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FUNDAMENTAL NURSING HOME REFORM:

Evidence on Single-Resident
Rooms to Improve Personal
Experience and Public Health

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Health Management Associates (HMA) is an independent, national research and consulting firm specializing in publicly funded health care and human services policy, programs, financing, and evaluation. Dedicated to improving health and human services for at-risk populations, we serve government agencies, public and private providers, health systems, health plans, community-based organizations, institutional investors, foundations, and associations. Drawing knowledge from the front lines of health care delivery and reform, we work shoulder-to-shoulder as partners with our clients to explore innovative solutions to complex challenges. HMA has 22 offices and over 200 multidisciplinary consultants coast to coast.

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Summary

The COVID-19 pandemic has highlighted nursing home safety and infection control as critical public health issues. The pandemic's outsized impact on residents and staff in skilled nursing facilities (SNFs) underscores the immediate need to re-examine the relationship between the physical environment and infection control, health outcomes, quality of life, and overall resident and staff safety. Focusing on one central aspect of the nursing home physical environment – room occupancy – Health Management Associates (HMA) conducted a comprehensive review of the research on the impact of single-resident rooms versus multi-resident rooms with the following results.

- Hospital studies demonstrate that single-occupancy rooms decrease the risk of acquiring and spreading infections.
- Long-term care facilities' experience with COVID-19 increased awareness of the risk of infection in multi-resident rooms, and a recent study of nursing homes in Canada found that lower room occupancy was associated with lower COVID-19 infection rates and mortality.
- Single-resident rooms have been associated with improved sleep patterns and reduced agitation and aggressive behavior among people with dementia in long-term care facilities, and fewer medication errors and adverse outcomes in hospitals.
- Single-occupancy rooms allow greater flexibility in adapting care as the patient's/resident's condition and acuity change, therefore requiring fewer patient transfers.
- Single-resident rooms in nursing homes enhance residents' sense of home, privacy, and control.
- Studies conducted in long-term care facilities and hospitals found higher resident/patient satisfaction and family preference for single-resident rooms.
- Hospital nursing staff view single rooms favorably on multiple dimensions; further study is needed to better understand the association between nursing home staff satisfaction and room occupancy.

The compelling evidence on the benefits of single-resident rooms calls for exploring options to convert rooms from multiple to single occupancy in licensed/certified SNFs as a key component of evidence-based and person-centered nursing home reform. The decades-long decline in nursing home occupancy, despite the aging of the population, suggests some existing multi-resident rooms can be converted to single-resident rooms without creating shortages of needed nursing home beds.

Converting multi-resident rooms to single-resident rooms will require initial investments in reconstruction and entail higher ongoing operating and capital costs (further analysis is needed to refine estimates of the costs as well as potential long-term savings). The mix of current payer sources for nursing home services and construction suggests that financing conversion may require multiple strategies and funding sources. Because Medicaid and Medicare together cover more than half of nursing care facility expenditures, and as the lead federal agency overseeing nursing home quality and safety, the Centers for Medicare & Medicaid Services (CMS) should participate in discussions about single-resident rooms and their benefits and costs, as part of nursing home reform. The United States

Department of Housing and Urban Development (HUD), which currently insures loans to facilitate the construction of long-term care facilities, and the Centers for Disease Control and Prevention (CDC), which plays a central role in identifying and mitigating the risk of infectious diseases such as COVID-19 and future threats, should each have an interest in exploring single-resident rooms in nursing facilities.

In addition to federal agencies, key stakeholders including nursing home residents and advocates, providers and staff, owners, administrators, and policymakers need to participate in discussing options for promoting, incentivizing, and financing movement toward a healthier and safer nursing home environment.

Introduction

Approximately 1.4 million individuals, 84 percent of whom are age 65 and over, resided in about 15,600 U.S. nursing homes in 2016.¹ The majority of these facilities were constructed after the 1965 Medicare and Medicaid amendments to the Social Security Act, with a distinct “institutional” design that included primarily double occupancy rooms.² Over the decades, there has been a growing recognition that the design, or “built environment,” plays an instrumental role in residents’ health and well-being. The Facility Guidelines Institute (FGI), an independent organization that develops guidance for the planning, design, and construction of hospitals, outpatient facilities, and residential health, care, and support facilities, recognizes that the built environment has a profound effect on health, productivity, and the natural environment.³

At the same time, the focus of long-term care has been shifting toward person-centered care, defined as a systemized approach to delivering health care in a way that centers on the perspective of the whole patient and their loved ones, while promoting a healthy, encouraging environment for caregivers and addressing the health needs of the organization’s surrounding community.⁴ A convergence of these environmentally-aware and person-centered movements is reflected in the growth of long-term care models such as the Pioneer Network⁵, Eden Alternative⁶, and the Green House Project. Green House homes, for example, typically have a small number of beds, private rooms, and an emphasis on quality of care and meaningful lives.⁷

In the midst of these movements, the COVID-19 pandemic has highlighted nursing home safety and infection control as a critical public health issue. The pandemic’s impact on residents and staff in long-term care facilities underscores the immediate need to re-examine the relationship between the physical environment and infection control, health outcomes, quality of life, and overall safety and well-being. Terry Fulmer, et. al., point out that the current nursing home design with double-occupancy rooms “has been an especially challenging factor during the COVID-19 pandemic.”⁸

This report examines one central aspect of the nursing home physical environment: room occupancy. HMA examined research on single-resident rooms and multi-resident rooms. Because occupancy-related studies in nursing homes are limited, we extended our review to include other residential, long-term care and acute care (hospital) settings, with the assumption that findings in the latter environments (with appropriate caveats) could inform design considerations in licensed/certified SNFs.ⁱ HMA conducted literature reviews using key words to search PubMed and other literature review tools. We also conducted an environmental scan of websites and grey literature, including reports, policy statements, presentations, and issues papers from governmental agencies (such as CDC and CMS) and organizations representing the long-term care industry and patient/resident advocates. We summarize the findings and propose additional areas for exploration, discussion, and potential actions based on the findings.

ⁱ When describing literature findings, we attempted to use the terminology (e.g., nursing home, skilled nursing facility/SNF, long-term care facility) used in the studies cited; as a result, multiple terms are used in this report.

Assessment of Single-Resident Rooms

Synthesis: Single-resident rooms are associated with decreased risk of facility-acquired infections, medication errors, resident anxiety, and incidence of aggressive behavior, while improving sleep patterns, sense of privacy, and satisfaction.

The evidence supporting single-resident rooms is multi-layered, demonstrating benefits in a range of interrelated domains. The Facility Guidelines Institute (FGI) recommendations for single-resident rooms are based on a comprehensive report by Chaudhury et. al., commissioned by FGI's Research Committee. The report found that single-resident rooms as a design element are associated with improvements in patient care, a reduction in the risk of cross infection, and greater flexibility in operation.⁹ Additional literature reviews found that single-resident rooms are also associated with reduced patient/resident stress, improved patient outcomes, and increased privacy and accessibility for patients and families.¹⁰ Single-resident room are likely to remain a recommendation in the design and construction of residential care facilities.

"Evidence suggests that single-resident rooms decrease risks for medication errors, health care-acquired infections, resident anxiety, and incidents of aggressive behavior while improving resident sleep patterns and staff effectiveness."¹¹
-Facility Guidelines Institute, 2018

Hospital studies demonstrate that single-occupancy rooms decrease the risk of acquiring and spreading infections.

Clinical studies primarily focusing on acute care (hospital) settings demonstrate that rates of nosocomial infections (infections acquired while in a facility that were not present at the time of admission) are reduced in single rooms compared with multiple-occupancy patient rooms, even when controlling for hand washing practices and air quality (other key factors affecting control of nosocomial infection).¹² The risk of acquiring infections of several species of pseudomonas and candida, antibiotic-resistant organisms such as methicillin-resistant staphylococcus aureus (MRSA) and vancomycin-resistant enterococcus (VRE), as well as clostridium difficile, have been shown to be lower in single-patient rooms compared to multi-patient rooms.^{13,14}

"Isolation of patients is one of the recommended precautions to prevent the occurrence of infection and isolation can only be possible through confinement of the patient in a private room, often with specialized ventilation systems."¹⁵
-Chaudhury et al., 2004

Researchers further describe isolation and ventilation as two important environmental infection control measures. Infected patients or patients highly susceptible to infections need to be isolated in private rooms with proper ventilation systems in order to stop infection from spreading and to reduce the possibility of developing new infections.¹⁶ Single rooms allow for separation upon admission, preventing asymptomatic carriers of pathogens from infecting other residents. In addition, patients in single rooms who are found to have an infection do not need to be transferred to a different room, saving staff time.¹⁷ Single rooms also allow for more effective management of air changes to help reduce the risk of airborne or aerosol droplet spread infections.¹⁸

Long-term care facilities' experience with COVID-19 created an increased awareness of the risk of infection in multi-resident rooms.

According to a Kaiser Family Foundation analysis of state-reported COVID-19 data through January 5, 2021, COVID-19 cases in long-term care facilities represented six percent of all total cases in the United States, but 38 percent of deaths.¹⁹ While several factors contributed to the impact of COVID-19 among the nursing home population, perhaps the most widely acknowledged are the vulnerability of this population – the risk of severe illness is significantly higher among older individuals with underlying chronic conditions and co-morbidities²⁰ – and the difficulty in limiting the spread of infection in congregate living facilities. The transmission of COVID-19 occurs mainly among people who are in close contact (within about six feet) for prolonged periods of time and can be passed by asymptomatic individuals.²¹

Recent studies during the pandemic confirm the role of room occupancy in infection control. A 2020 study of nursing homes in Ontario, Canada found that nursing homes with higher occupancy rooms were associated with increased risk of COVID-19 infection and higher mortality rates compared to low occupancy rooms.²² Researchers in Australia found that COVID-19 patients in isolation and quarantine in single rooms experienced reduced infection risk, although they also reported negative experiences due to lack of social interactions, limited mobility, and disconnection with the outside world.²³ In a study comparing COVID-19 incidence and mortality rates occurring in small nursing homes housing 10 to 12 residents in private rooms versus traditional nursing homes, Zimmerman et. al. found lower incidence and mortality rates in the smaller facilities with private rooms, especially when compared to nursing homes with greater than 50 beds.²⁴

“Given the impending consequences of infectious outbreaks, it is imperative that health care leaders collaborate with architects and designers to invest in long-term care facility designs for maximum resiliency.”²⁵

-Anderson et al., 2020

The CDC recommends placing nursing home residents who develop COVID-19, new admissions, and individuals with suspected infection in single-resident rooms to prevent transmission to other

residents.²⁶ The ability to physically separate residents is enhanced when rooms are occupied by a single-resident rather than transferring a resident after potentially exposing a roommate to infection.

Single-resident rooms have been associated with improved sleep patterns and reduced agitation in long-term care facilities, and fewer patient transfers and medication errors in hospitals.

Individuals with dementia can be particularly sensitive to noise and high levels of activity, leading to stress, agitation, and disruptive behavior. According to Herrmann and Flick's study of sleep patterns in nursing homes, residents reported that their sleep was disturbed by noise and light caused by other residents or staff, and by disoriented roommates and roommates who need frequent care at night.²⁷ Indeed, residents with Alzheimer's disease appear to benefit from the reduced stimulation environment offered by private rooms, according to a study of retirement residence patients in Iowa who were calmer and less agitated when moved to a reduced stimulation unit.²⁸ A similar study conducted by Morgan and Stewart found that as patients with dementia were moved from a high-density special care unit to a low-density unit with private rooms, disruptive behaviors decreased due to less stimulation.²⁹

Evidence suggests that single-resident rooms in hospitals and other settings are also associated with fewer adverse outcomes. The FGI summarizes numerous studies demonstrating that single-resident rooms reduce medical errors, falls, resident stress, and staff injuries while improving resident sleep and social support – increasing the safety and effectiveness of care.³⁰ Chaudhury's extensive literature review found that single rooms in acute care settings support patient-centered care with fewer room-to-room transfers and greater flexibility in adapting care as resident condition and acuity change over time. Chaudhury also cited several studies demonstrating that single-resident rooms and decreased transfers enhance safety by allowing staff to more readily identify and communicate with residents, identify emerging concerns, respond to resident needs, and accurately provide medications.³¹

"Because patients in single-bed rooms are rarely moved, medication errors are greatly reduced."³²
-Bobrow et al., 2000

Findings on safety-related outcomes are mixed for acute care settings. Simon and colleagues found that transferring patients to newly built single hospital rooms did not result in either benefit or harm, although there may be short-term risks associated with the transfer itself.³³

Single-resident rooms in nursing homes enhance privacy, sense of home, and sense of control.

Long-term care facilities are often necessary alternative places of residence for individuals who can no longer remain safely in their own home and require professional and personal care assistance. The move to a residential care facility, however, is typically associated with the loss of privacy, limited boundaries, fixed schedules and routines, and loss of control.³⁴ Based on in-depth interviews with nursing home

residents, Choi, et. al. found that causes of depression were associated with: lack of privacy and frustration with having a roommate and sharing a bathroom; social isolation; loss of independence, freedom, autonomy, and continuity with their past life; and other situational factors.³⁵

“Nursing homes present special design challenges in that for most residents the nursing home is not just a facility, but indeed their home. ...The challenge is to design a nursing home that is sensitive and responsive to long-term human needs and well-being, both physical and emotional.”³⁶

-Carr, 2017

Additional research links room occupancy with residents’ sense of privacy and home. A qualitative study found that private rooms provided residents a place to retreat to be alone or relax.³⁷ Several studies stressed the importance of residents being on their own, being able to do domestic chores, and being able to withdraw to their own room as necessary components to creating their own sense of home.^{38,39} Private rooms also enable residents the opportunity to engage with others in private.⁴⁰ Larger private rooms promote increased social interaction with visitors.⁴¹

“The desire for a private room may have a foundation in having opportunities to be on one’s own, wishing for privacy, and having personal belongings around oneself.”⁴²

-Rijnaard et al., 2016

Nursing home residents’ sense of home is also affected by perceptions of autonomy and control over one’s environment. Single occupancy gives residents greater ability to personalize their space – for example, drill holes in walls and hang personal items – which establishes their territory and improves their sense of security and identity.⁴³ Residents who “create” their own space usually consider the nursing facility their home.⁴⁴ Private rooms offer residents greater autonomy to invite or not invite someone to their room,⁴⁵ and to lock their doors which gives them the perception of control.⁴⁶

Additionally, single-resident rooms provide a private space in which residents can control personal information and discuss their needs with family members and friends.⁴⁷ Multiple occupants in a room make it nearly impossible for residents to have adequate privacy and dignity and creates challenges for staff to communicate with residents without violating confidentiality guidelines.^{48,49}

Studies of acute care settings further link private rooms with greater control over a patient’s physical and emotional wellbeing. One study found that by not being subjected to a roommate, patients have better control of their blood pressure, stress, and their personal identity.⁵⁰ Other research demonstrated that sharing rooms inhibits patients’ control over noise levels, lighting, and room temperature, which can affect stress and disrupt sleep and adherence to medication.^{51,52}

Studies conducted in long-term care facilities and hospitals found higher resident and family satisfaction and preference for single-resident rooms.

According to a Contemporary Long-Term Care survey of assisted living facilities in the United States, 82 percent of those surveyed preferred a private room and only four percent preferred a shared room.⁵³ Nursing home residents in a qualitative study also expressed dissatisfaction with the idea of a shared room.⁵⁴ Morgan and Stewart found that family members of residents with dementia moved to private rooms were pleased because they were able to personalize the rooms and the resident had greater privacy.⁵⁵

These findings mirror studies of acute care settings demonstrating that patients in private rooms were more satisfied with their care than those who shared their room with another patient.^{56,57} Ulrich identified that roommates can be a source of stress. In particular, roommates who are unfriendly, have too many visitors, and are seriously ill can have negative effects on other patients.⁵⁸

While evidence is limited, it appears that hospital nursing staff view single rooms favorably, and nursing home staff satisfaction is associated with resident satisfaction and lower risk of adverse outcomes.

There is limited literature on staff satisfaction related to patient room configuration. In a pilot study using semi-structured interviews with acute care nursing staff, most participants responded more favorably to single rooms than double rooms on the majority of categories, including greater staff efficiency, flexibility for accommodating family, suitability for examination of patients by health care personnel, patient comfort level, patient recovery rate, less probability of medication errors, and less probability of diet mix-ups. Conversely, staff considered double-occupancy rooms helpful in reducing the walking distance from the nursing station and in increasing their ability to visibility monitor patients.⁵⁹ As this pilot study focused on the acute care setting and had a limited sample size, it would be helpful to conduct comparable assessments of staff satisfaction and perceptions about single versus multiple-resident rooms in long-term care facilities.

"In comparing single- versus double-occupancy rooms, it is evident that nurses clearly favored single-occupancy rooms."⁶⁰

-Chaudhury et al., 2004

A study on nursing home staff satisfaction noted that residents and employees of nursing homes share the same environment and the potential hazards such as communicable disease, interpersonal stress, and risk of assault, and that these stressors might negatively affect the staff members' ability to provide high-quality care. They also found nursing home employee satisfaction with their work environment is positively associated with resident satisfaction and inversely associated with resident risk of adverse outcomes such as falls, pressure ulcers and weight loss.⁶¹ This study defined the work environment broadly, allowing the hypothesis that many aspects of the nursing home environment that affect disease

transmission and stress, including room occupancy, may similarly affect both residents and staff satisfaction.

The industry needs a comprehensive, person-centered, and evidence-based approach to improve nursing home safety and outcomes.

Many attributes have been deemed critical for nursing home redesign and reform. Since the 1980s, a “culture-change movement” has intended to transform long-term care facilities from detached health care institutions into individualized, person-centered homes that promote value and quality of care.⁶² In 2006, a meeting of stakeholders convened at the Agency for Healthcare Research and Quality identified that the “ideal” person-centered nursing home features resident direction, homelike atmosphere, close relationships, staff empowerment, collaborative decision making, and quality improvement processes.⁶³ According to the FGI Guidelines for Design and Construction of Residential Health, Care, and Support Facilities, a person-centered care model provides “true resident-directed care that honors the rhythm of each individual’s life as dictated by [their] desires.”⁶⁴

New recommendations for long-term care facilities have emerged in the midst of the COVID-19 pandemic. In September 2020, the Coronavirus Commission for Safety and Quality in Nursing Homes issued a report with recommendations to improve infection prevention and control measures, safety procedures, and quality of life of nursing home residents. It included immediate steps for testing and screening, equipment and PPE, cohorting (separating residents and staff according to their infection status), and other actions to address the pandemic in real time. In addition, the Commission presented five key areas for long-term improvement: strengthening the nursing home workforce; improving nursing home data; facility planning and renovations (incorporating lessons about disease prevention and control); payment reform; and resident-driven care with shared decision-making.⁶⁵

The New Jersey Department of Health contracted with Manatt Health (Manatt) to assess long-term care facility experience during the COVID-19 pandemic and provide recommendations to improve quality, resilience, and safety. As part of their recommendations, Manatt suggested modernizing facilities with more single rooms and updated HVAC, broadband, and IT infrastructure.⁶⁶

Need for a Roadmap for Nursing Home Reform with Facility Redesign

The pandemic’s characteristics and the existing nursing home environment created a “perfect storm,” requiring reimagination and reform.

Many factors contributed to nursing homes becoming COVID-19 hotspots, including: lack of experience and knowledge about the COVID-19 virus, asymptomatic carriers and airborne transmission of the virus, the vulnerability of an elderly nursing home population with co-morbidities, nursing home staffing involving individual employees serving a large number of residents and often working in multiple facilities, and communal spaces that promote residents’ socialization but inhibit infection control. The industry would benefit from reimagining and reforming nursing homes to avoid similar or worse outcomes in future health emergencies.

The evidence strongly suggests that single-resident rooms in nursing homes should be a key component of a long-term care reform strategy.

Compelling evidence described in this report on the benefits of single-resident rooms suggests that nursing home reform should consider single-resident rooms along with other person-centered and evidence-based practices to reduce infection transmission and improve health outcomes, resident and family satisfaction, and quality of life. The Coronavirus Commission for Safety and Quality in Nursing Homes' facility-based recommendations include: "Encourage nursing homes to assign residents to single-occupancy rooms in facilities that can accommodate this approach without detrimental reduction in census. Examine changes to the CMS reimbursement that would promote single occupancy (temporarily during pandemic as well as in the long-term)."⁶⁷

Declining occupancy levels in nursing homes create an opportunity to shift existing multiple to single-resident rooms without creating shortages.

The occupancy rate for certified nursing facilities declined significantly during the pandemic from 80 percent in 2019⁶⁸ to 73 percent in May 2020, and 69 percent in December 2020.^{ii,69} Most experts expect some rebound in nursing home census once vaccinations are widely available and hospitals are able to resume more procedures that result in transfers to long term care facilities for short-term rehabilitative stays. Others expect that wariness about moving to, or sending family members to, nursing homes will continue for an unknown period.

Importantly, nursing homes have seen a decline in occupancy for decades, despite the aging of the population. According to the CDC, the occupancy rate for certified nursing facilities nationwide declined by 4.8 percentage points and the number of residents declined by 9 percent between 1995 to 2016.⁷⁰ This trend has been attributed largely to increasing Medicaid funding for care and supports in individuals' homes and communities,⁷¹ and federal payment models designed to avoid nursing home stays after certain hospital procedures.⁷² The decline opens the possibility to convert current resident rooms to single-resident rooms without creating shortages in needed nursing home beds.

Financing nursing facility improvements, including shifting to single-resident rooms, will need to address initial investments and increases in ongoing operating and capital costs.

The study by Chaudhury, et. al., commissioned by the FGI research committee, found that "first costs" (initial construction) of the single-patient room *in acute care settings* are higher compared with multi-bed rooms, but benefits for safety and comfort of the patient over the life of this room balance the up-front investment.⁷³

ⁱⁱ HMA conducted analysis of the CMS Division of Nursing Homes/Quality, Safety, and Oversight Group/Center for Clinical Standards and Quality's COVID-19 Nursing Home Dataset that calculated occupancy rate based on total number of occupied beds as percentage of number of all beds reported.

“Fundamental design changes are costly and may take longer to implement but are necessary due to the prolonged risks to residents from COVID-19 and the need to position facilities to manage future epidemics.”⁷⁴

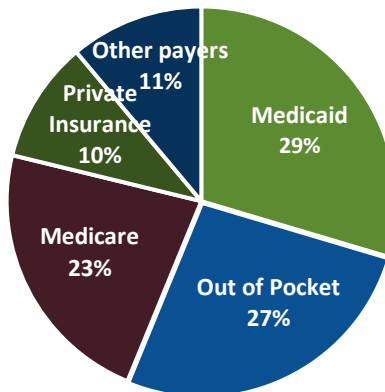
- The MITRE Corporation, 2020

Focusing on long-term care, the Coronavirus Commission for Safety and Quality in Nursing Homes similarly acknowledges the costs of redesigning facilities but asserts that the benefits in controlling the spread of communicable diseases outweigh these costs. Commission members, including nursing home residents, consumer advocates, nursing home owners and administrators, infectious disease experts, academicians, state authorities, and others, discussed the need for long-term solutions to improve the physical layout of nursing homes to better control infection spread and highlighted single-occupancy rooms as a priority. Yet they pointed out that current financing of long-term care does not support this design. The Commission noted the lack of physical space as a limitation to changing the physical layout and that modifications to HVAC systems and other adaptations are costly and would require supplemental funding in many cases.⁷⁵ A key recommendation is to “Collaboratively establish long-term priorities and seek appropriate funding streams for nursing homes to redesign and/or strengthen facilities against infectious diseases.”⁷⁶

A financial analysis of data from two multi-facility licensed skilled care organizations in Michigan by Plante Moran estimates the costs of transitioning to single-resident rooms. Summarized by Plante Moran authors in the Appendix, the analysis estimates an average increase in operating costs ranging from \$16 to \$25 per patient day, and ongoing capital cost increases from \$20 to \$40 per patient day. The authors note that there are many variables that would influence the actual increase in cost, including the size and layout of the facility, resident acuity, age and quality of HVAC, construction cost, type of financing and interest rate, and other considerations. Further analysis is needed to assess expected costs of transitioning to single-resident rooms in other facilities and other states.

Nursing Home payer sources and ownership are mixed — suggesting that re-imagining the physical environment may require multiple strategies and funding sources.

Nursing home facilities are reimbursed by multiple payers, with Medicaid, Medicare, and out-of-pocket payments the largest sources (See Figure 1).

Figure 1: Nursing Facility Expenditures by Payer, 2018

Source: Medicaid and CHIP Payment and Access Commission. (2020, August 17). National Health Expenditures by Type and Payer, 2018. Retrieved February 1, 2021, from Medicaid and CHIP Payment and Access Commission website: <https://www.macpac.gov/wp-content/uploads/2020/12/EXHIBIT-3.-National-Health-Expenditures-by-Type-and-Payer-2018.pdf>.

Medicaid is the largest single payer for nursing home facilities (\$49.9 billion in 2018^{iii,77}); Medicaid coverage for nursing home care is based primarily on income eligibility, after the resident “spends down” personal resources. *Medicare* covers a limited stay in a nursing home for skilled care when patients need daily skilled nursing or rehabilitation services (such as wound care, injections, and physical therapy) following a three-day in-patient admission for a related illness or injury. CMS waived the three-day stay requirement during the COVID-19 public health emergency. For the first twenty days, Medicare covers the costs in a SNF; from days twenty-one through one hundred, the beneficiary is required to pay a coinsurance amount of \$185.50 per day; and the beneficiary must pay all of the SNF care costs incurred after one hundred days.⁷⁸ Medicare spent \$38.1 billion in nursing care facility expenditures in 2018. Individuals paid \$44.8 billion out-of-pocket for nursing care facilities, private insurance covered \$17.1 billion, and other health insurance and third-party payers paid the remaining \$18.5 billion.⁷⁹

Strategies for nursing homes considering converting to single-resident rooms may be influenced by ownership structure as well as payer sources. The CDC reports that in 2016: 69.3 percent of nursing homes were for-profit^{iv,80}; 23.5 percent were nonprofit; and 7.2 percent were government or other status. In addition, 57.6 percent of nursing homes were chain-affiliated; 97.5 percent were Medicare-certified; and 95.2 percent were Medicaid-certified.⁸¹

ⁱⁱⁱ The analysis defined this category as including nursing and rehabilitative services provided in freestanding nursing home facilities that are generally provided for an extended period of time by registered or licensed practical nurses and other staff.

^{iv} Real estate investment trusts, known as REITs, investment firms, and private equity groups often rent property under long-term leases to for-profit nursing homes. A New York Times review of regulatory findings found that six large REITs have business interest in more than 1,500 nursing homes.

Creative options for financing reform must be explored, including building on existing mechanisms and new sources.

Given that Medicare and Medicaid together cover more than half of nursing care facility expenditures, and as the lead federal agency with nursing home quality and safety oversight, CMS should participate in discussions about nursing home redesign, its benefits and costs, as well as overall payment reform. According to Fulmer, et. al., “As the primary financiers for short- and long-term nursing home stays respectively, the payment rules of Medicare and Medicaid will play crucial roles in realizing a new vision for the appropriate services and settings for the care nursing homes currently provide.”⁸²

Another potential vehicle for testing the impact of converting to single-resident rooms is CMS’ Center for Medicare & Medicaid Innovation (CMMI), which provides funding for demonstrations to test out potential improvements to health care systems. Seeking large-scale, innovative models, CMMI could be invited to discuss and consider testing the viability and sustainability of single versus multiple resident rooms in nursing homes that improve or maintain quality or reduce costs.

HUD insures loans to facilitate the construction of long-term care facilities and should participate in discussions on potential financing mechanisms for increasing single-resident rooms. The Healthcare Mortgage Insurance Program (Section 232 of the National Housing Act [12 USC. 1715w]) insures mortgage loans for construction and substantial rehabilitation of nursing homes, intermediate care facilities, board and care homes, and assisted living facilities. Section 232/223(f) allows for the purchase or refinancing with or without repairs of existing projects not requiring substantial rehabilitation. Investors, builders, developers, public entities (nursing homes), and private nonprofit corporation and associations are eligible for these mortgages. For nursing homes, applicants may be public agencies that are licensed or regulated by a state to care for convalescents and people who need nursing or intermediate care.^v

The CDC is the nation’s health protection agency, whose mission is to save lives and protect people from health threats. To accomplish their mission, CDC conducts critical scientific research and provides health information that protects our nation against expensive and dangerous health threats and responds when threats arise.⁸³ Because the CDC plays an important role in identifying and mitigating the risk of infectious diseases such as COVID-19, they may be an important participant and potential partner in the discussion about the benefits of single-resident rooms in nursing facilities.

^v A potential applicant must submit a Certificate of Need from the State agency designated by the Public Health Service Act. (If no State agency exists, an alternative study is required.) No Certificate of Need is required for board and care homes or assisted living facilities; instead, the applicant needs a statement from the appropriate State agency. The applicant must also provide documents that demonstrate the appropriateness of the property and the qualifications of the lender.

Conclusion: A Call to Start the Conversation and Roll Up Our Sleeves

The COVID-19 pandemic's devastating toll on long-term care facility residents and staff is a wakeup call, underscoring the need to transform the long-term care environment as a public health measure. This report presented evidence – based on academic studies and lessons from the current public health emergency – about the benefits of single-resident rooms for reducing infection transmission and improving residents' health outcomes, experience, and quality of life. Additional analysis is needed to quantify the potential savings associated with these benefits, as well as to refine estimates of the initial and ongoing costs of transitioning to single-resident rooms.

The evidence strongly suggests that converting from multi-resident to single-resident rooms in nursing homes should be part of comprehensive reform along with other person-centered and evidence-based practices. Key stakeholders including nursing home residents and family advocates, providers and staff, owners and administrators, policymakers, and federal agencies that help finance nursing homes and improve public health, need to discuss options for promoting, incentivizing, and financing the movement toward a healthier and safer long-term care environment.

Appendix: Financial Analysis and Considerations for Transforming Long-term Care with Single-Resident Rooms in Michigan, by Plante Moran

Acknowledging that economic considerations are an important factor in converting to single-resident rooms in nursing homes, the funder of this report also commissioned Plante Moran to estimate new costs and summarize other transition considerations. Plante Moran, headquartered in Michigan, is one of the nation’s largest certified public accounting and business advisory firms, with significant expertise in nursing home financial matters. The research and analysis presented in this appendix, based on 2019 data from two Michigan multi-facility long-term care organizations, was conducted by Betsy Rust and Rob Long of Plante Moran in February 2021. Any questions about this analysis should be directed to its authors.

Inventory of Michigan Skilled Nursing Facilities

Michigan has 430 licensed skilled nursing facilities (SNFs) with a total bed capacity of 45,621. SNFs in Michigan provide short-term rehabilitation and recovery services as well as long-term custodial and chronic care. Ninety-five percent of facilities offer some single-resident rooms, but nine percent of available beds exist as three or four bed wards. Fifty-five facilities reported having at least one four-person room. See Table 1, Licensed Beds and Room Occupancy for details.

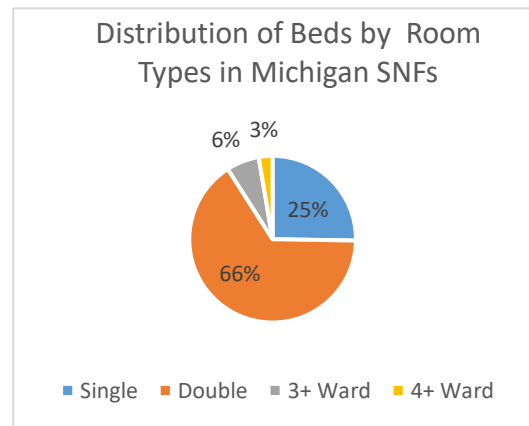


Table 1. Licensed Beds and Room Occupancy

Category	Totals	Single Room	Double	3 Bed Ward	4 Bed Ward
Licensed Beds	45,621	11,603	30,172	2,925	1,228
Rooms	28,001	11,633	15,086	975	307

There is one licensure category for skilled nursing in Michigan, but there are two designations of SNFs for reimbursement purposes. Class I facilities are freestanding. Class III facilities may be freestanding and owned by a county government or may be physically attached to a hospital and considered a hospital long-term care unit (HLTCU). Medicaid payment limits for the two classes are established separately by aggregating cost and utilization data. Class I and Class III facilities also have different Medicaid reimbursement mechanisms for capital costs. See Table 2, Bed Capacity, Occupancy, and Rate Limits by SNF Class for details.

Table 2. Bed Capacity, Occupancy, and Rate Limits by SNF Class

Type of Facility	Estimated Occupancy – 2019 cost report	Estimated Occupancy post-pandemic	Estimated percentage of single-resident rooms	Bed Capacity	Medicaid Payment Limit for Operating Costs at 10/1/20	Average Medicaid Payment for Capital Costs at 10/1/20
Class I	75%	70%*	24%	39,812	\$223	\$18
Class III	92%	85%*	38%	5,809	\$330	\$19

*Occupancy estimated based on actual census as of January 2021, and forecasted census derived from a survey of Michigan SNF owners.

The Medicaid reimbursement methodologies for both Class I and Class III facilities are antiquated and frequently do not cover a provider's actual capital costs (depreciation, interest, property taxes, and certain operating lease payments that are currently defined as capital). Under both methodologies, providers are incentivized to utilize traditional mortgage or bond financing, as there is no reimbursement consideration for cash or equity invested. Many owners obtain mortgage loans through the Department of Housing and Urban Development (HUD). These loans offer attractive repayment terms and affordable interest rates, but also limit an owner's ability to secure other debt instruments for renovations or improvements.

The Michigan reimbursement system does not recognize building rent paid to an unrelated third party as an allowable expense. This prevents nursing home operators from partnering with real estate investors that are seeking to deploy capital to invest in senior care assets and therefore suppresses renovations and new construction.

Certificate of Need (CON)

The capacity of licensed SNFs in Michigan is regulated by the certificate of need (CON) program. Bed need is determined on an individual county basis, with the exception of the State's largest County, Wayne, which is divided into three planning areas. As of January 4, 2021, the State of Michigan reported a need for an additional 182 beds with significant variations in capacity versus demand noted in several counties. Michigan's methodology in determining bed need has been under increasing scrutiny and is evolving to contemplate the growing number of alternative care settings available to individuals who are eligible for nursing home care.

Because CON restricts the ability for new SNF locations or expansion of SNF services, bed licenses have an intangible value to the owner. Currently, an owner has the option to redeploy bed licenses to a new site but there are various applicable CON standards that would need modification in order to gain widespread support and utilization of this option.

To transition SNFs from multi-resident to single-resident rooms, Michigan State officials must adequately address the value of the bed licenses and establish a method to compensate owners for surrendering beds. Similarly, the State will need to increase the flexibility of the CON program and licensure related to bed redeployment.

Michigan Demographics and Nursing Home Alternatives

The aging of America will continue to increase the need for long-term care support and services, but both the intensity and nature of that demand is changing, creating a unique opportunity to convert existing SNFs from multi-resident to single-resident rooms.

Michigan is aging faster than the national average. Between 2020 and 2040, for example, the proportion of people aged 65 and older in Michigan is expected to grow from 17.5 percent to 20.5 percent, compared to 16.2 percent to 18.7 percent for the nation.

Michigan's older population is projected to not only continue to grow, but also to get older. Already, between 2010 and 2018, the proportion of Michigan's population that is over 85 has grown by 10 percent (from 1.96 percent to 2.14 percent). By 2030, residents 85 and over are projected to make up 2.5 percent of the population, and by 2045 they will make up 3.88 percent of the state's population.

These residents, sometimes referred to as the “oldest old,” require more care and supervision than their “young old” counterparts and are the ones most likely to require skilled nursing services at some point.

These new consumers, however, have changing expectations of long-term care support. Many want to remain in their own home as long as possible, and the use of services to support seniors and other adults living at home or in small residential settings is growing rapidly. The enrollment in MI Choice, Michigan’s Medicaid-funded waiver program to make home and community-based services available to elderly and disabled populations, has grown from 10,876 in 2011 to 15,224 in November 2019. Adult Home Help, Personal Care Services, the Program of All-Inclusive Care for the Elderly (PACE), and hospice, all of which have the same goal of allowing seniors and other adults to live at home by providing various types and levels of support, are also growing. The Michigan State budget commitment to these programs increased by 28 percent from FY 2013 to FY 2018.

Those who do need the services and care of SNFs have changing expectations of those facilities, with rising consumer demand for single residency rooms and smaller, more home-like settings.

The CON process outlined above is beginning to reflect the impact of alternatives to SNFs. The recent update in the methodology used by CON to project nursing home bed need noted above reflects that most areas of Michigan will not need new beds in the near future. This projection was made prior to the COVID pandemic, which has resulted in even lower occupancy than this previous projection.

Increasing use of long-term care setting alternatives, changing expectations for more privacy, and CON projections of little new bed need all create an opportunity to begin converting existing multi-room SNFs to facilities with single-resident rooms. A portion of the cost savings generated from shifting beneficiaries to lower cost alternatives could be used to fund the higher operating and capital costs associated with single-resident rooms.

The Impact of Single-Resident Rooms on Operating and Capital Costs

To estimate the impact of a transition to single-resident rooms, Plante Moran compiled 2019 operating and capital costs from two Michigan multi-facility organizations. These entities operate both facilities that offer primarily semi-private rooms (sample size 43) as well as facilities that are at least 80 percent single-resident rooms (sample size 18). The cost data was derived from as filed 2019 Michigan Medicaid cost reports, without any adjustments.

Operating Costs

A transition to more single-resident rooms will increase the SNF operating cost per patient day. The higher operating costs are a direct result of the following:

- Higher nurse staffing and related payroll costs associated with increased time spent transitioning between residents and traveling between resident rooms
- Higher nursing administration costs per patient day due to spreading the fixed costs of a Director of Nursing, Infection Control Coordinator, and other resources over fewer residents
- Increased occupancy costs associated with more square footage per resident, including utilities, housekeeping, and plant operation and maintenance

- An increase in costs per patient day associated with covering other fixed costs over fewer residents. These costs include the licensed Nursing Home Administrator, building and liability insurance, and other administrative expenses.

The data indicated that the average increase in operating cost associated with offering primarily single-resident rooms ranged from \$16-\$25 per patient day as shown in Table 3, Projected Operating Cost Increase for Single-Resident Rooms.

Table 3. Projected Operating Cost Increase for Single-Resident Rooms

Operating Cost	Average Cost Increase for Single-Resident Rooms
Nursing and Nursing Administration	\$10 - \$15
Occupancy	\$3 - \$5
Other Operating	\$3 - \$5
Total Increase in Operating Costs	\$16 - \$25

There are many variables that would influence the actual increase in cost, including the size and layout of the facility, resident acuity, age, quality of HVAC, and other considerations.

Capital Costs

A transition to single-resident rooms may be accomplished in various ways; new construction of facilities with only private rooms; renovations to expand facility footprints to accommodate more single-resident rooms; or downsizing total facility capacity. These options have significantly different out of pocket capital investments associated with them, but all will increase the ongoing capital expense per patient day that will need to be funded through increased payment rates from private and third-party payers.

Michigan's capital reimbursement system is driven by a determination of building value, referred to as current asset value or CAV, that is derived from historical asset costs adjusted for inflation and obsolescence. The CAV has an impact on capital reimbursement and is currently limited to \$93,000 per bed. A transition to single-resident rooms in an existing facility under any of the options described above, would increase the current asset value per bed, requiring a corresponding increase in the CAV limit to ensure that providers receive adequate reimbursement for capital costs.

A transition to single-resident rooms will increase the capital asset cost per bed and will therefore increase the capital costs per patient day with any capital reimbursement system. The impact of a transition to single-resident rooms on the capital costs per diem will vary significantly depending on whether the facility simply downsizes or makes a significant capital outlay. An organization's approach to financing capital investments also have an effect on the capital cost per patient day.

There was significant variability between the two organizations in the increased capital costs per patient day associated with single-resident rooms. The median increase for one entity was \$40 per patient day and \$20 for the other entity. As discussed, there are many factors that influence capital costs per day and Plante Moran did not conduct additional analysis of construction cost, type of financing, or interest rate.

Funding the Increased Cost of Single-Resident Rooms

A shift to single-resident rooms will increase both operating and capital costs. The net cash available for debt service, capital replacement, and return on investment to SNF owners will also shrink if the beds

are not redeployed. These factors will reduce the incentive for ownership of SNFs without a corresponding increase in the price received for rendering the services.

Based on filed Medicaid cost reports, more than two-thirds of Michigan residents living in SNFs are covered by Medicaid. Michigan Medicaid paid for an estimated 9.18 million days of care in the State's fiscal year ending September 30, 2019.

Due to the high concentration of Medicaid beneficiaries in long term care facilities, the Medicaid program would need to fund the increased capital and operating costs in order for providers to be able to transition to single-resident rooms. As with most State Medicaid programs, a portion of the funding would be subsidized through federal matching dollars.

Based on the information gained from analyzing the two organizations, Medicaid rates would need to increase by an estimated average of \$50 per patient day to accommodate operating cost increases that range from \$16-\$25 per patient day and capital cost increases that range from \$20 to \$40 per patient day. As noted previously, the actual cost increase for each individual facility will vary. Some facilities will experience higher operating costs in excess of \$25 per patient day, while other facilities may experience lower capital costs per patient day with a downsizing that does not require capital outlay. Further analysis is needed to fully understand the cost of a transition to single-resident rooms across the entire inventory of Michigan facilities. See Table 4, Estimated Annual Funding Requirements for Single-Resident Rooms from State and Federal Sources for details.

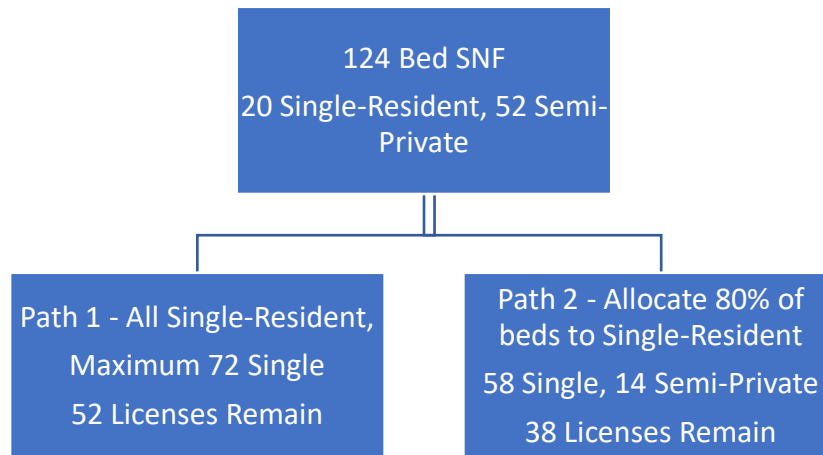
Table 4. Estimated Annual Funding Requirements for Single-Resident Rooms from State and Federal Sources

Payment Category	Estimated Medicaid Days – 2019*	Additional Funding Needed at \$50 per patient day	State of Michigan Funding (1/3)	Federal Match Funding (2/3)
Class I	7.05M	\$354M	\$104M	\$250M
Class III	1.4M	\$70M	\$23M	\$47M
MI Health Link SNF	.73M	\$37M	\$12M	\$25M
Total	9.18M	\$461M	\$139M	\$322

*Based on 2019 MDHHS Variable Cost Limit runs and estimated MI Health Link days from 2019 filed cost reports

Transforming Long-term Care with Single-Resident Rooms: Example Transition Path and Considerations

To accomplish the goal of providing more Michigan nursing home residents with single-resident rooms, it will be essential to fully address concerns by stakeholders related to CON, financing, and overall financial sustainability and profitability. Following illustrates two transition paths for an existing 124 bed SNF to all or majority single-resident rooms.



There are numerous other alternatives to increase the number of single-resident rooms in this example facility, with each option generating some remaining licenses. The remaining licenses could be utilized in newly constructed beds at the existing facility or at a new location. Alternatively, the remaining licenses could be held or “banked” by the owner for a specified period for future use or surrendered. See Table 5 for a list of key business and regulatory issues related to downsizing and resulting bed licenses that would need to be addressed to facilitate a transition to single-resident rooms.

Table 5. Business and Regulatory Issues Associated with Bed License Options Resulting from Transition to Single-Resident Rooms

Key Issue to be Addressed	Surrender Bed Licenses	Bank Bed Licenses	Utilize Beds at Existing Location	Utilize Beds at New Location
Value of bed licenses	X	X		
Timeline to utilize remaining licenses	X	X	X	X
Restructure of existing financing for reduced licenses	X	X	X	X
Cost of construction and accessing related capital to utilize remaining licenses			X	X
Reduction in profitability to owner associated with a lower bed count	X	X		X
Medicaid funding of increased capital and operating costs per resident day	X	X	X	X

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