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Building for resilience: insights from a Stockholm nursing care facility amidst the COVID-19 pandemic

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Introduction: This study investigates the COVID-19 response strategies of a senior housing facility in Sweden, Red Garden, which reported a notably low mortality rate during the pandemic's first wave.

Methods: Using a single-case study design, the research draws on on-site inspections, routine protocol documents, and a semi-structured interview with the facility manager. Thematic analysis was conducted to examine the data.

Results: Thematic analysis reveals that effective containment at Red Garden resulted from a combination of spatial affordances, proactive leadership, embedded hygiene culture, and communication strategies. Importantly, the findings suggest that the successful implementation of national guidelines relied not only on knowledge and motivation, but on the physical and organizational capacity of the facility to act.

Discussion: These findings challenge the assumption that infection control strategies are universally transferable across eldercare settings. The study underscores the need for pandemic preparedness plans that address the environmental and managerial feasibility of implementation. While limited by its single-case design, this research highlights how spatial configuration and leadership dynamics can interact to shape resilience in long-term care environments.

KEYWORDS

building design, communication strategies, COVID-19, nursing care facility, resource readiness, senior housing, Sweden, zoning strategies

1 Introduction

The 2020 COVID-19 outbreak triggered a global crisis, disrupting social systems and overwhelming healthcare infrastructures. Senior housing facilities, especially those caring for individuals with underlying health conditions, faced disproportionately high risks of infection and mortality (Aggarwal et al., 2020; Biswas et al., 2021; etc.).

In high-income countries, residents of long-term care facilities, though accounting for less than 1% of the population, represented a staggering 30%–70% of COVID-19-related deaths during the first wave (Ioannidis et al., 2020). Statistics from European nations indicate that between 42% and 57% of total COVID-related deaths occurred in care homes (Comas-Herrera et al., 2020). A similar pattern emerged in the United States, where a significant proportion of fatalities took place in nursing homes (Girvan and Teles, 2020). In Sweden, by early December 2020, over 7,000 individuals had died with confirmed COVID-19 diagnoses; of these, nearly 90% were aged 70 or above. Senior housing, with large numbers of vulnerable residents, creates an environment conducive to the rapid spread of infectious diseases like COVID-19. Understanding the factors that help prevent excess

mortality in these settings is essential for developing effective strategies for future outbreaks and pandemics.

Sweden faced considerable difficulties in managing the COVID-19 pandemic. Sweden adopted a unique approach to managing the pandemic, favoring voluntary guidelines over strict lockdowns. This strategy, which attracted both praise and criticism globally, had significant implications for outcomes in long-term care settings. Despite overall challenges, certain Swedish care facilities reported significantly lower mortality rates during the first wave, raising questions about what enabled their relative success.

According to [Giri et al. \(2021\)](#), COVID-19 transmission in senior housing is shaped by a range of factors: disease-specific traits (e.g., asymptomatic spread), resident vulnerabilities (e.g., comorbidities, cognitive impairments), facility design (e.g., layout, occupancy), staffing structures, and systemic support such as PPE availability. These variables interact dynamically and may shift in importance across time and context.

While knowledge is a critical enabler of protective behaviors, it is not sufficient on its own. Studies show that even well-informed individuals may fail to consistently implement precautionary measures ([Seale et al., 2010](#); [Ma et al., 2014](#)). This gap underscores the importance of effective risk communication, guided by leadership, trust, and context sensitivity ([Cairney, 2015](#); [Head, 2016](#)). Policymaking in times of crisis is often shaped by competing values, knowledge systems, and perceptions, which in turn affect how messages are crafted and received. In public health emergencies, communication goes beyond one-way dissemination of guidelines; it becomes an interactive process involving the exchange of information, perspectives, and emotional responses among individuals, groups, and institutions ([Hyland-Wood et al., 2021](#)). Risk communication must therefore be context-sensitive and adaptive to the evolving crisis landscape.

At the height of the pandemic, nursing homes in Sweden and the U.S. were frequently understaffed and under-equipped ([McGarry et al., 2020](#); [Kabir et al., 2020](#)). Shortages of PPE, inadequate infection control protocols, and physical environments ill-suited to isolation compounded the crisis. Research highlights that adaptable architectural design facilitating, spatial separation and adequate ventilation is crucial in limiting viral spread ([Dietz et al., 2020](#); [Mizumoto et al., 2020](#)). According to [Kabir et al. \(2020\)](#) facilities faced significant hurdles, including shortages of protective equipment, complexities in managing infected residents, and the need for *ad hoc* solutions to mitigate infection spread. Additionally, the physical layout of many care homes was not designed to support infection control, making it difficult to isolate residents, disinfect shared spaces, or separate staff roles effectively ([Benbow, 2022](#)). [Dietz et al. \(2020\)](#) emphasizes the importance of adaptable design to facilitate rapid isolation and prevent transmission. Other studies have similarly found that building size, occupant density, and ventilation systems are critical determinants of viral spread ([Dietz et al., 2020](#); [Mizumoto et al., 2020](#); [Pequeno et al., 2020](#); [Bhadra et al., 2021](#)).

Given these multiple risk factors, a key question emerges: what enabled some facilities to perform better than others during the same critical period?

This study investigates how one Swedish care facility, Red Garden, managed to keep COVID-19 deaths remarkably low during the early, most chaotic months of the pandemic. Through

semi-structured interviews and site visits, it explores how design, staffing, and communication practices interacted to build resilience during the March–August 2020 period. This period, spanning March to August 2020, is particularly significant as it marks the early phase of the crisis, when knowledge was limited, vaccines were unavailable, and healthcare systems faced severe stress. In a population-based point-prevalence study conducted in late March and early April 2020, approximately 2.5% of Stockholm residents had detectable SARS-CoV-2 in the upper airways at the time of testing ([Public Health Agency of Sweden Folkhälsomyndigheten, 2020](#)). This level of community exposure implies a persistent risk of introduction into care homes via staff, particularly during periods when visitation was restricted and staff became the primary link between the facility and the surrounding community.

It is important to note that this study does not claim to capture the full range of factors influencing COVID-19 outcomes in senior care. Rather, it highlights a specific case that illustrates how certain strategies and contextual conditions may have supported a more effective pandemic response. By analyzing this example, the study seeks to contribute to a broader understanding of how senior housing facilities can strengthen their resilience to future public health emergencies.

2 Methods

This qualitative study aimed to understand how COVID-19 impacted senior housing environments in Sweden during the initial wave. It focused specifically on the experiences and perspectives of the facility manager. Red Garden reported only three COVID-19-related deaths between 2020 and 2021. This low mortality rate made it a compelling case for investigating protective factors during the pandemic's first wave. This research employed a single case study design, incorporating a site inspection, analysis of routine protocol documents, and thematic analysis of semi-structured interview data. A single-case study approach presents certain design-related challenges. These include risks such as selecting an inappropriate unit of analysis or an unrepresentative case. However, the decision to use this method was shaped by the initial outreach phase of the project. In total, 90 senior housing facility managers across Stockholm were contacted. Only one facility, Red Garden, responded. It met the study's main criterion: reporting no COVID-19-related deaths during the first wave. This aligns with the fundamental principles of a single-case study approach, as outlined by [Yin \(2009\)](#). Red Garden was selected purposively, in line with recommendations by [Edmonds and Kennedy \(2012\)](#). The goal was to collect data that were especially relevant to the study's objectives. To build contextual understanding of the case, the research began with a detailed preparatory phase. Relevant documents were collected, including staffing records, daily routines, facility maps, and resident demographic data.

2.1 Site inspection

A physical inspection of the building was conducted to assess its architecture, layout, and overall design. This allowed direct observation of how the physical environment shaped both routine activities and the facility's pandemic response. These

observations helped contextualize the facility's pandemic response within its specific architectural and spatial constraints. We conducted three site inspections on Friday, 26 August; Saturday, 3 September; and Wednesday, 21 September 2021. These dates were intentionally selected to observe the facility under varying operational conditions, weekdays and weekends, to capture a fuller picture of daily routines, staffing patterns, and resident activities.

2.2 Semi-structured interview

Karin, the manager of Red Garden, participated in a semi-structured interview as part of this case study. She is responsible for overseeing daily operations, managing staff, and coordinating care services at the facility. We conducted an interview on-site at Red Garden in September 2022. Two case study investigators were present, along with a translator to facilitate communication. A semi-structured format was employed, using a flexible interview guide. The questions explored how the facility responded to the initial wave of the COVID-19 pandemic, focusing on infection prevention measures, spatial adaptations, leadership decisions, and staff practices. Informed consent was obtained from the participant prior to the interview.

2.3 Routine protocol documents

We analyzed the facility routine protocol documents from Red Garden, specifically the *Planning and Follow-up on the Action Plan* (2021), which outlined the facility's COVID-19 response strategies during the study period. These materials included detailed information about responsible personnel, implementation dates, and the scope of actions undertaken. Measures documented ranged from securing the supply and use of personal protective equipment (PPE), to controlling the number of permitted visitors and establishing internal communication practices. These documents provide insight into the proactive, structured steps taken by the facility to manage pandemic-related risks. The protocols addressed several operational domains, including hygiene education, risk assessment procedures, visitor management, staff workflows, and continuous dissemination of information throughout the facility. These documents were used to cross-check and corroborate the statements made during the interview, strengthening the internal validity of the case analysis.

2.4 Thematic analysis

Thematic analysis followed the framework proposed by Braun and Clarke (2006). The approach guided the identification of recurrent patterns and the development of themes across the interview, site-inspection notes, and protocol documents, allowing a comprehensive understanding of the mechanisms that contributed to Red Garden's low infection and mortality rates. The audio interview was first transcribed verbatim and then translated into English. The transcript was read several times with close attention to detail to achieve full familiarity with the content and to capture both explicit meanings and underlying nuances. The coding process began after this stage of immersion in the data. We coded the interview transcript inductively in NVivo 15. The process

aimed to remain as close to the data as possible by working at the level of specific statements and ideas rather than assigning entire paragraphs to single codes. In many parts of the text, multiple codes were applied within the same paragraph to represent the layered nature of the manager's reflections. The complete transcript comprised approximately ten pages. The analysis produced a hierarchical structure that captured both organizational and human aspects of the facility's pandemic response. The main categories included Leadership, Infection Prevention, Staff Practices, and Challenges. Each category was further divided into sub-codes such as Proactive Action, Communication, Rapid Decision-Making, Cohort Care, Hygiene Culture, Ventilation, and Emotional Responses. Manual coding ensured precise alignment between text segments and thematic categories. To enhance the validity of the analysis, the routine protocol document from Red Garden was used as a secondary source for verification. Comparing statements from the interview with documented procedures helped confirm the consistency between managerial accounts and institutional practice. The resulting thematic framework provided a systematic overview of managerial, staff, and resident perspectives.

3 Case study: red garden senior housing facility

Red Garden is a senior housing facility located approximately 11 km from the centre of Stockholm. It includes 65 residential apartments distributed across two floors. Each apartment measures between 30 and 35 square meters and is equipped with large windows for natural light. Standard amenities include private toilets, showers, cookers, sinks, refrigerators, and adjustable beds. Residents are encouraged to furnish and personalize their living spaces. In 2018, a new annex was added, specifically designed to accommodate residents with dementia. This unit follows design principles intended to support cognitive impairments, including clear spatial orientation and adapted layouts.

Figures 1a–c present the architectural layout of Red Garden. These diagrams provide both an overall view and detailed floor plans of different sections of the facility.

Beyond individual apartments, Red Garden offers several shared spaces intended for socialization and daily activities. These include a dining room, TV room, and an activity room. Figure 2 shows photographs captured during a site inspection, highlighting architectural and operational features relevant to infection prevention and control.

3.1 Resident and staff profile during COVID-19 (March–August 2020)

Between March 1 and 31 August 2020, the resident population at Red Garden remained stable at 65, despite COVID-19-related morbidity and mortality during this period. The residents were predominantly older adults, with most aged 85 years or above. The age range spanned from 67 to 101 years. Among the residents, 18 had diagnosed dementia, while 47 were living with various somatic conditions. All residents occupied private apartments equipped with basic kitchen facilities (trinettkök), although



FIGURE 1 (a) The entire plan of Red Garden (b) The floor layout on the left side of Red Garden (c) The floor layout on the right side of Red Garden 1.

cooking was not typically undertaken. A localized COVID-19 outbreak occurred in April 2020 within one of the dementia units, during which eight residents became ill, and one remained unaffected. An additional case was reported in a separate dementia unit in May 2020. In total, three residents died due to COVID-19 during the spring of 2020—two in April and one in May. Seven staff members also developed symptoms consistent with COVID-19 during April. Staffing levels during weekdays included four registered nurses, 18 nursing assistants in the morning, 12 in the afternoon, and five at night. On weekends, 17 nursing assistants worked morning shifts, 12 in the evening, and five overnight. The

facility was additionally supported by one operational manager and one activity coordinator.

4 Results

Findings from the interview were supported by internal protocol documents. These documents described operational routines and confirmed the implementation of many reported strategies. They showed that responses were formalized through written action plans, assigned responsibilities, and scheduled follow-ups.

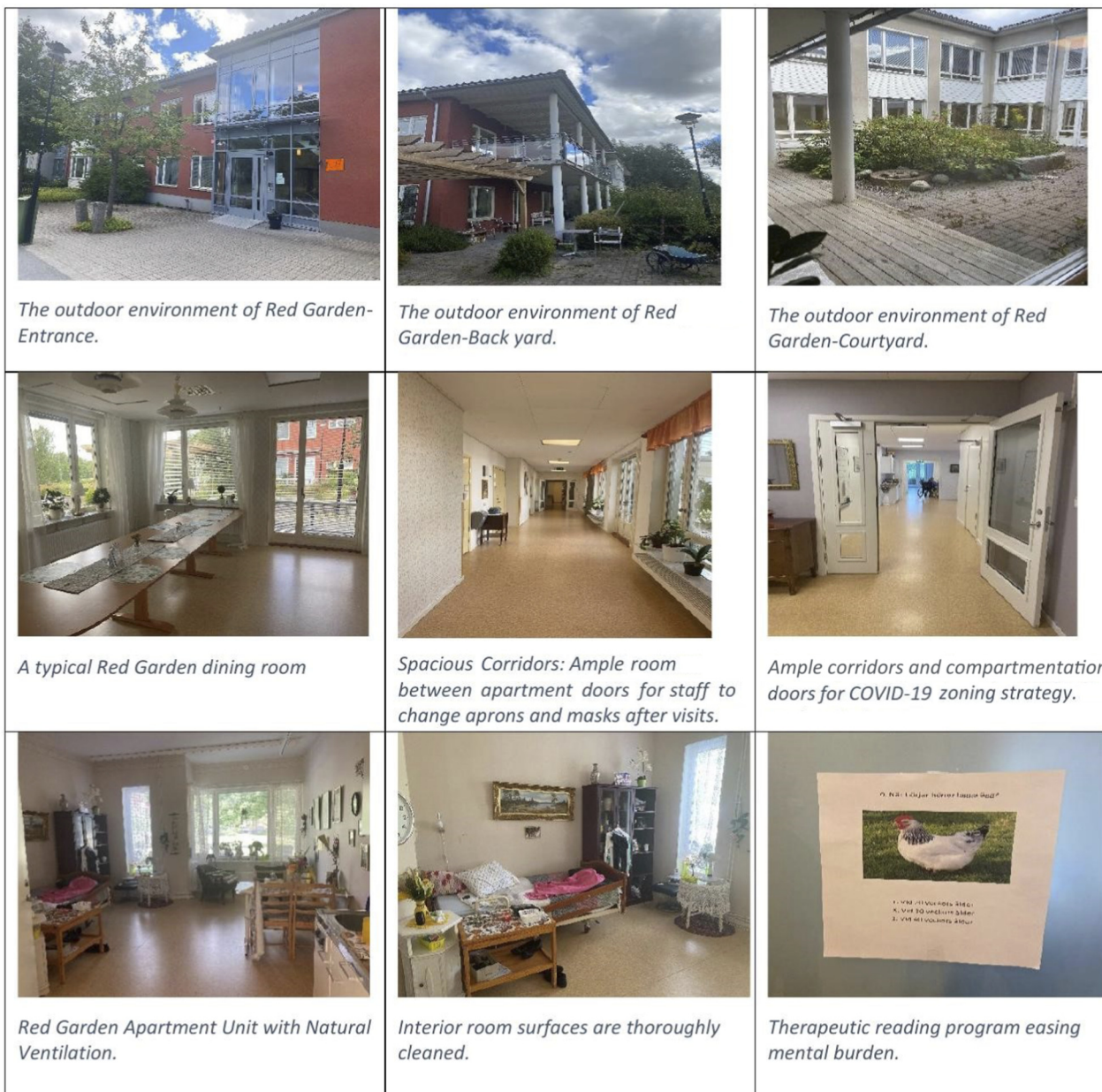


FIGURE 2
The photos of red garden during the site inspection.

The early months of the COVID-19 pandemic created strong emotional and operational pressure on care homes such as Red Garden. Daily routines changed rapidly due to fear of infection, strict restrictions, and staff and resource shortages. The protocol documents reflect this period through a rapid increase in infection-control measures, staffing arrangements, and communication activities. The facility manager described a persistent fear among staff that they might bring the virus into the building and cause resident deaths:

“We constantly had a feeling, a worry, of getting the infection into the building. And that we would be the reason some of our elders would die.”

Residents experienced isolation due to distancing measures and visitation restrictions. Communication became more difficult because many residents had hearing or speech limitations. Masks use further reduced verbal interaction. Despite these barriers, staff introduced digital tools and outdoor screens to maintain contact between residents and families. The protocol documents confirm repeated communication efforts directed at relatives. These included emails, letters, and posted information at facility entrances.

Staff also faced unstable staffing levels and financial pressure. They worked under high uncertainty due to inconsistent guidance from health authorities. The protocol documents include measures for temporary staffing, task prioritization, and contingency

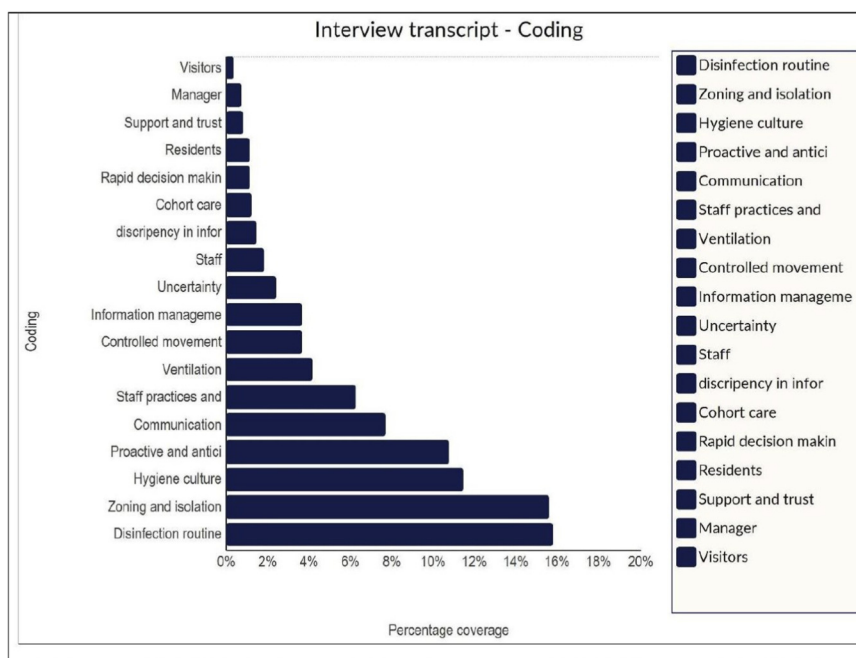


FIGURE 3 Percentage distribution of coding coverage from the semi-structured interview with the manager of Red Garden.

planning. These measures indicate active management of operational instability.

One of the earliest challenges was fragmented information from multiple authorities. As Karin noted:

“In the beginning of the pandemic there was a lot of different rules and information coming from everywhere, we tried our best to just keep up with this through the authorities and media.”

Internal documents show frequent updates and revisions to routines. They also document the development of a communication plan for COVID-19 outbreaks. Conflicting guidance further increased uncertainty, as described by Karin:

“In the beginning, the information we received was not consistent across different channels, the Public Health Agency, Stockholm City, and Infection Control. They were all saying different things.”

This situation affected key decisions, including vaccination and testing practices. Media announcements often preceded local implementation. In response, Red Garden relied on internal decision-making. Protocols document precautionary measures such as extended use of protective equipment, expanded testing for staff with mild symptoms, and reinforced hygiene routines.

A thematic analysis identified five central themes in Red Garden’s pandemic response. These were infection prevention routines, spatial zoning and isolation, hygiene culture, leadership decisions, and communication strategies. These themes correspond closely to the structure of the internal action plans.

Figure 3 presents the distribution of these codes, based on the percentage of coverage in the dataset.

The chart illustrates the prominence of certain themes in the interview, reflecting how the facility prioritized and addressed various aspects of the crisis. The following sections provide a detailed analysis of each theme and explain how Red Garden responded to the evolving pandemic situation. Table 1 summarizes the thematic structure, showing how many times each subtheme was referenced in the interview. This frequency indicates the relative emphasis placed on each topic and offers insight into the operational priorities of Red Garden during the crisis.

These coding references provide a structured overview of how the manager described Red Garden’s response to the pandemic, allowing us to track where attention and resources were most heavily focused. Notably, disinfection routines and zoning strategies received the highest frequency of mentions, underlining their central role in shaping infection control measures. The following sections provide an in-depth interpretation of each of these themes, exploring how they were implemented.

4.1 Infection prevention measures

Infection prevention formed one of the most structured and comprehensive components of the facility’s response to COVID-19. The strategies adopted included both formal protocols and practical adaptations shaped by daily experience. Five sub-themes emerged from the coding: controlled movement, zoning and isolation, disinfection routines, hygiene culture, and ventilation.

TABLE 1 Thematic coding summary from interview transcript.

| Main theme | Subtheme | Number of coding references |
|--|---------------------------|-----------------------------|
| Infection prevention measures | Controlled movement | 4 |
| Infection prevention measures | Disinfection routine | 12 |
| Infection prevention measures | Hygiene culture | 9 |
| Infection prevention measures | Ventilation | 3 |
| Infection prevention measures | Zoning and isolation | 11 |
| Leadership and organisational response | Cohort care | 1 |
| Leadership and organisational response | Communication | 5 |
| Leadership and organisational response | Information management | 4 |
| Leadership and organisational response | Proactive decisions | 8 |
| Leadership and organisational response | Rapid decision-making | 2 |
| Leadership and organisational response | Support and trust | 2 |
| Staff practices and culture | Training and preparedness | 2 |
| Staff practices and culture | Workforce organisation | 2 |
| Staff practices and culture | Emotional support | 4 |

4.1.1 Controlled movement and spatial separation

The facility introduced strict restrictions on movement within the building to reduce the risk of cross-contamination. Staff and residents were assigned to distinct groups and confined to specific residential zones. As Karin explained,

“We had the elderly delimited into their six groups of residential sections. You had to stay within this group; we did not mix them.”

The same principle applied to staff, who remained in fixed zones and used changing rooms and common areas in a staggered manner. This strategy limited contact across sections. Although maintaining 2 m of distance proved impossible in many care-related tasks, the system imposed a spatial structure that supported infection control.

4.1.2 Zoning and isolation protocols

A zoning model allowed the care home to contain suspected or confirmed infections. Residents stayed in their apartments, and meals were delivered to their rooms. Staff caring for infected residents were separated from those working with uninfected groups. Karin noted,

“Throughout the day they were not allowed to take care of the other group.”

In some cases, a single staff member was dedicated to one infected individual. Additional zoning measures applied to dining rooms and staff areas, where limits on occupancy and distancing were enforced. These efforts helped control exposure, especially in dementia units where enforcing self-isolation was not realistic.

4.1.3 Disinfection as a daily routine

Disinfection became a highly structured and visible routine. The cleaning team followed a detailed schedule that covered all frequently touched surfaces. According to Karin,

“We wiped off all surfaces regularly. . . before lunch, and in the afternoon, and in the evening.”

Staff also disinfected devices such as telephones, keyboards, walkers, and wheelchairs. These practices extended to post-exposure cleaning. For example, if a resident had been away from the building, their mobility aids were disinfected, and in some cases, staff assisted with showers upon return.

4.1.4 Ventilation measures and air circulation

The facility emphasized regular ventilation to reduce viral concentration indoors. Staff opened windows and doors to create cross-ventilation during cleaning and morning routines. However, older residents often disliked colder temperatures, which required temporary relocation during airing. The use of fans was prohibited, and small portable air conditioners were purchased to manage indoor temperatures during summer. This approach balanced infection control with comfort, especially when central air systems were limited.

4.1.5 Institutional hygiene culture

Infection prevention extended beyond routines and entered the realm of workplace culture. Staff received clear instructions on personal hygiene and protective measures. Karin described a detailed sequence:

“You always have a plastic apron. And during that time, you had a face mask and a visor. . . then you wash yourself and repeat.”

Hand sanitizer and disinfection stations were placed at key locations, and the use of protective gear was required for both staff and visitors. The facility also arranged self-testing and infection tracking, which added an extra layer of preventive action.

These combined measures created a system of defence based on discipline, repetition, and environmental control. The facility treated hygiene not only as a technical requirement but as a core value embedded in daily operations. This approach likely contributed to the facility’s low rate of infection and mortality during the first wave of the pandemic.

4.2 Leadership and strategic response

The leadership approach at Red Garden revealed a proactive, structured, and emotionally attuned response to the early stages of the pandemic. Analysis of the interview shows that decision-making extended across six distinct but interrelated domains: cohort care, communication, information management, proactive strategies, rapid decisions, and trust-building.

4.2.1 Cohort care and early training

Red Garden introduced cohort care after receiving national guidance from National Board of Health and Welfare. The staff engaged in targeted online training that clarified the rationale and expected practices for cohort-based organization. As the manager recalled,

“We had heard about cohort care, and National Board of Health and Welfare gave an online education . . . The education cleared a lot of things—why you would do it and such.”

This training laid the foundation for care strategies that kept residents and staff within consistent groups, thus reducing cross-contamination risks.

4.2.2 Communication across internal and external channels

Leaders prioritized open and frequent communication. Internally, the management team at Red Garden held daily meetings with neighbouring elderly care facilities and with their area manager. These sessions ensured that routines remained aligned, resource sharing stayed consistent, and any emerging challenges were promptly addressed.

“We started the mornings with a meeting with the area manager. We looked through our routines to make sure we did things in the same way.”

Externally, communication with relatives remained transparent. Staff informed families in advance about upcoming restrictions, provided updates via email, and supported contact through digital means or structured outdoor visits. Despite the stress, the care team maintained trust.

“We had a good communication with them,” the manager explained. This transparency helped minimize misunderstandings during an emotionally turbulent time.

4.2.3 Information management and standardization

Managing rapidly changing and often conflicting information emerged as a key leadership challenge. Authorities provided inconsistent guidance in the early months. The manager described this as a time when *“there was a lot of different rules and information coming from everywhere.”* Red Garden responded by creating a standardized management system referred to as “Status” to align responses and document protocols. This system reinforced consistency across staff and reduced confusion during daily operations.

4.2.4 Proactive strategies and anticipatory decisions

The leadership team did not wait for top-down instructions. They implemented restrictions on visitations before official mandates, purchased protective equipment in advance, and excluded external trainees to minimize exposure. *“We were pretty quick on saying that we have to reduce and limit the visitations,”* said the manager. They also repurposed digital tools, such as a TV screen showing how to properly don and doff personal protective equipment, to ensure proper training across the team.

Protective stockpiles were already in place before national shortages occurred. This foresight helped them avoid critical supply gaps. *“We always have a small stock of these things, so that we will not run out,”* the manager explained, referring to lessons learned from previous crises like snowstorms or delivery delays.

4.2.5 Rapid decision-making during uncertainty

Red Garden’s leadership demonstrated decisiveness. The management team met every weekday to assess the situation and introduce immediate changes. These meetings included key stakeholders, such as the medically responsible nurse. Decisions such as pausing internships or altering resident schedules occurred without bureaucratic delays. Leaders remained alert to subtle symptoms in elderly residents, some of whom displayed atypical signs of infection. This high level of responsiveness reflected a deeper understanding of both the resident population and the evolving nature of the crisis.

4.2.6 Support and trust in staff

Despite operational stress, leadership maintained a tone of trust toward the care team. The manager described long days, *“working day and night and giving support to the staff,”* while recognizing the importance of morale. Staff members received trust and autonomy, especially in managing symptoms, implementing precautions, and conducting self-testing. *“You trusted the staff then?” “Yes.”* This culture of mutual respect enhanced the organization’s resilience.

Together, these elements present a leadership model based on foresight, collaboration, and responsiveness. Rather than rely solely on policy mandates, Red Garden’s team developed an adaptive

infrastructure, guided by ethical concern for residents and practical judgment under uncertainty. The effectiveness of these leadership practices likely contributed to the facility's ability to limit fatalities and manage fear throughout the early pandemic period.

4.3 Staff practices and organisational culture

Staff behaviour and internal culture at Red Garden played a crucial role in maintaining operational stability and emotional continuity throughout the pandemic. Interview evidence reflects a care environment built on foresight, discipline, and psychological awareness. However, Red Garden implemented explicit practices for managing staff with suspected or confirmed COVID-19 symptoms as a core infection-control measure. Staff who developed symptoms were required to stay home and were excluded from work, even during periods of severe staffing shortages, with the facility relying on staff responsibility rather than entrance screening such as temperature checks. As testing capacity improved, Red Garden introduced extensive staff testing, including access to home test kits, and conducted contact tracing among staff and residents when suspected cases arose. In parallel, staff were strictly cohort-assigned to either infected or non-infected residents and were not permitted to move between groups or shared spaces during the same shift. Together, mandatory sick leave, cohort staffing, and proactive testing were described as central to limiting internal transmission and preventing broader outbreaks within the facility.

4.3.1 Preparedness and training

The facility had already scheduled a hygiene education session for staff before the pandemic began. This session, initially unrelated to COVID-19, became a vital element in shaping preparedness.

“We had also recently had an education regarding hygiene in healthcare for the staff, which was of very good timing since it was planned before the pandemic.”

Staff members entered the crisis with a shared understanding of basic infection control, which included concepts such as disease transmission, hand hygiene, and surface disinfection. These practices had already become routine. “*Washing your hands and using sanitizer before eating was already implemented into our routines.*”

4.3.2 Workforce segregation and task allocation

Leadership adopted targeted staff allocation practices to minimise cross-contamination. Personnel were assigned either to infected or uninfected residents and instructed not to switch groups during their shift.

“Personnel were selected, to take care of infected or uninfected. And throughout the day they were not allowed to take care of the other group or be in the kitchen.”

This fixed grouping reduced unnecessary exposure and reinforced predictability for both residents and caregivers. Staff movement inside the facility also followed a segmented structure. The goal was to ensure staff remained within specific zones.

4.3.3 Emotional labour and caregiving culture

Staff members assumed not only logistical duties but also emotional roles. When deacons could no longer visit due to restrictions, responsibility for emotional support shifted to the caregivers and relatives. They created alternatives to reduce resident anxiety.

“The staff and the relatives dealt with most of the anxiety. . . we tried to distract them. . . because it was broadcasting about COVID-19 all the time. It was depressing watching it.”

The team introduced other activities and facilitated engagement in shared spaces, such as common living rooms with television, while trying to buffer the residents from overwhelming media coverage. This reveals a caregiving culture that extended beyond physical care to include psychosocial sensitivity.

In sum, staff practices reflected more than compliance with protocols. They demonstrated commitment, adaptation, and a deep understanding of their dual role as clinical caregivers and emotional anchors. Red Garden's culture combined structure with empathy, ensuring that routines supported both infection control and human connection.

5 Discussion

The findings from this case study suggest that the most effective COVID-19 containment strategies at Red Garden emerged from a combination of proactive leadership, embedded hygiene culture, spatial flexibility, and clear communication routines. Thematic analysis identified several recurring practices zoning and isolation, strict disinfection routines, staff grouping, and protective equipment management that collectively contributed to the facility's success in limiting the spread of infection. These practices, taken together, illustrate how operational coherence can support crisis resilience.

However, this success raises a crucial question: could these strategies have been effectively implemented in other eldercare facilities? The detailed accounts from the Red Garden manager suggest that many of the infection prevention measures relied on physical design. As illustrated in [Figure 1](#), residents lived in private apartments equipped with en-suite toilets and showers, which substantially reduced reliance on shared sanitary spaces and limited unnecessary contact. The division of the building into clearly defined residential sections further supported stable cohort assignment and minimized cross-group interaction during daily care routines.

In addition, the availability and spatial placement of staff areas, shown in [Figures 1, 2](#), enabled structured donning and doffing of personal protective equipment without cross-traffic between contaminated and non-contaminated zones. Window access in both resident rooms and shared areas facilitated regular natural ventilation during cleaning routines ([Figure 2](#)), which staff used deliberately as part of infection prevention practices. Together, these architectural features constituted spatial affordances that made zoning, isolation, and hygiene protocols practically feasible. Such affordances were not universal across all senior care homes in Sweden, and their absence could have constrained the application of identical strategies elsewhere.

The Swedish national pandemic strategy emphasized knowledge dissemination, voluntary compliance, and professional discretion. The main assumption was that staff would act appropriately once they received guidance. Public health advice from the Swedish Public Health Agency focused on general behaviours, such as hygiene, physical distancing, and symptom monitoring. This information was mainly communicated through posters and fact sheets. However, the guidance did not include detailed, facility-specific instructions or recommendations that accounted for physical design limitations. This suggests that future pandemic preparedness should address not only what actions are required, but also whether care facilities have the structural and managerial capacity to implement them. The high mortality rates in Swedish care homes during the first wave may therefore reflect more than policy gaps or resource shortages. They may also indicate an underestimation of how local context affects the feasibility of protective measures.

This case highlights the need to rethink pandemic preparedness in senior care. It is not only a matter of guidelines and knowledge, but also of whether measures can be implemented in practice. Future policy should include assessments of care environments, context-specific action plans, and funding that supports necessary infrastructural changes. Pandemic planning must move beyond defining what should be done. It must also consider who can carry out these actions and under what conditions.

Several elements of Red Garden's response may be transferable to other care facilities. These include proactive leadership, close organizational coordination, and structured communication routines that supported consistent staff action during a period of uncertainty. However, not all measures are equally replicable across settings. Red Garden benefited from a physical layout that allowed residents to be organized into stable groups, as well as from relatively high staffing levels. In facilities with limited staffing or less flexible spatial configurations, implementing the same combination of measures may be challenging. This highlights the need for preparedness guidelines to distinguish between measures that depend on structural conditions, such as spatial separation and dedicated staffing, and measures that are more broadly feasible. The latter include standardized staff briefings, targeted infection-control training, clearly defined return-to-work policies, and transparent communication with families.

This study has several limitations. It examines a single senior housing facility and relies on qualitative data from interviews and site documentation. While the findings provide in-depth insight, they may not reflect the full range of experiences across Swedish care homes. Further research is therefore required to systematically examine how differences in facility design, staffing levels, and managerial practices influenced pandemic outcomes. Comparative applied research could assess whether environmental and organizational factors significantly shaped mortality and transmission patterns across multiple care settings.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical approval was not required for this study in accordance with national and institutional guidelines, as the research involved interviews with staff members in their professional capacity rather than patients or vulnerable individuals. The study did not include any sensitive personal data, health-related information, or interventions affecting participants' physical or psychological integrity. All participants were informed about the study's purpose and provided voluntary consent before participation. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

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Conflict of interest

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