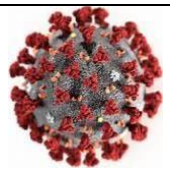
National COVID-19 Science Task Force (NCS-TF)



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Protecting older persons in long-term care in the context of the SARS-CoV-2 pandemic while maintaining quality of life.

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Introduction

Residents in residential long-term care have a higher risk for complications and mortality when infected with SARS-CoV-2 due to their frailty and multimorbidity. Early international evidence showed that between 19-72% of total COVID-19 deaths happened in residential long-term care (Comas-Herrera, Zalakain, Litwin, Hsu, & Fernandez-Plotka, 2020). Infection fatality rates are higher in older persons: in Switzerland, as per October 16 2020, a total of 1'821 persons have died from COVID-19, of which 97% were over 60 years old and 69% over 80 years old (https://covid-19-schweiz.bagapps.ch/de-1.html). Infection fatality rates are also higher for persons with several chronic diseases such as diabetes, high blood pressure, chronic heart or lung disease, lung disease and cancer (Louie et al., 2020; Williamson et al., 2020) making older people including nursing home residents more susceptible to severe trajectories of COVID-19. Additionally, persons with dementia - highly prevalent in nursing homes - have a higher risk of infection, more severe disease trajectory and increased mortality (Mok et al., 2020). On the other hand, COVID-19 symptoms for residents can be mild or even asymptomatic (Parikh et al., 2020). Symptoms include fever, diarrhea and delirium, but also non-specific symptoms like decreased appetite, weight loss and decreased mobility (Gordon et al., 2020; Kim, Coffey, Morgan, & Roghmann, 2020). In addition to consequences of the disease itself, measures to protect nursing home residents have led to closing facilities for visitors or at least limiting their access as well as reducing social activities within facilities. Such measures have severe consequences for residents and relatives with higher levels of loneliness, depression, and increases in mood and behavioral problems (Van der Roest et al., 2020). Therefore, both infection prevention strategies as well as social integration of older people and autonomy of residents and relatives need to be reconciled.

Up to now, several organizations provided guidelines and recommendations about infection prevention and control in combination with maintaining the dignity, autonomy and quality of life of residents in nursing homes. To single out the most comprehensive:

The World Health Organization provides policy objectives for long-term care (World Health, 2020), focusing among others on the national response to the COVID-19 pandemic, adequate funding for

nursing homes to respond to and recover from the pandemic, the effective monitoring and evaluation of the impact of COVID-19, the need for adequate staffing and resources, the upholding of the continuum and continuity of essential services for residents in nursing homes, the implementation and adherence to infection prevention and control standards, the priority given to testing, contact tracing and monitoring COVID-19 in nursing homes, and the priority of the psychosocial well-being of people receiving and providing long-term care services.

The Centers for Disease Control and Prevention (CDC) have detailed guidelines about infection control, responding to COVID-19, triggers and frequency of testing residents or testing facility-wide, when to consider SARS-CoV-2 antigen testing in nursing homes, and how to handle infection prevention and control on dementia units (Centers for Disease Control and Prevention, 2020a). This website is continuously updated.

The Deutsche Gesellschaft für Plegewissenschaft has provided a S1 guideline on how to maintain social connectedness and quality of life during the COVID-19 pandemic in nursing homes (Deutsche Gesellschaft für Pflegewissenschaft, 2020), providing examples and ideas on how to establish a pandemic plan that has the dignity of residents in the center, how to provide continuous access to health care services, how to integrate advance care planning, how to adapt quarantine rules to individual resident risks, how to handle infection prevention and control with residents with dementia, how to maintain social connectedness, meaningful activities, and mobility for residents, and how to implement person-centered communication throughout all phase of the pandemic.

Policy Brief by the American Geriatrics Society on COVID-19 and nursing homes, focusing on the supply chain for personal protective equipment, the safe transfer of residents with COVID-19 from hospital to nursing homes and vice-versa, public health planning, the maintenance of the workforce needed with paid leave, screening, and training and the need for increased payment for nursing homes caring for residents with COVID-19 and tax reliefs (American Geriatrics Society, 2020).

Calls to maintain the human rights of older persons and to maintain the dignity and autonomy of residents in long-term care have gone out from different organizations, such as the Nationale Ethikkommission im Bereich Humanmedizin (Nationale Ethikkommission im Bereich Humanmedizin, 2020), the Akademie für Ethik in der Medizin (Akademie für Ethik in der Medizin, 2020) and the AGE Platform Europe (AGE Platform Europe, 2020).

Background

Over the last months, several basic measures for preventing the entering and/or spreading of COVID-19 have been applied in long-term care, including physical distancing, hand hygiene, face masks and working with gloves. Additionally, the access to residential long-term care has been restricted, first with a complete visitor ban and isolating residents from the outside world, then allowing only visits in visitor boxes or similar structures, under the condition of adherence of basic hygiene principles like masks and hand washing and by limiting the number of visitors per resident. Exceptions were made in special situations, especially in end-of-life situations. Many long-term

care facilities supported residents to be digitally connected to their families, providing visual and auditory modes of communication, although this implied additional use of already strained staff resources (Seifert, Cotten, & Xie, 2020).

Not only the outside access was restricted but also routines inside the long-term care facilities were changed or stopped, such as communal dining, group activities or daily meetings for socializing or access to cafeterias (Chen, Ryskina, & Jung, 2020). Together with the lack of visits and reduced physical contact, the measures did provoke feelings of distancing, loneliness and isolation. It has been shown before that isolation is a risk factor itself for a decrease in physical and mental health, including increased blood pressure, heart diseases, depression and anxiety (Nicholson, 2012). A study in French nursing homes in spring 2020 showed increased depression and anxiety among residents with Alzheimer's disease during the visitor ban (El Haj, Altintas, Chapelet, Kapogiannis, & Gallouj, 2020).

The lockdown did not only provoke social isolation, but had several other effects on long-term care residents. The restricted access also reduced the access to activities that are meaningful and important for residents, both by going outside for walking, socializing, shopping or religious services and also inside, since service providers like hairdressers, podiatrists other health care providers like occupational therapists, physical therapist or animal therapists, or spiritual counselors were not allowed to enter the facility. Additionally, with staff wearing face masks, residents no longer see their face expressions, which is an important communication way for residents with dementia. Also lip reading is hindered, which is very important for residents with hearing impairment (Halek, Reuther, & Schmidt, 2020).

Residential long-term care facilities are the living place of residents. Accordingly, measures to prevent the spreading of COVID-19 need to be weighed against potential negative effects on the quality of life of residents due to social isolation, lack of activities or restricted access to services and health care services in- and outside of the facility. Older persons have a right on autonomy, social participation and meaningful relationships and activities. Their personal rights need to be protected during the pandemic. At the same time it needs to be considered that residential long-term care facilities are collective households where each member has a responsibility for the whole and their decisions need to consider the collective of all members that are at risk.

How can infection prevention measures and autonomy of residents and relatives be reconciled?

Basic principles

Basic principles for preventing the spread of SARS-CoV-2 are essential to contain the spread in long-term care facilities. These measures include maintaining physical distance and hand hygiene, wearing protective masks, including transparent masks. All these measures require training and or education of staff, residents and relatives and sufficient supply of personal protective equipment. Coordination, maintenance and leadership of all prevention activities need to be overseen by dedicated personnel and local committees (Scopetti, Santurro, Tartaglia, Frati, & Fineschi, 2020).

As for physical distancing, this is a major challenge for care workers, since many nursing and caring

tasks include physical contact. Training can help to clarify how to handle specific situations. Especially for residents with cognitive impairment or dementia, touching is a basic means of communication and needs to be upheld to provide a sense of belonging and safety. Connectedness is a key factor to affect the quality of life of persons living with dementia (O'Rourke, Duggleby, Fraser, & Jerke, 2015). In the same way, visitors need to be instructed on how to use personal protective equipment when visiting residents with dementia in order to find a way to both protect and communicate with the resident.

Comprehensive prevention measures / building groups of residents

Several studies have assessed the effectiveness of infection prevention and control strategies and interventions for SARS-CoV-2 in nursing homes. In a study by Lipsitz et al. (Lipsitz et al., 2020) adherence to infection control processes, especially proper wearing of personal protective equipment and cohorting of positively tested residents by reconfiguring living spaces, was significantly associated with declines in weekly infection and infection fatality rates. In another study (Bernabeu-Wittel, Ternero-Vega, Nieto-Martín, et al., 2020) key processes and interventions were established in four nursing homes in response to SARS-CoV-2 outbreak: provision of informatics infrastructure, medical equipment, human resources, universal testing, separation of "clean" and "contaminated" areas, epidemiological surveys, and unified protocols stratifying for active or palliative care approach, among others. The program led to significant better outcomes of survival or optimal palliative care, as well as reduction in hospitalisation rates (Bernabeu-Wittel, Ternero-Vega, Díaz-Jiménez, et al., 2020).Eckardt and colleagues found walkthrough with infection prevention and control practitioners, twice a day screening for symptoms, universal prevalence testing after first SARS-CoV-2 diagnosis in a resident, cohort unit for exposed residents, introduction of universal masking, telemedicine, dietary and sanitation strategies lead to successful containment of disease spread within 6 weeks (from 5.4% to 0.41%) (Eckardt et al., 2020) . In agreement with this, CDC recommends to have at least one or more individuals assigned with training in infection prevention and control who can provide on-site management of the infection prevention control program (Centers for Disease Control and Prevention, 2020a).

Entry points for SARS-CoV-2 in nursing homes are both staff and visitors. In a French study, nursing homes with voluntary self-containment of staff were compared with nursing homes without (Belmin et al., 2020). In the former group, staff lived in the nursing homes with residents, mostly for around 2 weeks 24h/day. Infection fatality rates of residents were significantly lower in nursing homes with implemented staff confinement (0.4% vs. 1.8%). A common measure in Taiwan is the compartmentalization of clean zones, where movement of staff between compartments is minimized and includes disinfection checkpoints between them (Yen et al., 2020). Furthermore, it is recommended that staff should only work in one facility to avoid spreading the virus between nursing homes (Crotty, Watson, & Lim, 2020).

Measures on dementia units

Residents with agitation, wandering or disinhibition are at a high risk of catching the infection and spreading it (Mok et al., 2020). On the other hand, prevention measures can increase behavioural and psychological symptoms of dementia, due to unfamiliarity with equipment or care workers and the break-up of daily routines. Changes in behavior might both be a sign of increased stress

or for residents having COVID-19 or another infection (Centers for Disease Control and Prevention, 2020e). Maintaining routine activities, structuring the day and safe ways of being active are very important for residents. If possible, dedicated personnel should only work on these units and often-touched surfaces in common areas need to be frequently cleaned (Centers for Disease Control and Prevention, 2020e).

Diagnosing and testing

As described above, symptoms are nonspecific ranging from more typical symptoms for COVID-19, such as cough, dyspnea, fever, to diarrhea, reduced appetite, weight loss, reduced mobility, increased falls, fatigue,altered mental status, delirium, and changes in vital signs (D'Adamo, Yoshikawa, & Ouslander, 2020; Louie et al., 2020; K Spilsbury et al., 2020). An infection-control strategy that solely focuses on symptomatic residents cannot prevent the transmission of SARS-CoV-2 in a facility (Arons et al., 2020). Staff and families need to be alert to subtle changes and rule out COVID-19 (K Spilsbury et al., 2020).

Many publications report results of facility-wide testing of nursing home residents and staff. The reported results show that SARS-CoV-2 positive cases are often asymptomatic at the time of testing (Arons et al., 2020; Bigelow et al., 2020; Dora et al., 2020; Feaster & Goh, 2020; Goldberg et al., 2020; Kimball et al., 2020; Parikh et al., 2020) or show only atypical symptoms (Graham et al., 2020). Moreover, some residents and staff report symptoms and have negative test results (Roxby et al., 2020). Therefore, symptom-based screening appears insufficient in identifying SARS-CoV-2 cases. Repeated facility-wide testing (point-prevalence surveys) is seen as an effective measure of identifying asymptomatic SARS-CoV-2 cases. One study (preprint before peer-review) showed that facilities which used universal testing as a preventive measure (n=13) had significantly less positive cases among staff (1.7% vs 13%) and residents (1.5% vs 47%), than facilities which started testing after first reported SARS-CoV-2 diagnosis in a resident (n=15) (Telford et al., 2020). On the other hand, one study suggested that mass screening of staff with nasopharyngeal RT-PCR after diagnosing the first case in a resident had very limited impact on the reduction of viral transmission and disproportionately high cost (Guery et al., 2020).

Some examples describe the implementation of universal prevalence testing combined with other infection prevention and control measures leading to successful containment of SARS-CoV-2 spread in nursing homes. Eckardt and colleagues report that repeated universal prevalence testing was conducted every 14 days after the first positive SARS-CoV-2 case was diagnosed (Eckardt et al., 2020). In another study nasopharyngeal testing using rRT-PCR was repeated weekly in all previously negative residents and staff until no new cases were identified and in all positive subjects until testing was negative (Blain et al., 2020). Ladhani et al. (2020) point out that if SARS-CoV-2 positivity rates in the population fall below 1%, the likelihood of false positive results increases exponentially, even with RT-PCR assays that have very high specificity. Therefore, further work needs to be undertaken to assess the value of repeated mass swab testing in nursing homes during periods of low community prevalence in order to prevent unnecessary isolation of residents and staff.

One study tested the temperature of 7325 residents 14 days before and after universal testing for SARS-CoV-2. The average maximum temperature of SARS-CoV-2 positive residents (6%) was significantly higher: 37.66 (0.69) compared with 37.11 (0.36) ($p < .001$) in SARS-CoV-2 negative

residents and began rising 7 days before testing and remained elevated during the 14-day follow-up. Only 26.6% of residents who tested positive met the fever threshold of 38.0C during the survey period. Around 20% of SARS-CoV-2 residents' temperatures never deviated > 0.5C from baseline. Authors conclude that while single temperature screening might not be sensitive, repeated measures with a patient-derived baseline might be beneficial (Rudolph et al., 2020). A more recent study of 6,669 residents in 416 nursing homes also calls for a lower threshold, but cautions for the required resources for continuous screening and still relatively low specificity (McConeghy et al., 2020).

Different recommendations are given in making sure timely diagnosis of an infection with SARS-CoV-2 among residents. Concrete guidelines are published by the Center for Disease Control and Prevention (Centers for Disease Control and Prevention, 2020a) and a recent case investigation showed its positive application in a French nursing home (Blain et al., 2020). Further concrete suggestions are given by D'Adamo and colleagues (D'Adamo et al., 2020). Some key recommendations are:

reminders of symptoms and preventive measures as signs and posters in facility for both residents and staff

daily temperature measurement of residents (note changes based on baseline temperature of residents)

check for changes in condition in residents at least daily

screen new admissions for COVID-19 before they are admitted on ward

perform viral testing on any residents with signs or symptoms of COVID-19

Once a facility has confirmed a positive COVID-19 case, test all residents and staff

repeat viral testing of all previously negative residents (every 3 days to 7 days), until no new cases of SARS-CoV-2 infection among residents or health care professionals for a period of at least 14 days are identified since the most recent positive result cohort residents that show positive test results

all staff in contact with suspected or confirmed case need full personal protective equipment (masks, gown, gloves, goggles)

While the CDC recommends blanket testing after a positive COVID-19 case has been confirmed, an expert panel recommends weekly to bi-weekly serial testing of both residents and staff, if tests are available (Wasserman et al., 2020), not waiting for a first symptomatic case. This allows them to become active before staff or residents become symptomatic.

Visiting and leaving nursing homes

A study in Taiwan explored concerns of 156 family members for their relatives in nursing homes during the lockdown period and assessed their level of acceptance of the visiting restriction policy. The most common concerns were residents' psychological stress (38.5%), nursing care (26.9%) and daily activity (21.1%). Nearly 85% of interviewed family members accepted the visiting

restriction policy, and a higher satisfaction rating was independently associated with acceptance of the visiting restriction policy (Yeh et al., 2020). A Dutch mixed methods study of 26 nursing homes showed sufficient to good compliance with a local guideline regarding admission of visitors as well as positive reception of the restored visits. Visiting rules included one designated visitor per resident, temperature check and hand hygiene when entering the nursing home, keep at least 1.5-meter distance, no current COVID-19 symptoms, and wearing a face mask when in contact with residents that cannot keep the physical distance, e.g., with dementia. Additionally, visitors agreed with nursing homes about the frequency and duration of visits and visits were spread throughout the day and week. No new SARS-CoV-2 infections were reported in those nursing homes three weeks after visits were allowed (Verbeek et al., 2020).

Several organizations provide recommendations on how to handle visits from family members, however, no studies compare measures, providing insights into the most effective ones. Some recommendations reduce visits to essential family caregivers: Visits only by single family members that provide care to residents, daily visits of less than 2h, mask at all times and training in hand hygiene; temperature is taken and visitors are screened for symptoms, when entering the building (Schlaudecker, 2020). Kusmaul (2020) describes recommendations based on CMS and West Virginia Department of Health and Human Resources: All visitors are screened for symptoms of COVID-19 when entering the building and the temperature is taken, There is mandatory hand hygiene upon entering the facility, physical distancing during the visit, and both visitors and residents are required to wear face masks during the visit. At the same time, the facility requires appointments for visits to control the number of visitors in the facility. Facilities are asked to consider time limits for visits to be able to control the number of visitors. Designated visiting areas can be designed or outside visiting considered if feasible.

Given the restricted access during an outbreak of COVID-19, an active approach to keep social contact and support for residents is needed. Social inclusion is key during times of physical distancing (AGE Platform Europe, 2020). The facilitation of social connection with technology, such as video or social media is important to counteract feelings of loneliness and social isolation (Wu, 2020). A community-centric approach might allow working with volunteers to have meaningful interactions with residents via social media, chats, videos or phone calls, or sending letters and cards (Shrader, Assadzandi, Pilkerton, & Ashcraft, 2020; van Dyck, Wilkins, Ouellet, Ouellet, & Conroy, 2020; Wu, 2020).

Visiting possibilities must be evaluated on a case-by-case consideration of the individual situation (AGE Platform Europe, 2020). Especially in end-of-life situations or situations of psychological and mental distress, individual solutions need to be applied. A multidisciplinary team can be put in place to decide about complex situations, when visitors or residents cannot or do not want to keep quarantine or isolation rules (Deutsche Gesellschaft für Pflegewissenschaft, 2020).

Social activities within nursing homes

As pointed out before, long-term care facilities are not temporary but the permanent home of residents in which these live for months and years. Maintaining social connectedness is of highest importance for residents and their quality of life. Cohorting residents for group activities allows them to continue social activities. If these are no longer possible, the offer of single activities needs to be adapted, especially for residents in quarantine or isolation. Additionally, infection prevention

and control measures might reduce physical activities of residents. Accordingly, activities that help residents to maintain their mobility can enhance their quality of life.

Recommendations

Policy level:

Facilitate regional solutions for nursing homes unable to cohort infected residents and clarify the financing of such solutions.

Consider financial support for affected nursing homes in view of additional resources needed to master the outbreak (material, staffing).

Incentivize the availability of transparent face masks and prioritize access for staff working with the hearing impaired or persons with dementia (see https://www.empa.ch/web/s604/hello-mask-hmcare).

Nursing home level:

Infection prevention and control measures:

Create a locally tailored pandemic plan that considers both the protection of residents and the maintenance of autonomy and social connectedness. This plan includes, e.g., information concerning the identification of potentially infected residents or staff, testing, quarantine, isolation, cohorting, and visiting rules. It considers the needs of residents with dementia and with end-of-life care.

Adhere to basic principles of infection prevention and control, including physical distancing, hand hygiene, wearing protective masks.

Keep staff up-to-date with information about COVID-19, continuously educate and train staff on current measures for infection prevention and control, provide information material and monitor implementation of measures.

Provide easily understandable information about COVID-19 and infection prevention and control measures for residents and visitors, including information about the correct use of personal protective equipment, the disinfection of surfaces and the correct disposal of potentially infected material.

Use transparent face masks / face shields, where available and possible, when communicating with hearing impaired residents or cognitively impaired residents that react negatively to face masks.

Clarify, which staff works in several health institutions and discuss infection prevention and control measures in order to prevent a spreading from institution to institution.

Assign a person/group responsible for infection prevention and control that regularly checks on units for questions and guides on-site management.

Building groups of staff and residents without suspected or confirmed COVID-19:

Depending on the size of the nursing home and architectural possibilities, build groups of residents and staff within the nursing home with clearly delineated areas that are separated from each other, also during breaks and meal times. Restrict access of ancillary staff and movement between areas by adapting logistics and activities. Offer activities within these groups and do not mix residents. Install disinfection checkpoints between areas.

If the situation calls for the continuation of activities that involve several groups: residents must adhere to preventive measures, including physical distancing, hand hygiene and wearing masks.

Diagnosing and testing

Educate staff about typical and atypical symptoms of COVID-19 infections, foster early detection and communication of observations.

Check for changes in resident conditions daily. Perform daily temperature control of residents, noting changes from baseline temperature of resident.

Implement a comprehensive plan for testing, isolation and quarantine once a COVID-19 case is confirmed with repeated blanket testing of both staff and residents (e.g. every 3-7 days) until no further cases are confirmed for at least 14 days.

Assess newly admitted residents before allowing them to enter the ward. Avoid a full stop of new admissions.

Visiting and leaving the nursing home:

Provide a prevention plan for visitors, including temperature checks, face masks, hand hygiene, physical distancing and information about the number of visitors allowed. Register all visitors for contact tracing. Both visitors and residents should wear face masks if physical distancing cannot be maintained during visits. For cognitively impaired residents, the guidelines need to be adapted to the individual situation.

Provide guidance for residents who leave the nursing home with respect to how to protect themselves and the other residents by keeping infection prevention and control measures when outside. They should keep to basic principles that are in place at the current time and place.

If the nursing home is affected with COVID-19 cases:

For residents in not affected units: restrict visits to 1-2 key persons per resident and to common areas of nursing home, plan and, if needed, reduce visiting hours. Visitors must keep basic principles of infection prevention and control (physical distancing, hand hygiene, mask). Residents are allowed to leave the nursing home, if they are able to strictly keep the basic rules or have an accompanying person that guarantees the keeping of infection control measures.

For residents in quarantine, facilitate social contacts via social media, phone calls and other media. Allow personal visits in exceptional situations (e.g. end-of-life, severe crisis). Residents in quarantine are not allowed to leave the nursing home.

Designate a multidisciplinary team that decides about complex situations, when residents or visitors cannot or do not want to keep quarantine or isolation rules.

Social activities and connectedness:

Ensure that residents are able to maintain as much as possible their usual activities, mobility and social contacts. Ensure that group activities allow for physical distancing.

Encourage physical activities, including going for walks with visitors in agreement with current prevention measures, including physical distancing and wearing masks.

Provide the (technological) infrastructure to support residents in maintaining social connectedness with families, friends, volunteers and co-residents.

Keep residents, relatives and staff informed about access to medical services, as well as possibilities for social connectedness and activities.

Keep services that are important for residents, such as hairdressers or podologists, in place under consideration of current prevention measures.

When nursing home residents get infected, how are person-centered treatment decisions be ensured?

Isolation

The physical isolation impacts residents negatively due to their loss of autonomy, psychological and physical harm due to social isolation and immobility. Moreover, they have a higher risk of harm due to falls (Gordon et al., 2020). It is especially difficult to isolate residents with behavioural and psychological symptoms of dementia. The need for isolation might thus bring with it the risk of excessive use of restraints or antipsychotics (Gordon et al., 2020). Accordingly, it is easier to cohort residents who test positive for COVID-19. For resident cohorting, a designated COVID-19 care unit can be established that only receives residents with confirmed COVID-19 (Centers for Disease Control and Prevention, 2020a). The CDC recommends the following points for cohorting:

determine a unit that ideally is physically separated from the other units to receive residents with confirmed COVID-19 (D'Adamo et al., 2020)

assign dedicated staff that only works on the COVID-19 unit. Restrict access of ancillary personnel to the unit

Care staff needs to be trained in infection prevention and control measures

If residents with behavioural and psychological symptoms of dementia cannot be accompanied properly, the use of volunteers or other additional staff from outside the nursing home should be considered.

Communication

If a nursing home experiences an outbreak of COVID-19, communication is key in the management of the situation. On the one hand, staff, residents and families need to be informed about the range of the outbreak, measures taken and testing procedures (Shrader et al., 2020). Family members need to know in what format and how often they can expect to be informed by the nursing home (Bern-Klug & Beaulieu, 2020). Information needs to be clear, consistent and truthful. Nursing homes describe weekly group calls with families in order to manage fears and expectations. The installation of a COVID-19 hotline can be considered. In the same way, staff need to be regularly updated and included in the handling of the situation, questions should be encouraged (Bern-Klug & Beaulieu, 2020). In order to adapt to the new situation, a positive environment is needed that provides the necessary resources and security.

Very important is the communication with the local health system and local authorities, e.g. about personal protective equipment, testing kits and related laboratory supplies and the supplies for symptom management and end-of-life care needed to handle the situation (American Geriatrics Society, 2020). Local authorities will need continuous updates. the monitoring of the situation helps to indicate if the situation exacerbates and outside help is needed, be it due e.g. due to lacking staff capacity or due to the need for support with geriatric or palliative care expertise (Shrader et al., 2020).

Hospitalizations and triage decisions

In a Belgian single center study (De Smet et al., 2020), the relationship of frailty and short-term mortality in older adults hospitalized for COVID-19 was assessed. The degree of frailty, baseline lactate dehydrogenase and RT-PCR cycle threshold were related to short-term mortality, but not long-term care residence, dementia, delirium or polypharmacy. They conclude that even the oldest and most frail patients may benefit from hospitalization for COVID-19. On the other hand, a retrospective cohort study in five US hospitals showed that older age and nursing home residence were associated with a high risk of death (Garibaldi et al., 2020). They discuss the problem of late detection of symptoms in nursing homes and the rapid spreading of COVID-19 in this setting. Moreover, 20% of the patients who died had a Do-Not-Resuscitate/Do-Not-Intubate order .

Although several studies show the relationship of older age and mortality in COVID-19, especially with intensive care, nursing home residents need to be free to decide whether to go to a hospital or not, as has been argued in several places (Ackermann et al., 2020; AGE Platform Europe, 2020; Gordon et al., 2020; Nationale Ethikkommission im Bereich Humanmedizin, 2020). In situations of resource scarcity, the updated version of the guideline for triage for intensive-care treatment comes into play (Schweizerische Akademie der Medizinischen Wissenschaften & Schweizerische Gesellschaft für Intensivmedizin, 2020). According to this guideline, neither age nor dementia per se are criteria for triage. However, older age and dementia are often linked to comorbidities with worse short-term prognosis and frailty is an important decision factor under resource scarcity. Nursing home residents have the right to full information about their situation and their prospects under resource scarcity given their current situation in order to be able to decide on their own, which treatment they prefer. An important step to support decision making is advance care

planning.

Advance care planning (ACP)

A Swedish Register study showed that during the COVID-19 pandemic, significantly more people died without the possibility of holding end-of-life discussions and without someone present when they were dying (Strang, Bergström, Martinsson, & Lundström, 2020), pointing out the considerable existential consequences for residents and relatives. It is of paramount importance to reflect with residents and relatives how they want to proceed if the resident contracts COVID-19, to discuss hospitalization wishes and treatment wishes. Most people prefer to die in a familiar environment instead of in an intensive care unit. Advance care planning is the continuous conversation between residents, family and health professionals about resident's wishes and preferences for future health care scenarios and end-of-life care. As such, the conversation can be started at admission to the nursing home, but needs to be held at the latest when a resident is infected. Advance care planning helps the resident to develop realistic expectations for his illness trajectory and to make decisions (Kunz & Minder, 2020). The decisions need to be documented so that they are available when needed. If residents decide against hospitalisations, palliative care treatment plans need to be in place. It is important to note that advance care planning is a personalised conversation. A blanket approach must be avoided which would provoke negative perceptions of residents and families (Gordon et al., 2020).

According to a report of palliative ch (Gurtner Vontobel, Theile, Eckstein, & Borasio, 2020), not all nursing homes are prepared to have advance care planning conversations with residents and families and also general practitioners might need more training, support and tools. Senior staff is needed to support advance care planning and decision making (Gordon et al., 2020).

Specific communication tools to address COVID-19 with residents have been developed. Gaur and colleagues (Gaur et al., 2020) created an evidence-based COVID-19 Communication and Care Planning Tool for an informed consent process and shared decision making between clinicians, residents and their families. The tool begins by addressing the expected course and outcomes for nursing home residents with SARS-CoV-2 infection and indicates how their care can be provided. In the next part, it acknowledges the anxiety of residents and their loved ones and then addresses the actions that can be taken. The last element summarizes the decisions made and reminds staff to complete documentation.

For Switzerland, corresponding tools for the documentation of advance care planning were released by palliative ch (https://www.palliative.ch/de/fachbereich/task-forces/fokus-corona/).

Recovery and rehabilitation

COVID-19 has a significant impact on residents' cognitive, emotional and physical health (Spilsbury et al., 2020). Accordingly, recovery needs time and can take weeks. Rehabilitation services can support the recovery, including supporting exercising, but also supporting the emotional health and well-being (K Spilsbury et al., 2020). Staff need to be aware of the importance of recovery and rehabilitation to support residents in the trajectory and promote their health.

Recommendation

Policy level:

Facilitate structures and technologies that allow continued access to medical services (general practitioners, hospitals, other health care providers such as physiotherapist, occupational therapist), including palliative care, and to other services such as spiritual care, even during phases when access to nursing homes is restricted.

Consider the local provision of dedicated COVID-19 units for nursing homes that do not have the corresponding infrastructure to isolate residents with confirmed COVID-19.

Make sure that nursing homes that provide post-acute care to residents returning from hospitals or that take up residents from other nursing homes have the infrastructure and local competencies to handle these situations.

Incentivize advance care planning education for general practitioners and nursing home staff.

Nursing home level:

Quarantine residents with suspected COVID-19 until results are returned. If positive, isolate for 10 days. Stop isolation after the resident is without symptoms for at least 48h.

Cohort residents with positive test results in a designated, separate area of the nursing home with dedicated staff assigned. Restrict access of ancillary staff and install check points for admission in separated areas with hand hygiene and mask to wear.

If no appropriate structure is available to cohort residents, consider transferring the resident to a dedicated unit in another facility in the area as provided by the local authorities, given the willingness and consent of the resident. Depending on the resident's situation and will, avoid unduly stress through single room isolation.

Quarantine the unit on which a resident tested positive for at least 10 days. Residents wear masks if possible if they go out of their rooms. Staff keeps to basic measures of infection prevention and control, keeping physical distancing where possible. If needed, during caring activities with residents that take longer than 15 minutes, residents wear masks.

Communicate transparently and regularly with residents, relatives and staff about outbreaks, their course and measures in place. Stay in contact with local authorities.

All residents and families should be encouraged to make informed decisions about their healthcare management, including their wish for hospital admission and ICU admission. Implement advance care planning with residents. Build local knowledge and designate staff able to lead advance care planning conversations. Talk with residents about advance care planning from admission onwards, re-evaluate if a resident gets infected. Document the decisions in an easily accessible way. If residents are infected, discuss treatment plans including palliative care treatment where appropriate.

Facilitate for residents and families to make informed decisions about hospital transfers. Inform

transparently about triage decisions for intensive care in hospitals under resource scarcity.

Be aware of recovery time needed for residents after COVID-19 infections and involve rehabilitation services to support residents in recovery.

When staff get exposed or show symptoms, how can safe staffing levels be maintained?

Testing and quarantine / isolation of staff

Testing is a key strategy for the protection of healthcare workers and older persons in long-term care. A recent guideline suggests regular, e.g. bi-weekly testing of all healthcare workers with direct patient contact provided that testing capacity is available and not needed for symptomatic patients (Deutsche Interdisziplinäre Vereinigung für Intensiv- und Notfallmedizin (DIVI), 2020). An expert panel recommends weekly/bi-weekly testing if RT-PCR tests are available, which can be reduced to the frequency of every month when community prevalence declines (Wasserman et al., 2020).

A CDC guideline (Centers for Disease Control and Prevention, 2020c) also recommends testing all healthcare workers for SARS-CoV-2, prioritizing those with signs or symptoms of COVID-19. According to the CDC, health care professionals developing even mild symptoms consistent with COVID-19 must cease patient care activities and notify their supervisor or occupational health services prior to leaving work. If health care professionals are tested and found to be infected with SARS-CoV-2, they should stay away from work until they meet all the following criteria:

- at least 10 days have passed since symptoms first appeared

- at least 24 hours have passed since last fever without the use of fever-reducing medications

- symptoms (e.g., cough, shortness of breath) have improved.

Healthcare workers who are not severely immunocompromised and were asymptomatic throughout their infection may return to work, when at least 10 days have passed since the date of their first positive viral diagnostic test. In some instances, a test-based strategy could be considered to allow healthcare workers to return to work earlier. However, many individuals can have prolonged viral shedding, limiting the utility of this approach. If a test-based strategy is used, CDC recommends that healthcare workers can return to work after results are negative from at least two consecutive respiratory specimens collected ≥24 hours apart tested using molecular viral assay to detect SARS-CoV-2 RNA. After returning to work, healthcare workers should wear a face mask for source control at all times while in the healthcare facility until all symptoms are completely resolved or at baseline, self-monitor for symptoms, and seek re-evaluation from occupational health if symptoms recur or worsen (Centers for Disease Control and Prevention, 2020b).

Swissnoso makes recommendations for healthcare workers who had unprotected close contact with COVID-19 cases, i.e. contact within 1.5 meters for more than 15 minutes without mask or other physical barrier, in line with the FOPH recommendations (Swissnoso, 2020):

Quarantine for 10 days after the last close contact and active self-monitoring for fever and symptoms of respiratory infections

Contact with other people (except those who are also in quarantine in the same household) should be avoided

When symptoms occur, healthcare workers immediately isolate themselves, inform their employer and testing should be initiated.

Staffing resources

According to the policy brief of the American Geriatrics Society, quarantine rules must be carefully considered. If staff is quarantined too long or unnecessarily, this will unduly reduce the workforce and worsen the quality provision of long-term care (American Geriatrics Society, 2020). Swissnoso states that in exceptional situations, such as a shortage of staff that puts patients' safety at risk, a special arrangement may be agreed after consultation with the competent cantonal authorities:

Healthcare workers can continue to work as long as asymptomatic and while

1. Carrying a surgical mask in close contact with patients (<1,5m) and staff
2. Performing excellent hand hygiene (Swissnoso, 2020).

CDC offers specific strategies to mitigate staffing shortages in long-term care (Centers for Disease Control and Prevention, 2020d). They include adjusting staff schedules, hiring additional healthcare workers, and rotating healthcare workers to positions that support patient care activities. If shortages continue despite other mitigation strategies, permitting willing healthcare workers with suspected or confirmed COVID-19 to return to work without meeting all return to work criteria mentioned above can be considered. CDC recommends that such healthcare workers should be restricted from contact with severely immunocompromised patients and facilities should consider prioritizing their duties as follows:

Allow healthcare workers with suspected or confirmed COVID-19 to perform job duties where they do not interact with others (e.g., patients or other healthcare workers), such as in telemedicine services.

Allow healthcare workers with confirmed COVID-19 to provide direct care only for patients with confirmed COVID-19, preferably in a cohort setting.

Allow healthcare workers with confirmed COVID-19 to provide direct care for patients with suspected COVID-19.

As a last resort, allow healthcare workers with confirmed COVID-19 to provide direct care for

patients without suspected or confirmed COVID-19.

Recommendations

Policy level:

Provide national recommendations for fast-tracking health care personnel for testing

Provide the infrastructure and financial plan for local testing: this helps to reduce staff absences due to waiting for test results and gives the basis for blanket testing when needed. Neither nursing homes themselves nor general practitioners responsible for residents in nursing homes have the resources to regularly perform blanket tests by themselves.

Provide solutions for additional staff support for nursing homes with staff shortages that can no longer be handled with the existing resources.

Nursing home level:

Build up / maintain a professional absence management, monitoring testing, isolation and quarantine among staff as well as risk groups in order to provide them with specific measures needed.

Install single-point of entry hotline for employees to contact in case of symptoms or questions concerning SARS-CoV-2, to assess, counsel and support employees in decision making for next steps.

Implement bi-weekly testing of all healthcare workers in direct contact with residents with RT-PCR (this recommendation is dependent on the corresponding infrastructure and financial support to perform these tests). If community prevalence drops below an agreed number of cases per day in canton, testing can be performed 1x/month.

Positively tested staff go into isolation according to the current national rules.

Ensure staffing resources for safe resident care by adjusting staff schedules, bringing in additional staff or rotating staff. Consider allowing staff to continue working according to the rules of Swissnos, i.e. asymptomatic staff is allowed to work while carrying a surgical mask and performing excellent hand hygiene, and after consultation with the cantonal authorities. They remain in quarantine at home and only leave the home for work.

If asymptomatic staff returns to work before finishing isolation or quarantine time in order to maintain resident safety, the recommendations of the CDC should be followed concerning their deployment, giving priority to 1) work without direct resident contact, 2) work in direct care with residents with confirmed COVID-19, 3) work in direct care with residents with suspected COVID-19, 4) work in direct care with residents with neither suspected nor confirmed COVID-19.

How can rapidly evolving infection prevention knowledge effectively be disseminated and applied in the nursing home setting?

Different studies describe how nursing homes connect and network in order to address pandemic overall, specific infection prevention and control questions or the outbreak of COVID-19 in a facility. Harris and colleagues describe telehealth-centered strategies to improve outcomes during COVID-19 outbreaks (Harris et al., 2020). They built a protocol to support nursing homes with a multiprofessional team. Telehealth included the possibility of vital sign monitoring, remote physical examination (with stethoscope, otoscope, and oral camera) and videoconferencing. After outbreaks with initial on-site triage of residents, the multiprofessional team identified residents needing hospitalization, supported the standardization of care processes and monitoring, coordinated care and transfers between nursing homes and hospitals, facilitated advance care planning, palliative care decisions and optimized services, and assessed the facility's needs for telehealth technology training, staffing deficits, capacity for infection prevention and control and well-being of staff. The facilities in the study had significantly lower infection fatality rates than documented in other facility outbreaks (Archbald-Pannone et al., 2020; Harris et al., 2020). In a similar way, Rolland and colleagues report about a COVID-19 platform that advises and supports nursing homes with telemedicine. General practitioners practicing there are supported by a senior geriatrician and a mobile team to screen residents and staff for COVID-19 (Rolland, Benetos, Villars, Braun, & Blain, 2020). The mobile team also assessed measures in place and supported care staff to manage an epidemic in the nursing home. Geriatric knowledge, ethical aspects and palliative care, management of behavioural and psychological symptoms of dementia could be discussed, as well as the need for hospitalisations. Also Koeberle and colleagues (Koeberle et al., 2020) recommend the organisation of a geriatric assessment and coordination unit that guides a network between private, medico-social and hospital actors to guide evaluation, geriatric coordination of care and decision support. The formation of local groups of key health professionals to find local solutions seems key to address outbreaks (D'Adamo et al., 2020). Also the formation and consultation of online forums, WhatsApp groups or Facebook groups can be helpful (Karen Spilsbury et al., 2020; K Spilsbury et al., 2020).

Recommendations

Policy level:

Build local networks for quick response to questions around and outbreaks of COVID-19 in nursing homes, including access to geriatric knowledge, discussion of ethical issues, palliative care, or management of behavioural and psychological symptoms of dementia. Existing networks can be expanded accordingly. The network building should be initiated by cantons, nursing home associations or other existing bodies.

Foster telehealth solutions to support nursing homes and responsible general practitioners with COVID-19 management

Facilitate access to infection preventionists who are knowledgeable in long-term care.

Nursing home level:

Designate locally responsible infection preventionists, join local networks with other nursing homes, hospitals, physicians, other health care professionals and the government to keep up to date and address upcoming issues.

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