffin DO. COVID-19 infection control measures in long-term care facility, Pennsylvania, USA. *Emerging Infectious Diseases* 2021;27(2):644-5.

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Stemler J, Kramer T, Dimitriou V, Wieland U, Schumacher S, et al. Mobile PCR-based surveillance for SARS-CoV-2 to reduce visiting restrictions in nursing homes during the COVID-19 pandemic: a pilot study. *Infection* 2022;50(3):607-616.

Suwono B, Steffen A, Schweickert B, Schonfeld V, Brandl M, et al. SARS-CoV-2 outbreaks in hospitals and long-term care facilities in Germany: a national observational study. *The Lancet Regional Health. Europe* 2022;14:100303.

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Telford CT, Onwubiko U, Holland DP, Turner K, Prieto J, et al. Preventing COVID-19 outbreaks in long-term care facilities through preemptive testing of residents and staff members – Fulton County, Georgia, March-May 2020. *MMWR – Morbidity & Mortality Weekly Report* 2020;69(37):1296-9.

Temte JL, Checovich MM, Barlow S, Shult PA, Reisdorf E, et al. Rapid detection of influenza outbreaks in long-term care facilities reduces emergency room visits and hospitalization: a randomized trial. *Journal of the American Medical Directors Association* 2023;24(12):1904-1909.

Tulloch JSP, Micocci M, Buckle P, Lawrenson K, Kierkegaard P, et al. Enhanced lateral flow testing strategies in care homes are associated with poor adherence and were insufficient to prevent COVID-19 outbreaks: results from a mixed methods implementation study. *Age & Ageing* 2021;50(6):1868-75.

Vijh R, Ng CH, Shirmaleki M, Bharmal A. Factors associated with transmission of COVID-19 in long-term care facility outbreaks. *Journal of Hospital Infection* 2022;119:118-25.

Vijh R, Prairie J, Otterstatter MC, Hu Y, Hayden AS, et al. Evaluation of a multisectoral intervention to mitigate the risk of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) transmission in long-term care facilities. *Infection Control & Hospital Epidemiology* 2021;42(10):1181-8.

Vogazianos P, Argyropoulos CD, Haralambous C, Mikellidou CV, Boustras G, et al. Impact assessment of COVID-19 non-pharmaceutical interventions in long term care facilities in Cyprus: Safety improvement strategy. *Safety Science* 2021;143:105415.

Yeung WK, Tam WS, Wong TW. Clustered randomized controlled trial of a hand hygiene intervention involving pocket-sized containers of alcohol-based hand rub for the control of infections in long-term care facilities. *Infection Control & Hospital Epidemiology* 2011;32(1):67-76.

Linked Studies

Dufour AB, Kosar C, Mor V, Lipsitz LA. The effect of race and dementia prevalence on a COVID-19 infection control intervention in Massachusetts nursing homes. *Journals of Gerontology: Medical Sciences* 2022;77(7):1361-5. *Brain Sciences* 2021;11(8):986.

Pereiro AX, Dosil-Díaz Carlos, Mouriz-Corbelle R, Pereira-Rodríguez S, Nieto-Vietes A, et al. Impact of the COVID-19 lockdown on a long-term care facility: the role of social contact. *Brain Sciences* 2021;11(8):986.

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Appendix D

Summary Evidence Table (Effectiveness Review): Public Health Emergency Preparedness and Response: Non-Pharmaceutical Interventions to Reduce Transmission of Viral Respiratory Infections in Long-Term Care Communities

Abbreviations Used in This Document

- ADL: Activities of Daily Living, score ranges from 0 to 28, higher scores indicating greater functional impairment
- CI: confidence interval
- ED: emergency department
- LTC: long-term care
- N/A: not applicable
- NH: nursing home
- NPIs: non-pharmaceutical interventions
- NPIs evaluated (for definition, please go to the full Task Force Finding and Rationale Statement (link will be provided))
 - ATR: admission or transfer restriction
 - CC: cover cough
 - CD: cleaning and disinfecting
 - HH: proper hand hygiene
 - PD: physical distancing (isolation or cohorting)
 - PPE: personal protective equipment
 - SHS: staff stay home when sick
 - Testing
 - Vent: ventilation
 - VR: visitor restrictions
- NR: not reported
- NS: not statistically significant
- Pct pts: percentage points
- QoL: quality of life
- RCT: randomized controlled trial
- U.S.: United States

Notes:

- **Suitability of design** includes three categories: greatest, moderate, or least suitable design. [Read more](#)
- **Quality of Execution** – Studies are assessed to have good, fair, or limited quality of execution. [Read more](#)

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Author year: Abu-Fraiha 2023 Study design: before-after with concurrent comparison group Suitability of design: greatest Quality of execution: good	Location: Israel Population density: mixed (urban, suburban, rural) Eligibility criteria: all LTC communities within Israel Sample size: # of communities: 1107 # of residents: 100,046 # of staff: 62,159 Community type: LTC communities, all included Community characteristics: 315 NHs; 792 not NHs Population served: older adults, people with disabilities Demographics for residents in intervention group: NR	Intervention period examined: 19 weeks Evaluation period: intervention ongoing Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: NR Community: testing (routine testing; SHS and PD when tested positive) Environmental: NR Additional services provided: resource deployment (assistance with personnel to replace staff in isolation) Guidelines used for decision making: national Decision maker for implementing NPIs: national Comparison group: Israeli national data from pre- and post-intervention	Outcomes reported: hospitalization due to infection; mortality due to infection overall; mortality due to infection, ≥ 75 years; proportion of LTC communities with reduced sized outbreaks Infection lab confirmed or self-report: N/A Results: Hospitalization due to infection: Absolute difference: -2.2 pct pts Relative difference: -16.0% Mortality due to infection, overall: Absolute difference: -15 pct pts Relative difference: -33.1% Mortality due to infection, ≥ 75 years of age: Absolute difference: -11.5 pct pts Relative difference: -21.7% Proportion of outbreaks designated as decreased sized outbreaks (less than 5 residents infected in the 2 weeks following a staff member tested positive for SARS-CoV-2): Absolute difference: 62.4 pct pts Relative difference: 305.3%
Author year: Allan-Blitz 2022 Study design: single group before-after Suitability of design: least	Location: Florida, U.S. Population density: mixed (urban, suburban, rural) Eligibility criteria: employees and residents of LTC communities in Florida	Intervention period examined: 42 weeks Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated:	Outcomes reported: relationship between testing frequency and reduction in COVID cases among residents Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Quality of execution: fair	Sample size: # of communities: 361 # of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Individual: NR Community: testing (semi-monthly routine testing), VR Environmental: NR Additional services provided: NR Guidelines used for decision making: state Decision maker for implementing NPIs: state Comparison group: alternative education on nutrition and relevant cancer education material from another healthcare community	Based on the coefficients from the multivariable model, authors predicted that a 10% increase in testing frequency would result in a 1% reduction in the weekly LTC community case rate among residents. Assuming generalizability of the results, the reduction would result in 126 fewer cases per week, or 6,552 fewer cases per year, among LTC community residents across the U.S.
Author year: Angevaere 2022 Study design: interrupted time series Suitability of design: moderate Quality of execution: fair	Location: the Netherlands Population density: NR Eligibility criteria: residents ≥60 years of age in Dutch LTC communities. Intervention group consists of residents with one assessment prior to and one during intervention. Those in the comparison group had to have 2 assessments prior to intervention Sample size: # of communities: 42 # of residents: Intervention: 298 Control: 625 # of staff: NR	Intervention period examined: 9.5 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: NR Community: PD, VR Environmental: NR Additional services provided: virtual visits, group activities, and window visits with family members were allowed in some communities Guidelines used for decision making: national	Outcomes reported: mental health • Aggressive behavior: occurrence of verbal and physical abuse, socially disruptive behavior, and resistance to care in past 3 days, scores from 0 to 12, with higher scores signifying more aggressive behavior • Cognition: Cognitive Performance Scale (CPS); short term memory impairment and executive functioning in past 3 days, 0 (intact) to 6 (very severe impairment), score ≥3 indicates moderate to severe impairment • Conflict with other care recipients: occurrences of conflict with or repeated criticism of other care recipients in past 3 days • Conflict with staff: occurrences of conflict or repeated criticism of staff in past 3 days • Delirium: Delirium Clinical Assessment Protocol (CAP), assessment triggered if at least 1 of the following occurred in past 3 days (acute changes in mental status, different from usual functioning, easily distracted, episodes of disorganized speech, mental function varies over the course of a day)

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: LTC communities, all included Community characteristics: all Dutch LTC communities provide 24-hour care, are publicly funded, and include residential care homes and NHs Population served: older adults Demographics for residents in intervention group: Age: 30% 60-79 years; 19% 80-84 years; 28% 85-89 years; 23% ≥90 years Sex: 69% female; 31% male	Decision maker for implementing NPIs: national Comparison group: residents with 2 mental health assessment prior to VR, not part of the intervention group due to lack of assessment during VR	• Depression: Depression Rating Scale (DRS), assessor-rated depressive symptoms, 0 (no symptoms) to 14 (high symptom) • Depression, self-rated: 3 self-reported mood items, scores ranging from 0 to 6, with 6 signifies all 3 mood symptoms were present during the past 3 day (loss of interest, sadness, anxiety) • Loneliness: residents indicated they were lonely in the past 3 days • Withdrawal: occurrence of withdrawal from activities of interest, self-reported Infection lab confirmed or self-report: N/A Results: Narrative summary • Aggressive behavior: no change; OR: 0.98, 95% CI: 0.80 to 1.20. The oldest residents (90 years or older) had significant increase in aggressive behavior during intervention • Cognition: no change; OR: 0.03, 95% CI: -0.05 to 0.12 • Conflict with other care recipients: residents in comparison group had higher occurrences of conflict when compared with residents during intervention; OR 1.31, 95% CI 1.02 to 1.68 • Conflict with staff: no change; OR: 1.09, 95% CI: 0.85 to 1.40 • Delirium: no change; OR: 1.09, 95% CI: 0.81 to 1.46 • Depression: no change; DRS score increased 0.03, 95% CI: -0.24 to 0.30; author reported not clinically meaningful • Depression, self-rated: increased during early stages of intervention, but author reported not significantly different towards the end of intervention; score increased by 0.33, 95% CI: 0.01 to 0.64 • Loneliness: no change; OR: 0.94, 95% CI: 0.77 to 1.15

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			Withdrawal: no change; OR: 0.95, 95% CI: 0.72 to 1.25. For residents with no or mild cognitive impairment, withdrawal significantly decreased during intervention; for residents with cognitive impairment there was a small increase in withdrawal
Author year: Backhaus 2021 Study design: single group before-after Suitability of design: least Quality of execution: fair	Location: the Netherlands Population density: mixed (urban, suburban, rural) Eligibility criteria: NH involved in a Dutch national pilot study assessing impact of visitor restrictions and reopening Sample size: # of communities: 76 # of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities only Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: 26 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: VR (relaxing of VR) Environmental: none Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: LTC community Comparison group: comparing to when VR were in place	Outcomes reported: Mental health: questionnaire results on residents' mood and cognitive decline QoL: questionnaire results on residents' activity and contact seeking behavior Infection lab confirmed or self-report: N/A Results: Narrative summary Compared with the situation during visitor restriction, reopening LTC communities resulted in the following: Mental health: - Residents had more positive mood in 45% of NHs surveyed - Residents showing more cognitive decline in 20% of NHs, same level of cognitive functioning in 55% of NHs, less cognitive decline in 11% of NHs QoL: residents were more active and more actively sought contact with others in 30% of NHs
Author year: Bakaev 2020 Study design: single group before-after Suitability of design: least	Location: Massachusetts, U.S. Population density: NR Eligibility criteria: residents at the Hebrew Rehabilitation Center, a multicampus organization of LTC communities	Intervention period examined: 4 weeks Evaluation period: intervention ongoing Intervention details: Infectious agent: SARS-CoV-2	Outcomes reported: incidence among residents; new cases identified each week Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Quality of execution: fair	Sample size: # of communities: NR # of residents: 723 # of staff: NR Community type: LTC communities, all included Community characteristics: NR Population served: older adults Demographics for residents in intervention group: <i>Age, mean:</i> 89 years	NPIs evaluated: Individual: N/A Community: testing (routine testing; PD when tested positive) Environmental: N/A Additional services provided: NR Guidelines used for decision making: national and state Decision maker for implementing NPIs: LTC community Comparison group: pre-intervention	Before universal testing, the number of new cases tripled weekly. After universal testing had been implemented, new cases declined to 14%
Author year: Balestrini 2021 Study design: before-after with concurrent comparison group Suitability of design: greatest Quality of execution: fair	Location: United Kingdom Population density: mixed (urban, suburban) Eligibility criteria: residents and staff at several LTC communities dedicated to care of people with epilepsy in and around London Sample size: # of communities Intervention: 1 Control: 1 # of residents: Intervention: 98 Control: 146 # of staff: Intervention: 275 Control: 601 Community type: residential LTC communities only	Intervention period examined: 20 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: N/A Community: testing (weekly routine testing of residents; PD when tested positive) Environmental: N/A Additional services provided: NR Guidelines used for decision making: national and regional Decision maker for implementing NPIs: LTC community	Outcomes reported: incidence among staff Infection lab confirmed or self-report: lab-confirmed Results: Intervention, change: 1.1% Control, change: 2.8% Absolute difference: -1.7 pct pts Relative difference: -61.1%, $p < 0.05$

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community characteristics: NR Population served: people with disabilities Demographics for residents in intervention group: <i>Age, median:</i> 49 <i>Sex:</i> 32.6% female; 67.3% male <i>Race/Ethnicity:</i> Black, Asian, and other groups of minorities, 5%	Comparison group: a comparable LTC community for people with epilepsy in London without testing procedures in place	
Author year: Belmin 2020 Study design: retrospective cohort Suitability of design: moderate Quality of execution: fair	Location: France Population density: NR Eligibility criteria: French NHs in which some of the staff voluntarily confined themselves to the community along with residents for 7 days or longer Sample size: # of communities: 17 # of residents: 1,250 # of staff: 794 Community type: NHs or skilled nursing facilities Community characteristics: Ownership: 35.3% public; 23.5% private; 41.2% non-profit Size of community: 35.3% ≤60 residents; 41.2% 61-100 residents; 23.5% >100 residents Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: 2 weeks to 5 weeks (depending on the community) Evaluation period: 8 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: PD Environmental: none Additional services provided: NR Guidelines used for decision making: LTC community Decision maker for implementing NPIs: LTC community Comparison group: French NHs following standard procedures	Outcomes reported: incidence among residents, staff, and overall; mortality due to infection among residents; proportion of communities with an infection Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents: Intervention, change: 0.4% Control, change: 4.4% Absolute difference: -4.0pct pts Relative difference: -90.9% Incidence among staff: Intervention, change: 0.8% Control, change: 3.8% Absolute difference: -3.0pct pts Relative difference: -80.1% Incidence overall: Intervention, change: 0.5% Control, change: 2.5% Absolute difference: -2.0pct pts Relative difference: -78.6% Mortality due to infection among residents: Intervention, change: 0.4%

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			Control, change: 1.8% Absolute difference: -1.4pct pts Relative difference: -77.8% Proportion of communities with an infection: Intervention, change: 5.9% Control, change: 48.3% Absolute difference: -42.5pct pts Relative difference: -87.8%
Author year: Cazzoletti 2021 Study design: cross-sectional Suitability of design: least Quality of execution: fair	Location: Italy Population density: mixed (urban, rural) Eligibility criteria: all NHs for the elderly in the province of Trento; excluded other LTC settings for people with disabilities and hospital based LTC Sample size: # of communities: 45 # of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities Community characteristics: Size of community: 36% small to medium; 64% large (>70 beds) Population density: 24% urban; 76% rural Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: NR Evaluation period: 12 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: HH, PPE Community: PD Environmental: CD Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: NR Comparison group: N/A	Outcomes reported: associations between NPIs evaluated and incidence among residents Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary HH: no statistically significant association between hand hygiene and the median cumulative incidence of COVID-19 in NHs, p=0.915 PPE: no statistically significant association between PPE use and the median cumulative incidence of COVID-19 in NHs, p=0.742 PD (isolation): isolation of cases was not statistically significantly associated to the median cumulative incidence of COVID-19 in NHs, p=0.941 CD (sanitation): no statistically significant association between sanitization and the median cumulative incidence of COVID-19 in NHs, p=0.408

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Author year: Ehrlich 2021 Study design: single group before-after Suitability of design: least Quality of execution: fair	Location: Connecticut, U.S. Population density: mixed (urban, suburban, rural) Eligibility criteria: NHs selected based on size of their outbreaks and potential immediate effect of control measures Sample size: # of communities: 34 # of residents: 437 # of staff: NR Community type: NHs or skilled nursing facilities Community characteristics: Size of community: about 135 beds per NH Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: 12 weeks Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: testing (weekly routine testing; SHS and PD when tested positive) Community: none Additional services provided: NR Guidelines used for decision making: state Decision maker for implementing NPIs: state Comparison group: pre intervention	Outcomes reported: incidence among residents adjusted for community prevalence; proportion of communities with reduced incidence; relationship between test frequency and reduction in infections Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents: Relative change: -80%, 95% CI: -89% to -64% Narrative summary Proportion of communities with reduced incidence: compared with 4 weeks before implementation, incidence rates in residents decreased in 85% of the communities in the 12-week follow-up period, $p < 0.05$ Relationship between test frequency and reduction in infections: a positive but nonsignificant correlation between the number of days between each round of testing and the number of cases identified in a LTC community
Author year: Geeraedts 2022 Study design: before-after with concurrent comparison group Suitability of design: greatest Quality of execution: fair	Location: the Netherlands Population density: urban Eligibility criteria: large LTC communities in the Twente region with an infection prevention professional in service Sample size: # of communities: 7 # of residents: 5,649 # of staff: 13,438	Intervention period examined: 4.5 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: testing (routine testing; SHS and PD when tested positive) Environmental: none	Outcomes reported: incidence prevented; excess death due to SARS-CoV-2 infection prevented Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary Incidence prevented: with an estimated basic R_0 between 0.7 and 1.0 for the Netherlands, 101 to 144 secondary infections may have been prevented; with an estimated R_0 of 2 to 3 for LTC communities, 288 to 432 transmissions may have been prevented

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: LTC communities, all included Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: regional Comparison group: LTC communities in other regions in the Netherlands without routine testing	Excess death due to infection prevented: Intervention region: 8% excess death Comparison regions: 21% to 74% One month after intervention implementation, intervention region had excess mortality rate that was 2.6 times (62%) to 9.3 times (89%) lower than in comparison regions
Author year: Gil-Llario 2023 Study design: simple time series Suitability of design: least Quality of execution: good	Location: Spain Population density: NR Eligibility criteria: a single community was selected for evaluation; for residents to be included in the analysis, they need to have diagnosis of mild or moderate intellectual disability; over 18 years of age; residing in the community; assessed by the center on variables of interest before the pandemic Sample size: # of communities: 1 # of residents: 24 # of staff: NR Community type: residential LTC communities Community characteristics: NR Population served: people with intellectual disabilities	Intervention period examined: 30 weeks Evaluation period: 91 weeks Intervention details: Infectious agent: SARS-COV-2 NPIs evaluated: Individual: none Community: PD (cohorting), VR Environmental: none Additional services: NR Guidelines used for decision making: national Decision maker for implementing NPIs: national Comparison group: pre intervention	Outcomes reported: Mental health: - Anxiety: level of anxiety symptoms measured by Diagnostic Assessment for Severely Disabled, DASH-II, Spanish version, validated; lower score favorable - Depression: level of depressive symptoms measured by DASH-II, Spanish version, validated; lower score favorable - Organic syndromes: now referred to as neurocognitive disorders, such as increased restlessness, difficulties in focusing attention or remembering things the individual used to know, slower response times, or rapid changes in mood, measured by DASH-II, Spanish version, validated; lower score favorable QoL: - Self-determination: assessed through two scales, INICO-FEAPS Scale of Comprehensive Assessment of the Quality of Life of People with Intellectual or Developmental Disabilities; San Martín Scale of Assessment of the Quality of Life of People with Significant Disabilities; higher score favorable - Emotional wellbeing: same scales used to determine scores; higher score favorable - Social inclusion: same scales used to determine scores; higher score favorable

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Demographics for residents in intervention group: <i>Age, mean:</i> 40.2 years <i>Sex:</i> 54.2% female; 45.8% male		• Interpersonal relationship: same scales used to determine scores; lower score favorable Results: Narrative summary Mental health • Anxiety: VR didn't increase anxiety; VR + PD (cohorting) increased anxiety; relaxing VR + PD decreased anxiety; results not statistically significant. • Pre-intervention: 2.0 ± 2.33 • VR only: 1.79 ± 1.91 • VR + PD (cohorting): 2.67 ± 3.41 • Reopening: 2.12 ± 2.27 • Depression: VR didn't increase depression; VR + PD (cohorting) increased depression; relaxing VR + PD decreased depression and was nearly approximate to pre-pandemic levels; results not statistically significant • Pre-intervention: 4.46 ± 4.42 • VR only: 4.21 ± 4.21 • VR + PD (cohorting): 5.12 ± 5.17 • Reopening: 4.5 ± 4.59 • Organic symptoms: VR worsened organic symptoms, VR + PD (cohorting) worsened symptoms more; relaxing VR + PD improved organic symptoms but did not reach pre-pandemic levels; results statistically significant • Pre-intervention: 2.42 ± 1.86 • VR only: 3.26 ± 3.24 • VR + PD (cohorting): 3.79 ± 3.5 • Reopening: 2.83 ± 2.53 QoL • Self-determination: VR improved self-determination; VR + PD (cohorting) worsened self-determination; relaxing VR + PD (cohorting) worsened it further but did not reach pre-pandemic levels; results not statistically significant

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			• Pre-intervention: 46.33 ± 24.82 • VR only: 47.25 ± 26.25 • VR + PD (cohorting): 44.37 ± 27.16 • Reopening: 44.63 ± 26.71 • Emotional well-being: VR worsened emotional well-being, VR + PD (cohorting) improved it slightly; relaxing VR + PD (cohorting) didn't change it and did not reach pre-pandemic levels; results not statistically significant • Pre-intervention: 45.38 ± 23.67 • VR only: 41.58 ± 23.03 • VR + PD (cohorting): 42.79 ± 24.04 • Reopening: 42.67 ± 24.56 • Social inclusion: VR improved social inclusion; VR + PD (cohorting) worsened it; relaxing VR + PD (cohorting) worsened it further; results not statistically significant • Pre-intervention: 42.63 ± 24.91 • VR only: 44.37 ± 28.31 • VR + PD (cohorting): 40 ± 31.15 • Reopening: 39.92 ± 27.39 • Interpersonal relationship: VR improved interpersonal relationship; VR + PD (cohorting) didn't change it; relaxing VR + PD (cohorting) improved it but not to pre-pandemic levels; results not statistically significant • Pre-intervention: 41.29 ± 28.81 • VR only: 43.13 ± 28.98 • VR + PD (cohorting): 43.71 ± 33.12 • Reopening: 44.67 ± 26.8
Author year: Green 2021 Study design: single group before-after Suitability of design: least	Location: England Population density: mixed (urban, suburban, rural) Eligibility criteria: all LTC communities with no confirmed or	Intervention period examined: 2.5 weeks Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2	Outcomes reported: incidence among residents Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Quality of execution: fair	suspected cases in the Liverpool area Sample size: # of communities: 33 # of residents: 812 # of staff: NR Community type: LTC communities, all included Community characteristics: Size of community: 856 beds overall Type of community: 52.9% purely residential in nature, remaining offered nursing care Population served: older adults Demographics for residents in intervention group: <i>Age, mean:</i> 74 years <i>Sex:</i> 60% female; 40% male	NPIs evaluated: Individual: none Community: testing (routine testing) Environmental: none Additional services provided: regular check-in; all LTC communities received extensive advice and support from Liverpool area health and care partners Guidelines used for decision making: local Decision maker for implementing NPIs: local Comparison group: pre-intervention	No significant difference between crude prevalence of residents testing positive between the first and second round of testing; $p=0.11$ When COVID-19 prevalence is low, repeat testing at two to three weeks had limited or no public health benefits over regular daily monitoring of staff and residents for symptoms Communities with asymptomatic residents showed no evidence of disease transmission or development of outbreaks, suggesting that current infection prevention and control measures are effective in preventing transmission
Author year: Gustafsson 2022 Study design: interrupted time series Suitability of design: moderate Quality of execution: fair	Location: Sweden Population density: NR Eligibility criteria: all respondents who completed both the 2019 and 2020 National Board of Health and Welfare Questionnaires and were age 70 or older in 2020 Sample size: # of communities: NR # of residents: 11,782 # of staff: NR	Intervention period examined: NR Evaluation period: 11 weeks Intervention details: Infectious agent: SARS-COV-2 NPIs evaluated: Individual: none Community: VR Environmental: none Additional services: NR Guidelines used for decision making: national	Outcomes reported: Mental health: loneliness; measured by a survey consisting of 20-25 items covering perceptions of the eldercare and self-rated loneliness and health, administered by the National Board of Health and Welfare in Sweden Infection lab confirmed or self-report: N/A Results: Narrative summary Compared to the period before VR and to the trends of the corresponding periods in 2019, there was a relative decrease in loneliness trends after VR was implemented $RR = 0.974$, 95% CI: 0.949 to 0.998

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: <i>Age, mean:</i> 88.2 years <i>Sex:</i> 71% female; 29% male <i>Insurance:</i> 21% private providers; 79% public providers	Decision maker for implementing NPIs: national Comparison group: pre-intervention	However, this decrease was not statistically significant after adjusting for other factors, and it became even less significant after also considering health in 2019 and 2020 RR = 0.984, 95% CI: 0.961 to 1.008
Author year: Hodge 2023 Study design: cross-sectional Suitability of design: least Quality of execution: fair	Location: Australia Population density: urban, rural Eligibility criteria: all LTC communities with an outbreak within the Wide Bay Public Health Unit, excluding multi-purpose health services; outbreak defined as 2 or more residents tested positive for SARS-CoV-2 within 5 days and have been onsite at the LTC communities during their infectious period; or 5 or more staff, visitors, and/or residents tested positive within the past 7 days who worked or visited during their infectious period Sample size: # of communities: 27 # of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: NR	Intervention period examined: NR Evaluation period: 32 weeks Intervention details: Infectious agent: SARS-COV-2 NPIs evaluated: Individual: PPE, SHS Community: testing, PD Environmental: none Additional services provided: collaboration, support, provided by Wide Bay Public Health Unit Guidelines used for decision making: NR Decision maker for implementing NPIs: NR Comparison group: cross-sectional comparison; association between intervention vs. no intervention or different levels of implementation and incidence	Outcomes reported: associations between NPIs evaluated and outcomes that include incidence among residents and staff, and outbreak duration Outbreak duration: defined by Communicable Disease Network Australia, measured in number of days from outbreak start (the day the outbreak criteria was met) to outbreak end (7 days after the last case in community) Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents and staff • PD (staff cohorting) is associated with a 64.3% reduction in incidence, $p=0.0073$ • Strict enforcement of SHS produced larger reductions in incidence • Staff SHS + close contact vs. staff SHS: 3.85 vs. 16.20, -76.2%, NS • Staff SHS + close contact vs. most staff SHS: 3.85 vs. 27.11, -85.8%, NS • Staff SHS vs. most staff SHS: 16.20 vs. 27.11, -40.2%, NS

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Population served: older adults Demographics for residents in intervention group: NR		• Shorter turnaround time between sample collection and receipt of results statistically significantly associated with fewer infections • Same day turnaround vs. next day: 13.77 to 24.42, -43.6% • Same day turnaround vs. several days later: 13.77 vs. 23.96, -42.5% • Next day vs. several days later: 24.42 vs. 23.96, 1.9%, NS • Strict cohorting was statistically significantly associated with fewer infections • All cohorting vs. most cohorting: 11.22 vs. 14.21, -21.0% • All cohorting vs. no: 11.22 vs. 31.47, -64.3% • Most cohorting vs. no: 14.21 vs. 31.47, -54.8% Outbreak duration in days • PD (staff cohorting) is not associated outbreak duration • Strict enforcement of SHS shortened outbreak duration • Staff SHS + close contact vs. staff SHS: 13.5 vs. 21, -35.7%, NS • Staff SHS + close contact vs. most staff SHS: 13.5 vs. 14, -3.6%, NS • Staff SHS vs. most staff SHS: 21 vs. 14, 50.0%, NS • Turnaround time between sample collection and receipt of results was not associated with outbreak duration • Same day turnaround vs. next day: 20 vs. 20.5, -2.4%, NS • Same day turnaround vs. several days later: 20 vs. 22.5, -11.1%, NS • Next day vs. several days later: 20.5 vs. 22.5, -8.9%, NS

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			• Strict cohorting was not associated with outbreak duration • All cohorting vs. most cohorting: 21 vs. 20, 5%, NS • All cohorting vs. no: 21 vs. 21, 0%, NS • Most cohorting vs. no: 20 vs. 21, -4.7, NS
Author year: Huang 2021 Study design: single group before-after Suitability of design: least Quality of execution: fair	Location: Taiwan Population density: NR Eligibility criteria: one NH was selected for unreported reasons; all residents living in the NH and staff who continuously worked in the community from 1/2019 to 9/2020 Sample size: # of communities: 1 # of residents: 183 # of staff: 127 Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: Age: 60.7% were 80+ years old Sex: 64% female; 36% male Underlying conditions: 78.1% with ADL score ≤ 20; 95.6% with Charleston Comorbidity Index ≥ 6	Intervention period examined: 36 weeks Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: HH, PPE Community: testing (PD when tested positive), PD, VR Environmental: CD Additional services provided: collaboration with the local hospital, with doctors visit residents weekly, outpatient department visits Guidelines used for decision making: national Decision maker for implementing NPIs: national Comparison group: pre-intervention	Outcomes reported: ED visits and hospitalization due to viral respiratory infection over 36 weeks; length of hospital stay in days Infection lab confirmed or self-report: electronic records Results: ED visits: Pre: 93 Post: 42 Absolute change: -51 visits Relative change: -54.8%, $p < 0.001$ Hospitalization due to infection: Intervention: Pre: 79 Post: 33 Absolute change: -46 visits Relative change: -58.2%, $p < 0.001$ Hospital stays: Pre: 1009 Post: 387 Absolute change: -622 days Relative change: -61.6%, $p < 0.001$
Author year: Jutkowitz 2022	Location: Florida, Georgia, North Carolina, South Carolina, U.S.	Intervention period examined: 6 weeks	Outcomes reported: incidence among residents; proportion of communities with

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Study design: interrupted time series Suitability of design: moderate Quality of execution: fair	Population density: NR Eligibility criteria: NHs in a same multi-facility corporation in the southern U.S. which agreed to install air purifiers and share community-level data with researchers Sample size: # of communities: 84 # of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities Community characteristics: one company with LTC communities throughout the Southeastern U.S. Population served: older adults Demographics for residents in intervention group: <i>Age, mean:</i> 78.3 years <i>Sex:</i> 65.1% female; 35.0% male <i>Race/Ethnicity:</i> 64.5% White; 31.5% African American; 0.9% Hispanic	Evaluation period: 8 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: none Environmental: vent Additional services provided: NR Guidelines used for decision making: NR Decision maker for implementing NPIs: LTC community Comparison group: Incidence: wider community infections from the same period Other outcomes: pre-intervention	infections per week; proportion of communities with infection-related deaths per week Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents per week: Intervention: Pre: 14.3 infections per week per 1,000 residents Post: 9.3 infections per week per 1,000 residents Change: -35% Comparison: Pre: 25.0 infections per week per 100,000 community members Post: 18.5 infections per week per 100,000 community members Change: -26% Relative difference: -34.5% Regression coefficient translates to a reduction of 1.69 COVID-19 cases per 1,000 residents per week in the post compared to the pre period, controlling for community cases; 95% CI: -4.32 to 0.95 Proportion of communities with infections per week: Pre: 21.5% Post: 9.6% Absolute change: -11.9 pct pts Relative change: -55.3% Regression coefficient translates to a 0.02 pct pts reduction in the probability of a community having a COVID-19 case pre week in the post compared to the pre period Proportion of communities with infection-related deaths per week:

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			Pre: 8.8% Post: 1.8% Absolute change: -7.0 pct pts Relative change: -79.5% Regression coefficient translates to a 0.01 pct pts increase in the probability of a NH having a COVID-19 death pre week in the post compared to the pre period
Author year: Kovach 2017 Study design: single group before-after Suitability of design: least Quality of execution: fair	Location: Midwest, U.S. Population density: NR Eligibility criteria: all residents of a single LTC community in the upper Midwest; reason for choosing the specific community not provided Sample size: # of communities: 1 # of residents: NR # of staff: NR Community type: NH or skilled nursing facility Community characteristics: NR Population served: older adults Demographics for intervention group: NR	Intervention period examined: 52 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: pneumonia, respiratory infections NPIs evaluated: Individual: none Community: none Environmental: CD Additional services provided: NR Guidelines used for decision making: NR Decision maker for implementing NPIs: LTC community Comparison group: pre-intervention	Outcomes reported: incidence among residents; hospitalization due to infection Infection lab confirmed or self-report: symptomatic Results: Incidence among residents Narrative summary Pre-intervention (2012 to 2014) compared with post-intervention (2015) period, LTC community acquired infections had a small decrease, while hospital acquired rates showed an increase; the ratio increased from pretest to posttest indicating that as the hospital acquired rate was increasing the rate of LTC community acquired infections was decreasing or staying the same Hospitalization due to infection: Pre: 15 cases Post: 5 cases Relative change: -66.7%
Author year: Lipsitz 2020 Linked to Dufour 2021	Location: Massachusetts, U.S. Population density: mixed (urban, suburban, rural)	Intervention period examined: NR Evaluation period: NR	Outcomes reported: associations between NPIs evaluated and outcomes that include incidence among residents and mortality due to infection

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Study design: simple time series Suitability of design: least Quality of execution: good	Eligibility criteria: NHs in MA area with infection control deficiencies, including those that failed an initial audit Sample size: # of communities: Intervention: 123 Control: 237 # of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: <i>Age, mean:</i> 81 years <i>Sex:</i> 66% female; 44% male <i>Race/Ethnicity:</i> 85.0% White; 15.0% non-White <i>Underlying conditions:</i> 55% with dementia	Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: testing (routine testing; SHS and PD when tested positive), PD Environmental: CD Additional services provided: collaboration with government agencies to receive implementation support; assessment and feedback of NPI adherence through checklist; resources deployment; virtual visits; incentives for LTC communities Guidelines used for decision making: national and local Decision maker for implementing NPIs: state Comparison group: association between intervention vs. no intervention or different levels of implementation and outcomes	Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents: - For each 1-point increase in checklist audit score, the weekly infection rate decreased further - Overall: -8%, $p=0.0007$ - Similar reduction for LTC communities whether non-White residents was <20% or $\geq 20\%$ - LTC communities with low dementia prevalence (0-50%): -1% - LTC communities with middle dementia prevalence (50-62%): -8% - LTC communities with high dementia prevalence (62-100%): -12% - For each 1-point increase in checklist audit score, the likelihood of a zero-infection rate increased by 13%, $p=0.004$ - PD (cohorting) was associated with reductions in weekly infection rate - Overall: -50%, $p=0.004$ - LTC communities with <20% non-White residents: -51% - LTC communities with $\geq 20\%$ non-White residents: -78% - LTC communities with low dementia prevalence (0-50%): -38% - LTC communities with middle dementia prevalence (50-62%): -63% - LTC communities with high dementia prevalence (62-100%): -56% - PD (cohorting) was associated with increased OR of zero-infection rate among residents - Overall AOR: 3.00, 95% CI: 1.34 to 6.71, $p=0.0076$ - LTC communities with <20% non-White residents AOR: 5.4 - LTC communities with $\geq 20\%$ non-White residents AOR: 5.03

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			Mortality due to infection: • For each 1-point increase in checklist audit score, the weekly mortality rate decreased by 3%, ($p=0.179$), and the likelihood of a zero-mortality rate increased by 16% ($p=0.0009$), regardless of resident demographics • PD (cohorting) was associated with a 38% reduction in weekly mortality rate ($p=0.0379$) and 98% increased odds of zero mortality among residents
Author year: Lipsitz 2022 Study design: simple time series with comparison group Suitability of design: greatest Quality of execution: fair	Location: Intervention: Massachusetts, U.S. Comparison: New Hampshire, Rhode Island, Connecticut, U.S. Population density: mixed (urban, suburban, rural) Eligibility criteria: residents at 20 LTC communities in Massachusetts where NPIs were implemented; present at the study's beginning, followed for 20 weeks or until developing COVID-19, discharge, or death; new admissions were excluded due to varying state restrictions and potential immunity to new infections Sample size: # of communities: Intervention: 20 Comparison: 45 #of residents: Intervention: 2,085 Comparison: 4,493 # of staff: NR	Intervention period examined: 15 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE Community: testing (routine testing; SHS and PD when tested positive), PD Environmental: none Additional services provided: virtual and in-person assessment and feedback by using checklist for shortcomings and ways to improve; resource access and deployment; regular check ins for quality improvement; incentive to staff; virtual visits for residents Guidelines used for decision making: nation and state	Outcomes reported: incidence among residents and staff Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary Early intervention, May 10 to June 3, 2020: the adjusted risk of infection declined by about 27% in comparator states (Hazard Ratio [HR], 0.73, 95% CI 0.54 to 1.00) relative to the baseline period; the adjusted risk of infection declined by 66% relative to baseline for Massachusetts; this is a 53% additional reduction in risk beyond that observed in comparator states (state-by-time interaction HR 0.47, 95% CI 0.37 to 0.59) Late intervention, June 3 to August 12, 2020: residents in Massachusetts experienced additional decline in infection relative to the comparator states (HR 0.80, 95% CI 0.64 to 1.00)

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: <i>Age:</i> 7% <65; 7% 65–69; 11% 70–74; 13% 75–79; 14% 80–84; 18% 85–89; 30% ≥90 <i>Sex:</i> 67% female; 33% male <i>Race/Ethnicity:</i> 87% White; 4% Black or African American; 9% Hispanic or other <i>Insurance:</i> 30% private insurance; 10% Medicare; 59% Medicaid <i>Underlying health conditions:</i> ADL score of 17.3; 53% dementia; 27% congestive heart failure; 21% coronary artery disease; 26% asthma or COPD; 28% chronic kidney disease; 80% hypertension; 36% diabetes; 19% post-acute patient	Decision maker for implementing NPIs: state Comparison group: LTC communities in other New England States (Rhode Island, New Hampshire, and Connecticut); used same provider system as the intervention group	
Author year: Makris 2000 Study design: group RCT Suitability of design: greatest Quality of execution: fair	Location: Delaware and New Jersey, U.S. Population density: mixed (urban, suburban) Eligibility criteria: 8 communities enrolled in the Medisys, Inc, an infection control surveillance program, selected based on similar admission rate, size, acuity levels, availability of services, overall infection rates, and in-	Intervention period examined: 52 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: respiratory infections NPIs evaluated: Individual: HH Community: N/A	Outcomes reported: incidence of upper respiratory infections among residents Outcome measure: number upper respiratory infections/ 1000 patient days Infection lab confirmed or self-report: symptomatic Results: Intervention: Change: -58.4%

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	house environmental departments Sample size: # of communities Intervention: 4 Control: 4 # of residents: NR # of staff: NR Community type: LTC communities, unspecified Community characteristics: Intervention: 2 urban and 2 suburban communities, with a total of 443 beds Control: 2 urban and 2 suburban communities, with a total of 447 beds Population served: older adults Demographics for residents in intervention group: NR	Environmental: CD Additional services provided: resource access and deployment; regular check-in; in-person assessment and feedback through mentor and education Guidelines used for decision making: national and LTC community Decision maker for implementing NPIs: LTC community Comparison group: 4 comparable communities maintaining existing infection control policies and procedures	Control: Change: -33.1% Absolute difference: -25.3 pct pts Relative difference: -76.6%
Author year: McArthur 2021 Study design: single group before-after Suitability of design: least Quality of execution: good	Location: Canada Population density: NR Eligibility criteria: French speaking LTC communities in a private network called Les Visionnaires in New Brunswick, Canada Sample size: # of communities: 7 # of residents: 765 # of staff: NR	Intervention period examined: 10 weeks Evaluation period: 4 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: PD, VR Environmental: none Additional services provided: virtual visits for family members,	Outcomes reported: Mental health: - Depression: assessor-rated depressive symptoms using the Depression Rating Scale; scored 0 (no symptom) to 14 (high symptom burden) - Aggressive behavior: severity of expressions and behaviors assessed by using Aggressive Behavior Scale; scored 0 (no behaviors) to 12 (most severe) - Delirium: assessed using Delirium Clinical Assessment Protocol, examining if behavior appears different from usual functioning, either new onset or worsening, such as easily distracted, episodes of disorganized speech,

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: LTC communities, all included Community characteristics: privately owned LTC communities with between 30 and 85 resident beds Population served: older adults, people with dementia Demographics for residents in intervention group: <i>Age, mean:</i> 81.4 years <i>Sex:</i> 59.5% female; 40.5% male <i>Underlying health conditions:</i> 55.6% Alzheimer's disease or dementia; 6.8% with a diagnosis of heart failure	with recreation staff to foster connections between residents and family members; local government supplied 1 iPad per every 10 residents to help enhance virtual visits Guidelines used for decision making: NR Decision maker for implementing NPIs: regional Comparison group: pre-intervention	mental function varies over the course of day, or acute changes in mental status from usual state; assessed for residents without or with dementia Results: Narrative Summary - Depression: proportion of residents with indications of depression decreased with PD and VR in place (19.9% to 11.5%, $p < 0.002$); multivariate analysis showed reduced odds for experiencing depression (adjusted OR: 0.86, 95% CI 0.66 to 1.11) - Aggressive behavior: with PD and VR, there was no significant change in the proportion of residents experiencing behavioral problems (35.5% to 30.2%, $p = 0.19$); multivariate analysis showed aggressive behaviors decreased during lockdown (adjusted OR: 0.88, 95% CI 0.72 to 1.06) - Delirium, residents without dementia: there was no significant change in the proportion of residents experiencing delirium (4.5% to 3.5%, $p = 0.51$) during PD and VR; multivariate analysis showed increased odds of experiencing delirium (adjusted OR 1.21, 95% CI 0.57 to 2.57) - Delirium, residents with dementia: less likely to experience delirium during PD and VR as compared with residents without dementia (adjusted OR 0.29, 95% CI 0.07 to 1.16)
Author year: McGarry 2023 Study design: cross-sectional Suitability of design: least	Location: nationwide, U.S. Population density: NR Eligibility criteria: NH had to have reported to the National Healthcare Safety Network of Centers for Disease Prevention and Control	Intervention period examined: NR Evaluation period: 77 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none	Outcomes reported: association between NPI characteristics and outcomes that include incidence among residents and mortality due to infection Testing frequency: high-testing communities (90th percentile of test volume) compared with low-testing communities (10th percentile)

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Quality of execution: good	Sample size: # of communities: 13,424 # of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities only Community characteristics: most had between 107.7 and 111.4 beds and were for-profit Population served: older adults Demographics for residents in intervention group: <i>Age, mean:</i> 79.4 years <i>Race/Ethnicity:</i> 80.4% White, 19.6% non-White <i>Insurance:</i> 59.5% Medicaid	Community: testing (routine) Environmental: none Additional services: NR Guidelines used for decision making: NR Decision maker for implementing NPIs: LTC community Comparison group: cross-sectional comparison; association between testing frequency and outcomes of interest	Testing turnaround time: communities that mostly send samples out for testing, with turnaround time with 0-2 days vs. ≥ 3 days Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary Testing frequency: Incidence among residents: high-testing communities had fewer adjusted COVID-19 cases than low-testing communities; this difference was larger during pre-vaccine period than after vaccines became available High testing vs. low testing, overall: Absolute change: -71.5 cases Relative change: -12.1% High testing vs low testing, pre-vaccine: Absolute change: -300.3 cases Relative change: -28.3% Mortality due to infection: high-testing communities had fewer adjusted COVID-19 deaths than low-testing communities; the difference was larger during the pre-vaccine period than after vaccines became available High testing vs. low testing, overall: Absolute change: -7.1 deaths Relative change: -14.3% High testing vs low testing, pre-vaccine: Absolute change: -41.6 deaths Relative change: -24.9% Testing turnaround time: Incidence among residents: communities with a shorter turnaround time had fewer adjusted COVID-19 cases than communities with a longer turnaround time; the difference was larger during the pre-vaccine period than after vaccines became available

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			Shorter turnaround vs. low testing, overall: Absolute change: -26.5 cases Relative change: -5.2% Shorter turnaround vs. low testing, pre-vaccine: Absolute change: -112 cases Relative change: -12.6% Mortality due to infection: communities with a shorter turnaround time had fewer adjusted COVID-19 deaths than communities with a longer turnaround time; the difference was larger during the pre-vaccine period than after vaccines became available Shorter turnaround vs. low testing, overall: Absolute change: -17.5 deaths Relative change: -29.6% Shorter turnaround vs. low testing, pre-vaccine: Absolute change: -44.1 deaths Relative change: -27.6%
Author year: Oliveira 2023 Study design: interrupted time series Suitability of design: moderate Quality of execution: fair	Location: Spain Population density: rural Eligibility criteria: included patients with dementia with or without severe cognitive decline, with permission from legal guardians; excluded staff and relatives who refused to participate; residents who were terminally ill and those with acute medical conditions preventing baseline evaluation (e.g., fractures, respiratory or severe infections, heart attack, pneumonia, etc.) Sample size: # of facilities: 3 # of residents: 301 # of staff: 119	Intervention period examined: NR Evaluation period: 8 weeks Intervention details: Infectious agent: SARS-COV-2 NPIs evaluated: Individual: none Community: VR Environmental: none Additional services: NR Guidelines used for decision making: national Decision maker for implementing NPIs: national	Outcomes reported: Mental health: - Anxiety: anxiety status assessed by a clinician using the Hamilton Anxiety Rating Scale; Spanish version, validated; 14 item scale with each item 0-4 points; higher score denotes greater anxiety - Depression: assessed using Yesavage test for residents, specifically designed for older adults; Spanish version, validated; higher score denotes higher depression QoL: - Social support: self-perception of social support assessed using DUKE-UNC questionnaire; Spanish version, validated; lower score denotes lower perceived social support Infection lab confirmed or self-report: N/A Results: Narrative summary

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults, people with dementia Demographics for residents in intervention group: <i>Age, mean:</i> 85 years <i>Sex:</i> 75.0% female; 25.0% male	Comparison group: pre-intervention	Mental health • Anxiety: • Significant decrease in anxiety in residents when VR was implemented • Anxiety level returned to baseline levels when VR was lifted • Anxiety level not impacted by age of residents • Compared with male residents, female residents exhibited a clear increase in anxiety when VR was implemented • Depression: • Significant decrease in depression in residents when VR was implemented • Depression level returned to baseline levels when VR was lifted, indicating increased self-perception of depression • Older residents showed greater increase in depression • Depression not impacted by sex of residents • Compared with residents with dementia, residents with normal cognitive status and mild cognitive decline showed greater reduction in depression when VR was implemented QoL • Social support: • During implementation and relaxing of VR, residents' perception of their social support didn't change • Perception of social support was independent of sex, age, or baseline cognitive status
Author year: Orlando 2022 Study design: cross-sectional	Location: Italy Population density: mixed (urban, suburban, rural)	Intervention period examined: NR Evaluation period: 43 weeks	Outcomes reported: association between NPIs evaluated and outbreak Outbreak: 2 or more test-confirmed cases of COVID-19 within 14 days

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Suitability of design: least Quality of execution: fair	Eligibility criteria: included all 185 LTC communities in Lazio region in Italy; excluded communities catering specifically to younger adults and those for specific health conditions or rehabilitation communities for drug addicts Sample size: # of communities Intervention: 20 Control: 80 # of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE Community: testing (PD when tested positive), PD, VR, ATR Environmental: CD Additional services provided: provision of external cleaning company when needed Guidelines used for decision making: NR Decision maker for implementing NPIs: LTC community Comparison group: cross-sectional comparison	Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary • ATR: admission of new residents after a COVID-19 outbreak, or lack of admission and transfer restrictions, was associated with an increased risk of an outbreak • Binary analysis: OR: 6.46, 95% CI: 1.58 to 27.58, $p < 0.01$ • Multivariable analysis: OR: 4.04, 95% CI: 0.87 to 20.0, $p = 0.07$ • PD (isolation): LTC communities with an isolation environment (isolating residents who tested positive for COVID-19) had increased risk of an outbreak compared with those without • Binary analysis: OR: 2.5, 95% CI: 0.72 to 11.27 • PD (reduce interaction): LTC communities with a separate entrance for staff who were and were not in touch with residents had no change in their risk of a COVID-19 outbreak compared with those without • Binary analysis: OR: 1.1, 95% CI: 0.3 to 3.41 • Testing: LTC communities with active surveillance for staff (regular temperature checking and, when available, regular testing for COVID-19) had a -26% risk of a COVID-19 outbreak compared with those without • Binary analysis: OR: 0.74, 95% CI: 0.06 to 40.88 • Relaxing of VR: LTC communities reporting opening to visitors post first lockdown was

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			associated with a slight increased risk of an outbreak Binary analysis: OR: 1.1, 95% CI: 0.03 to 3.41
Author year: Pereiro 2023 Linked papers: Pereiro 2021 Study design: single group before-after Suitability of design: least Quality of execution: fair	Location: Spain Population density: NR Eligibility criteria: recruited residents who resided in LTC communities in the Galicia and Valencia regions of Spain, <60 years of age, spent entire study period (March 14 to May 4, 2020) in the LTC, had 2 pre-VR measurements; residents with poor cognitive status were excluded Sample size: # of communities: 4 # of residents: 365 # of staff: NR Community type: LTC communities, unspecified Community characteristics: 60% of beds subsidized by public administration Population served: older adults, people with dementia Demographics for residents in intervention group: <i>Age, mean:</i> 84 years old <i>Sex:</i> 60% female; 30% male <i>Education:</i> 51.2% basic literacy; 35.9% primary school completion;	Intervention period examined: 7 weeks Evaluation period: 12 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: PD, VR Environmental: none Additional services provided: virtual visits, efforts to maintain or increase therapeutic routines Guidelines used for decision making: national Decision maker for implementing NPIs: national Control group: pre-intervention	Outcomes reported: Mental health: - Cognitive function: assessed using Mini-Mental State Examination, a 35-point Spanish adaption of the tool measuring cognitive function; lower score denotes impaired cognition - Depression: assessed using Geriatric Depression Scale, a 15-item Spanish adaption measuring depressive symptomatology; higher score denotes greater depression QoL: functional status; assessed using the Barthel Index, a brief instrument for assessment of functional status in basic activities Infection lab confirmed or self-report: N/A Results: Narrative summary Mental health: - Cognitive function: MMSE score was higher at pre-intervention measurements than in the post measurement, indicating a decrease in cognition; however, change in MMSE scores was higher for the pre-intervention period when compared with post-intervention, suggesting there was a greater downward trend in the pre-intervention period - Pre2 vs. Pre2, mean difference: -1.18, SE: 0.27; $p < 0.001$ - Post-intervention vs. Pre2, mean difference: -0.90, SE: 0.27, $p < 0.001$ - In one rural LTC community, there was a decreasing trend in cognitive functions but not statistically significant

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	12.9% high school or university education		- Depression: GDS scores remained stable through the study period - In one rural LTC community, depressive symptoms significantly increased after PD and VR implementation - QoL: - Functional status: no evidence of worsening of self-reported functional status associated with PD or VR - Results from the rural LTC community were comparable to other LTC communities
Author year: Reyne 2021 Study design: cross-sectional Suitability of design: least Quality of execution: fair	Location: France Population density: mixed (urban, suburban, rural) Eligibility criteria: residents in the 12 LTC communities in Hérault Department that had experienced a COVID-19 outbreak between March and May 2020 Sample size: # of communities: 12 # of residents: 930 # of staff: 360 Community type: NHs or skilled nursing facilities Community characteristics: public and private LTC communities with an average of 3.3 floors per community Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: N/A Evaluation period: 12 weeks Intervention details: Infectious agent: SARS-Cov-2 NPIs evaluated: Individual: PPE Community: PD (isolation) Environmental: NR Additional services provided: NR Guidelines used for decision making: national and regional Decision maker for implementing NPIs: regional Comparison group: cross-sectional comparison	Outcomes reported: association between NPIs evaluated and outbreak size Outbreak size: total number of residents infected per floor of LTC communities Lab confirmed or self-report: lab confirmed Results: Narrative summary PD (isolation): the presence of a COVID unit to isolate patients who were infected was significantly associated with decreased outbreak size

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Author year: Rolland 2020 Study design: cross-sectional Suitability of design: least Quality of execution: fair	Location: France Population density: NR Eligibility criteria: all LTC communities registered by the Haute-Garonne department in France Sample size: # of facilities: 124 # of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: 1.5 weeks Evaluation period: 6 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: HH, PPE Community: testing (symptomatic testing), PD Environmental: N/A Additional services provided: NR Guidelines used for decision making: global and national Decision maker for implementing NPIs: regional Comparison group: cross-sectional comparison	Outcomes reported: associations between NPIs evaluated and incidences among residents Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary • HH: availability of a satisfactory supply of hydro-alcoholic solution was associated with a higher likelihood a confirmed case; OR: 2.10, 95% CI: 0.61 to 7.24, $p = 0.24$ • PD (cohort staff): staff compartmentalization within zones was significantly associated with a lower likelihood of having a confirmed case of SARS-CoV-2; OR: 0.17, 95% CI: 0.04 to 0.67, $p=0.01$ • PD (cohort residents): resident compartmentalization within zones was significantly associated with a higher likelihood of having a confirmed case; OR: 3.01, 95% CI: 0.51 to 18.51, $p=0.22$ • PD (reduce interaction): reduced interaction was non-significantly associated with reduced likelihood of a confirmed case of SARS-CoV-2 • Separating residents during meals: OR: 0.63, 95% CI: 0.34 to 1.15, $p = 0.13$ • Cessation of group activities: OR: 0.89, 95% CI: 0.41 to 1.91, $p = 0.77$
Author year: Saegerman 2022 Study design: single group before-after Suitability of design: least Quality of execution: fair	Location: Belgium Population density: mixed (urban, suburban, rural) Eligibility criteria: all NHs in Wallonia, Belgium Sample size: # of communities: 530 # of residents: NR # of staff: 32,900	Intervention period examined: 6 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none	Outcomes reported: proportion of communities with one or more infection among staff; mortality due to infection among residents Infection lab confirmed or self-report: lab-confirmed Results: Proportion of communities with 1 or more staff tested positive: Pre: 34.4% Post: 13.4%

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Community: testing (routine testing, SHS when tested positive) Environmental: none Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: regional Comparison group: pre-intervention	Absolute change: -21.0 pct pts Relative change: -61.0%; $p < 0.0001$ There was a significant linear decrease in the proportion of communities with one or more staff tested positive Mortality due to infection among residents: Compared with non-intervention areas, mortality due to infection decreased more in the intervention area
Author year: Schuengel 2020 Study design: interrupted time series Suitability of design: moderate Quality of execution: fair	Location: the Netherlands Population density: NR Eligibility criteria: residents in the long-term care organization Hereen Loo Sample size: # of communities: 1,000 # of residents: 14,027 # of staff: NR Community type: LTC communities, all included Community characteristics: NR Population served: people with disabilities Demographics for residents in intervention group: NR	Intervention period examined: 14 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: PD, VR, ATR Environment: none Additional services provided: NR Guidelines used for decision making: national and LTC communities Decision maker for implementing NPIs: national Comparison group: pre-intervention	Outcomes reported: Mental health: aggressive behaviors of residents, incidence report by staff on aggressive behavior of residents Infection lab confirmed or self-report: N/A Results: Narrative summary Poisson regression analysis for incidents with aggression showed a significant drop from pre-COVID-19 levels to the start of the COVID-19 phase. Post implementation of PD, VR, and ATR, the trend in aggression incidence inverted from a negative to a positive trend. Authors reported that increasing number of incidents in the COVID-19 phase remained within the bounds observed during the preceding period

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Author year: Shallcross, 2021 Study design: cross-sectional Suitability of design: least Quality of execution: good	Location: United Kingdom Population density: mixed (urban, suburban, and rural) Eligibility criteria: LTC communities identified through a nationwide directory; excluded LTC communities without test results from a nationwide testing program Sample size: # of communities: 5,126 # of residents: 160,033 # of staff: 248,594 Community type: LTC communities, all included Community characteristics: Size of community: mean number of 32.2 residents per community Population served: older adults, people with dementia Demographics for residents in intervention group: <i>Socioeconomic status:</i> 17.0% of communities from areas considered most deprived based on the social deprivation index	Intervention period examined: NR Evaluation period: 3.5 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE Community: ATR, testing (PD when tested positive), VR Environmental: CD Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: national Control group: cross-sectional comparison; association between intervention vs. no intervention or different levels of implementation and reported outcomes	Outcomes reported: associations between NPIs evaluated and outcomes that include incidence among residents or staff and proportion of communities with infections Infection lab confirmed or self-report: lab-confirmed Results: Narrative results Incidence among residents or staff • ATR: no change in incidence among residents (OR: 1.01, 95% CI: 1.01 to 1.01) or staff (OR: 1.00, 95% CI: 1.00 to 1.01) with each new unit of admission • CD: higher frequency of cleaning common areas (twice a day vs once a day) associated with reduced incidence among residents (OR: 0.95, 95% CI: 0.91 to 1.00) and staff (OR: 0.91; 95% CI: 0.85 to 0.97) • PD (cohorting staff with infected or uninfected residents): staff cohorting was statistically significantly associated with reduced risk for infection among residents (OR: 0.77, 95% CI: 0.73 to 0.81) and staff (OR: 0.83, 95% CI: 0.77 to 0.88) • PD (inability to isolate residents): difficulty in isolating residents with infection, was associated with increased incidence among residents (OR: 1.33, 95% CI: 1.28 to 1.38) and staff (OR: 1.48, 95% CI: 1.41 to 1.56) • VR (duration of VR): no association between duration of VR and incidence among residents (OR: 1.02, 95% CI: 1.00 to 1.04) or staff (OR: 1.02, 95% CI: 1.00–1.03) Proportions of communities with infections • ATR: each new unit of admission is linked to 8% increased risk of having infections in LTC communities (OR: 1.08, 95% CI: 1.05 to 1.10) • CD: higher frequency of cleaning common areas (twice a day vs once a day) associated with

Study	Setting and Population Characteristics	Intervention Characteristics	Results
			reduced likelihood of infections in LTC communities; OR: 0.95; 95% CI: 0.73 to 1.25 • PD (cohorting staff with infected or uninfected residents): staff cohorting was statistically significantly associated with reduced likelihood of infections in LTC communities (OR: 0.39, 95% CI: 0.29 to 0.52) • PD (inability to isolate residents): difficulty in isolating residents with infection, was associated with increased likelihood of having infections in LTC communities (OR: 1.84, 95% CI: 1.48 to 2.30) • VR (duration of VR): no association between duration of VR and likelihood of having infections in LTC communities (OR: 0.99, 95% CI: 0.92 to 1.07)
Author year: Shimotsu 2021 Study design: before-after with concurrent comparison group Suitability of design: greatest Quality of execution: fair	Location: Pennsylvania, U.S. Population density: rural Eligibility criteria: all residents, staff, and visitors involved in the Twin Pines LTC community's daily activities Sample size: # of communities: 1 # of residents: 111 # of staff: 92 Community type: LTC communities, all included Population served: older adults, people with dementia Demographics for intervention group: NR	Intervention period examined: 10 weeks Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE, HH Community: testing (routine testing; PD and SHS when tested positive), PD, VR, ATR Environmental: CD Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: LTC community	Outcomes reported: incidence among residents Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary Based on data obtained, the LTC community's case number was 17 times lower than that of neighboring communities when adjusted for the community census Frequent testing and symptom surveys enabled the detection of infected staff members early enough to prevent spread within the community

Study	Setting and Population Characteristics	Intervention Characteristics	Results
		Comparison group: neighboring LTC communities that did not use the above bundle of NPIs	
Author year: Simoni-Wastila 2021 Study design: cross-sectional Suitability of design: least Quality of execution: fair	Location: nationwide, U.S. Population density: NR Eligibility criteria: researchers collected community-level data from 13,156 U.S. NH, representing 85% of all Medicare and Medicaid LTC communities; data taken from Nursing Home Compare Sample size: # of communities: 13,156 # of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: NR Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE Community: none Environmental: none Additional services provided: NR Guidelines used for decision making: NR Decision maker for implementing NPIs: NR Comparison group: cross-sectional comparison; association between implemented NPIs and outcomes	Outcomes reported: association between NPIs evaluated and outcomes that include incidence among staff and residents, hospitalization due to infection, and mortality due to infection Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary PPE availability: compared with no shortages, N95 mask shortages were associated with increased odds of incidence among residents or staff (OR: 1.21, 95% CI: 1.05 to 1.40), increased odds of a community having at least one hospitalization due to infection (OR: 1.26, 95% CI 1.13 to 1.40), and no change in mortality due to infection.
Author year: Stemler 2022	Location: Germany Population density: mixed (urban, suburban)	Intervention period examined: 8 weeks Evaluation period: NR	Outcomes reported: incidence among residents; mortality due to infection Infection lab confirmed or self-report: lab-confirmed

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Study design: group non-randomized controlled trial Suitability of design: greatest Quality of execution: fair	Eligibility criteria: NHs in the Cologne region in Germany, selected based on resident numbers and willingness to participate in study Sample size: # of communities Intervention: 2 Control: 2 # of residents: Intervention: 260 Control: 261 # of staff: Intervention: 335 (nursing staff 162) Control: 425 (nursing staff 207) Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: testing (routine voluntary testing; SHS and VR when tested positive) Environmental: none Additional services provided: NR Guidelines used for decision making: regional and LTC communities Decision maker for implementing NPIs: LTC communities Control group: other NHs in the region without frequent regular testing	Results: Narrative summary Incidence among residents: no significant benefit of increased testing frequency compared with the control communities Mortality due to infection: one intervention LTC community experienced one SARS-CoV-2 outbreak, with a three times higher mortality in the fourth quarter of 2020; however, all LTC communities in the study had slightly lower COVID-19-related mortality when compared with other communities during the same period
Author year: Suwono 2022 Study design: before-after with concurrent comparison group Suitability of design: greatest Quality of execution: fair	Location: Germany Population density: mixed (urban, suburban, rural) Eligibility criteria: LTC communities in Germany Sample size: # of communities: NR # of residents: NR # of staff: NR	Intervention period examined: 30 weeks Evaluation period: NR Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE Community: testing (routine testing), VR	Outcomes reported: incidence among residents and staff; hospitalization due to infection; mortality due to infection for residents ≥ 65 years; incidence prevented Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents and staff: Pre: 7.4% Post: 6.2%

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: LTC communities, all included Community characteristics: NR Population served: older adults, people with dementia, people with disabilities Demographics for residents in intervention group: Age, mean: 85 years Sex: 71.60% female; 28.40% male	Environmental: none Additional services provided: NR Guidelines used for decision making: national Decision maker for implementing NPIs: national Comparison group: pre-intervention	Absolute change: -1.2 pct pts Relative change: -16.0% Hospitalization due to infection: Pre: 18.1% Post: 10.9% Absolute change: -7.3 pct pts Relative change: -40.1% Mortality due to infection for residents ≥65 years: Pre: 27.5% Post: 21.1% Absolute change: -6.3 pct pts Relative change: -23.0% Incidence prevented: Narrative summary Estimated using a counterfactual model, there were 4,657 SARS-CoV-2 LTC community outbreaks and 34,039 infections prevented in 2nd pandemic wave when NPIs were implemented
Author year: Teasing 2021 Study design: group RCT Suitability of design: greatest Quality of execution: fair	Location: the Netherlands Population density: mixed (urban, suburban, rural) Eligibility criteria: 33 NHs with 2 NH units each, recruited from different NH organizations, situated throughout the country to capture diversity, providing intense psychogeriatric and or somatic care to geriatric residents Sample size: # of communities: 33 NHs with 66 NH units Intervention: 36 NH units Control: 30 NH units	Intervention period examined: 12 weeks Evaluation period: 43 weeks Intervention details: Infectious agent: influenza-like illness, pneumonia, rhinovirus NPIs evaluated: Individual: HH Community: none Environmental: none Additional services provided: reminders in the form of signs etc., assessment and feedback, incentive for staff,	Outcomes reported: incidence among residents, environmental contamination Infection lab confirmed or self-report: symptomatic Results: Incidence of influenza-like-illness: intervention group had reduction in incidence when compared with control group Incidence Rate Ratio (IRR): 0.51, 95% CI: 0.31 to 0.82, p<0.01 Incidence of pneumonia: intervention group had reduction in incidence when compared with control group IRR: 0.87, 95% CI: 0.60 to 1.26, p=0.47

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	# of residents: NR # of staff: NR Community type: NHs or skilled nursing facilities Community characteristics: Size of communities: intervention arm had more small and medium-sized NHs (<88 beds, 88–118 beds) while the control arm had larger NHs (>118 beds) Population served: older adults Demographics for residents in intervention group: NR	regular check-in, e-learning for staff, arts and craft projects for residents Guidelines used for decision making: global and national Decision maker for implementing NPIs: national Control group: Usual NPIs	Environmental contamination: reduction in total positive Rhinovirus samples after intervention implementation, and multi-level regression model showed a weak association ($p=0.07$) between presence of rhinovirus in the living area and HH compliance
Author year: Telford 2020 Study design: simple time series with comparison group Suitability of design: greatest Quality of execution: fair	Location: Georgia, U.S. Population density: mixed (urban, suburban) Eligibility criteria: LTC communities in Fulton County that performed early testing for infection Sample size: # communities: Intervention: 13 Control: 15 # of residents: Intervention: 2,868 Control: NR # of staff: Intervention: 2,803 Control: NR	Intervention period examined: 4 weeks Evaluation period: 4 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: testing (routine testing) Environmental: none Additional services provided: collaboration between local Fulton County Board of Health and LTC communities for implementation support Guidelines used for decision making: national	Outcomes reported: incidence overall or among residents or staff, hospitalization due to infection overall or among residents or staff, mortality due to infection overall or among residents or staff Infection lab confirmed or self-report: lab-confirmed Results: Incidence overall: Intervention, change: +0.8 pct pts Control, change: +9.1 pct pts Absolute difference: -8.2 pct pts Incidence among residents: Intervention, change: +1.0 pct pts Control, change: +14.4 pct pts Absolute difference: -13.4 pct pts Incidence among staff: Intervention, change: +0.7 pct pts Control, change: +4.4 pct pts

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	Community type: LTC community, all included Population served: older adults, people with dementia Demographics for residents in intervention group: NR	Decision maker for implementing NPIs: local Comparison group: LTC communities with reactive testing, performing testing 1 to 5 days after the identification of the positive case	Absolute difference: -3.7 pct pts Hospitalization due to infection, overall: Intervention, post: 18.8% Control, post: 16.6% Absolute difference: 2.2 pct pts Hospitalization due to infection, residents: Intervention, post: 29.4% Control, post: 19.9% Absolute difference: 9.5 pct pts Hospitalization due to infection, staff: Intervention, post: 6.7% Control, post: 6.1% Absolute difference: 0.6 pct pts Mortality due to infection, overall: Intervention, post: 0.2% Control, post: 3.0% Absolute difference: -2.8 pct pts Hospitalization due to infection, residents: Intervention, post: 0.3% Control, post: 6.4% Absolute difference: -6.1 pct pts Hospitalization due to infection, staff: Intervention, post: 0.1% Control, post: 0.0% Absolute difference: 0.1 pct pts
Author year: Temte 2023 Study design: group RCT Suitability of design: greatest	Location: Wisconsin, U.S. Population density: NR Eligibility criteria: 44 LTC communities were invited to participate and 20 agreed; sites with insufficient resources, property sale, or not an LTC community were excluded	Intervention period examined: 108 weeks Evaluation period: immediately after intervention ended Intervention details: Infectious agent: influenza NPIs evaluated:	Outcomes reported: ED visits due to infection, hospitalization due to infection, mortality due to infection Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Quality of execution: fair	Sample size: # of communities: Intervention: 10 Control: 10 # of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: Size of community: max bed capacity (intervention, 83.8; control, 72.3); average number of residents (intervention, 63.4; control, 53.4); average bed occupancy (intervention, 80.1%; control, 75.3%) Population served: older adults Demographics for residents in intervention group: Age, mean: 83.7 years Sex: 70.3% female; 29.7% male	Individual: none Community: testing (symptomatic, rapid onsite testing; early testing) Environmental: none Additional services provided: researchers providing support to staff via email/calls Guidelines used for decision making: state and LTC communities Decision maker for implementing NPIs: LTC communities Comparison group: LTC communities following regular protocols, performing testing by sending out the tests; late testing	ED visits due to infection: 2% increase in ER visits for respiratory illness when LTC communities used rapid testing compared with traditional sent out testing Hospitalization due to infection: 11% decrease in hospitalization due to respiratory illness when LTC communities used rapid testing compared with traditional sent out testing Mortality due to infection: 19% decrease in deaths due to respiratory illness when LTC communities used rapid testing compared with traditional sent out testing
Author year: Tulloch 2021 Study design: before-after with concurrent comparison group Suitability of design: greatest Quality of execution: fair	Location: United Kingdom Population density: urban Eligibility criteria: all LTC communities in the Liverpool City Council (LCC) region; 11 out of the 86 communities enrolled in the intervention Sample size: # of communities Intervention: 11 Control: 71	Intervention period examined: 6 weeks Evaluation period: 1.5 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: none Community: testing (SHS and VR when tested positive) Environmental: none	Outcomes reported: proportion of LTC communities with infections, proportion of residents and staff who were infected Infection lab confirmed or self-report: lab-confirmed Results: Narrative summary Proportion of LTC communities with infections: there was no statistical difference in the proportion of outbreaks observed during the study period Odds ratio: 2.1; 95% CI 0.5–9.4%; P = 0.32

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	# of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR	Additional services provided: collaboration, receiving support from LCC Guidelines used for decision making: national and regional Decision maker for implementing NPIs: LTC communities Comparison group: LTC communities in LCC not participating in the intervention	Intervention: 54.5%; 95% CI 23.4–83.3% Control: 36.6%; 95% CI 25.5–48.9% Proportion of residents and staff who were infected: there was no statistical difference in the size of outbreak amongst residents and staff, $P = 0.42$ Intervention: median 0%, range 0–38.8% Control: median 0%, range: 0–64.8%
Author year: Vijn 2021 Study design: interrupted Time Series Suitability of design: moderate Quality of execution: fair	Location: Canada Population density: mixed (urban, suburban, rural) Eligibility criteria: LTC communicates in the Vancouver Coastal Health region, Canada, with lab-confirmed COVID-19 cases Sample size: # of communities: 7 # of residents: 1,144 # of residents: 1,298 Community type: NH or skilled nursing facilities Community characteristics: Size of communities: 108 to 259 staff and 107 to 210 residents per community Population served: older adults Demographics for residents in intervention group:	Intervention period examined: NR Evaluation period: 16 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: PPE Community: testing (routine and symptomatic testing, PD when tested positive), PD, ATR Environmental: CD Additional services provided: collaboration with local health department using a team-based approach, resource deployment, regular check-in Guidelines used for decision making: NR Decision maker for implementing NPIs: regional Control group: pre-intervention	Outcomes reported: incidence among residents and staff Infection lab confirmed or self-report: lab-confirmed Results: Incidence among residents: there was a reduction in infection after NPIs were implemented Relative change: -16%, 95% CI: -49% to 36% Incidence among residents vs. staff: a greater reduction in infection for staff when compared with residents RR: 0.30, 95% CI: 0.10 to 0.88, $p < 0.05$

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	<i>Age, mean:</i> 87 years <i>Sex:</i> 67% female; 33% male		
Author year: Vijn 2022 Study design: cross-sectional Suitability of design: least Quality of execution: good	Location: Canada Population density: mixed (urban, suburban, rural) Eligibility criteria: LTC communities within the company Fraser Health that were monitored for exposure or outbreaks; excluded 12 private-pay communities, a new community built in April 2020, and a pediatric LTC community Sample size: # of communities: 74 # of residents: NR # of staff: NR Community type: LTC communities, all included Community characteristics: Size of communities: ranges from 26 to 252 beds per community, with a median of 101 Population served: older adults Demographics for residents in intervention group: NR	Intervention period examined: NR Evaluation period: 45 weeks Intervention details: Infectious agent: SARS-CoV-2 NPIs evaluated: Individual: HH, PPE SHS Community: testing (symptomatic testing), PD, VR, ATR Environmental: CD Additional services provided: assessment and feedback on ways to improve NPI implementation, access to resources Guidelines used for decision making: national Decision maker for implementing NPIs: regional Comparison group: cross-sectional comparison; association between implemented NPIs and outcomes	Outcomes reported: associations between NPI adherence and incidence overall Infection lab confirmed or self-report: lab-confirmed Results: • NPI adherence examined using assessment tool score: for every item not met in the assessment tool, there was a 22% increase in the attack rate; adjusted rate ratio: 1.2, 95% CI: 1.1 to 1.4 • This is especially pronounced when NPIs in the dining areas were not met, which include both HH and CD, with an adjusted rate ratio of 6.4, 95% CI: 2.7 to 15.0
Author year: Vogazianos 2021 Study design: simple time series	Location: Cyprus Population density: mixed (urban, suburban, rural)	Intervention period examined: NR Evaluation period: 4 weeks Intervention details:	Outcomes reported: incidence among residents and staff Infection lab confirmed or self-report: lab-confirmed

Study	Setting and Population Characteristics	Intervention Characteristics	Results
Suitability of design: least Quality of execution: fair	Eligibility criteria: national initiative with all residents or staff in LTC communities in Cyprus Sample size: # of communities: 165 # of residents: 3,100 # of staff: 2,015 Community type: LTC communities, all included Community characteristics: Size of community: ranging from <10 to >50 residents per community Population served: older adults, people with disabilities Demographics for residents in intervention group: NR	Infectious agent: SARS-COV-2 NPIs evaluated: Individual: PPE Community: testing (routine testing), PD, VR Environmental: CD Additional services provided: resource deployment; assessment and feedback through a checklist; collaboration with the task force set up by Cyprus government Guidelines used for decision making: global Decision maker for implementing NPIs: national Comparison group: pre-intervention	Results: Incidence overall: Pre: 2.8% Post: 1.5% Absolute change: -1.3 pct pts Relative change: -45.6% Incidence among residents: Pre: 3.7% Post: 1.6% Absolute change: -2.1 pct pts Relative change: -56.8% Incidence among staff: Pre: 1.6% Post: 1.4% Absolute change: -0.2 pct pts Relative change: -12.5%
Author year: Yeung 2011 Study design: group RCT Suitability of design: greatest Quality of execution: fair	Location: Hong Kong, China Population density: mixed (urban, rural) Eligibility criteria: private and semi-private residential LTC communities in the city recruited by snowball sampling Sample size: # of communities: Intervention: 3 Control: 3 # of residents: Intervention: 255 Control: 420	Intervention period examined: 2 weeks Evaluation period: 26 weeks Intervention details: Infectious agent: pneumonia NPIs evaluated: Individual: HH Community: none Environmental: none Additional services provided: reminders provided as signs etc. Guidelines used for decision making: NR	Outcomes reported: hospitalizations due to infection Infection lab confirmed or self-report: hospital records Results: Intervention: Pre: 0.09% Post: 0.03% Absolute change: -0.06 pct pts Relative change: -66.7% Control: Pre: 0.037% Post: 0.053% Change: 0.02 pct pts Relative change: 44.5%

Study	Setting and Population Characteristics	Intervention Characteristics	Results
	# of staff: Intervention: 72 Control: 108 Community type: NHs or skilled nursing facilities Community characteristics: NR Population served: older adults Demographics for residents in intervention group: NR <i>Underlying health</i> conditions: 79.2% with moderate to severe disabilities; 20.8% with severe disabilities	Decision maker for implementing NPIs: LTC communities Comparison group: LTC communities matched to intervention group based on nursing staffing levels and levels of resident disability; received a basic life support program and continued usual hand hygiene practices	Absolute difference: -0.1 pct pts Relative difference: -76.9%