

Investigation of Factors that Led to the Outbreak and Spread of COVID-19 among Nursing Homes and Long-Term Care Facility Staff

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Abstract

During the coronavirus disease 2019 (COVID-19) outbreak, many cases of infections were brought in by staff members of Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs), and staff members were at a serious risk of infection in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs). Vaccination is effective in preventing infections and serious illnesses; thus, it is recommended to the Nursing Homes (NH) and Long-Term Care Facilities (LTCF) staff and users. However, vaccines are not 100% effective, and the elderly living in facilities remain vulnerable to infectious diseases. Reducing the incidence and spread of infectious diseases among staff is an important issue. This mini-review examined the factors and solutions that resulted in the spread of infections among staff in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs). The following factors were considered as factors that put staff members at risk of spreading infections. The lack of an infection control manual to guide the staff's behavior, the lack of infection control personnel assigned to the facility, and the lack of collaboration with local medical facilities and infection control specialists may have been factors that put the staff at risk for the spread of infection. Therefore, measures to support the development of infection control manuals, the establishment of a system that allows easy access to local medical institutions or timely support from infection control specialists, and the training of infection control personnel in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) are needed. In addition, infection control educators should be trained, infection control education by specialists should be supported, and an environment that facilitates staff learning about infection control should be created.

Keywords: Nursing homes; Long-term care facilities; COVID-19; Outbreaks; Risk factor; Staff

Introduction

Facility users are elderly people who are undernourished, have multiple illnesses, and therefore have low immunity and are more susceptible to serious illnesses when they contract infectious diseases. In addition, due to the high rate of Severe Acute Respiratory Syndrome–Coronavirus disease (SARS-CoV-2) infection, 30%–50% of COVID-19-related deaths in 2020 occurred in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) [1]. The structure of Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) was cited as a factor in the spread of infection, with the infrastructural environment, making it difficult to take isolation precautions and ventilation systems unable to cope with airborne infection [2,3]. It was also reported that most nursing homes are not prepared for a SARS-CoV-2 pandemic [4], lack of personal protective equipment in the early stages of a pandemic [2], staff shortages due to the spread of infection [5,6], and difficulties in complying with infection control measures for patients with dementia as factors in the spread of infection [3], and patient safety from infectious diseases is also a major concern. In addition, many cases of infection have been attributed to staff members who are able to protect the safety of users from infectious diseases by bringing them into the facility [3,5-7]. Although compliance with infection control measures is important to prevent infections, some reported that hand hygiene and personal protective equipment compliance rates of Nursing Homes (NH) and

Long-Term Care Facilities (LTCF) staff were low [8] and that they chose inadequate personal protective equipment when providing care involving bathing and aerosol generation [9], making them a serious infection risk for the Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs).

COVID-19 vaccination is effective in preventing infections and serious illnesses, and vaccination of Nursing Homes (NH) and Long-Term Care Facilities (LTCF) staff and users is recommended [4,10]. However, the vaccine is not 100% effective and patients with COVID-19 breakthrough infections have been reported; thus, this situation remains difficult [11]. Considering the above, we considered it important to reduce the incidence and spread of infections by the staff. Therefore, this mini-review aimed to examine the factors that led to the spread of infections by staff in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) and possible solutions.

Literature Review

We searched Medline (PubMed) and Google Scholar for relevant articles on COVID-19 outbreaks and infection control issues in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs). The following search terms were used: “COVID-19,” “nursing homes,” “long-term care facilities,” “Outbreaks,” “risk factors,” “infection control.” The literature published between January 1, 2020, and

September 1, 2023, related to the outbreak and spread of infections by staff was included. The exclusion criteria were conference abstracts, unpublished manuscripts, and articles not in Japanese or English.

A total of 12 studies were included in the qualitative synthesis. Reasons for not implementing infection control measures appropriate for COVID-19 include the fact that the staff at the Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) are strongly aware that the facility was a place to live and may have prioritized the ease of daily living assistance over infection control, and the fact that infection control manuals were not in place [9,12]. Some Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) collaborated with local hospitals and public health departments and achieved effective results in infection control for the COVID-19 outbreak [13,14], whereas others reported that many facilities were unable to collaborate with nearby medical facilities [9]. Furthermore, although infection control committees were set up in the Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs), they did not have infection control specialists in place [9], could not obtain information on COVID-19 control in a timely manner, and were unable to easily consult with infection control specialists.

Discussion

Nurses are trained in infection control measures, and Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) with more nurses reported fewer cases and deaths, indicating effective infection control by nurses [15]. However, not all nurses are competent in infection control, and a lack of knowledge about infection control among nurses was also pointed out [16]. For facility staff to take appropriate infection prevention actions and infection control measures, an infection control manual as a measure of action, a system that allows the staff to easily receive support from infection control specialists, and infection control personnel within the facility should be developed.

Many Nursing Homes (NH) and Long-Term Care Facilities (LTCF) employees are nursing care workers who in play a central role in infection control. However, compared to nurses, caregivers have less knowledge and skills in infection control [16]. In addition, multinational caregivers work in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs), and due to language barriers and cultural differences, they may not be adequately briefed and educated on infection prevention [17]. Education on infectious diseases in courses that train caregivers should be strengthened, and continuing education post-employment should be provided.

Staff education on infection control measures is effective in preventing the transmission and spread of COVID-19 and is essential for infection control [18]. Although prior literature has reported an increase in staff education on infection control processes after a COVID-19 outbreak [19], the status and content of infection control education varies from facility to facility, and staff education has also been reported to be inadequate [2,12,16]. The lack of assigned infection control specialists makes it difficult to implement infection control education. Training of the staff in charge of infectious disease control education and support from specialists are needed. In addition, the participation rate of the staff was low, and many facilities did not provide support for the staff who did not participate in the training [12]. A serious game (Escape COVID-19) has been reported to be more effective in improving nursing home employees' intention to practice COVID-19 management compared to standard infection

prevention and control material [20]. It is necessary to consider the use of artificial intelligence and online training to develop teaching materials and educational programs that take into account the characteristics of staff members who are adult learners, adjust work schedules so that all staff members can participate in training, provide support for staff members who were unable to attend training, and create a learning environment where training can be received without time or location constraints. Furthermore, although some staff members cannot practice appropriate infection control measures even after undergoing training, the effectiveness of the training, such as how the training content is implemented in the field, should be confirmed, and followed up as necessary [21].

Conclusion

The following factors were considered to increase the risk of infection among staff members. The lack of an infection control manual that provides guidelines for staff behaviour, infection control personnel, and collaboration with local medical institutions and infection control specialists may have contributed to the staff becoming at risk for the spread of the infection.

Measures to support the development of infection control manuals, the establishment of a system that enables easy access to local medical institutions or timely support from infection control specialists, and the training of infection control personnel in Nursing Homes (NHs) and Long-Term Care Facilities (LTCFs) are urgently needed. In addition, infectious disease control educators should be trained, infectious disease control education should be supported, and an environment that facilitates staff learning about infectious disease control should be established.

Consent for Publication

Not applicable

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