





introduction

As our community plans to emerge from the current COVID-19 crisis, we have a rare opportunity to review current challenges in infection transmission and apply innovative thinking to design solutions that will help each other cope with future threats. We have to look to our most vulnerable populations and how infectious diseases has affected them physically, mentally, and socially to understand how to better design for them moving forward. This should result in safer more flexible facilities that allow for a variety of defense mechanisms depending on the acuity of the resident type. The time to strategize future forward solutions for our healthcare systems to best address these challenges is now.

Environments for the Aging stretches across a wide variety of acuity levels that range from independent living to long term care. Facilities such as Assisted Living, Memory Care, Nursing Care, Transitional Care, Post-Acute, and Rehab all have opportunities to benefit from a variety of design solutions. Each of these facility types faces their own challenges and must weigh the benefits of each level of defense for their individual facility against the cost of that individual investment.

The solutions explained in this document addresses the acuity level of **Assisted Living** residents. This document should serve as a tool to discuss options and even further solutions that can enhance the safety of the staff and residents during difficult times. We look forward to discussing with you and your staff.

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The Jack Byrne Center for Palliative & Hospice Care Lebanon, NH

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planning, design & implementation

planning considerations

Senior living design has always been a careful balance between safety and dignity. We strive to provide innovative solutions that provide a safe environment for your residents that allows them to strive even when faced with new challenges. Recent events have proven that senior housing could benefit from an enhanced infection prevention plan. As healthcare designers, we are re-examining the role the built environment can play in minimizing the spread of infectious diseases. In the past, we designed senior facilities to be comforting home like neighborhood environments. Today, healthcare designers implement many infection prevention design solutions that contribute to resident safety, however not all these solutions are standard. Moving forward these solutions may become required. Practices such as negative pressure waste rooms, accessible PPE, separate supply and waste flow, additional hand washing stations and strategically placed flex spaces can all contribute to minimizing the spread of infectious diseases. In addition, some facilities may want to consider isolation rooms or isolation wings in the event that someone or multiple residents need to be guarantined. Along with operational protocols, we believe the built environment can provide a safe efficient working environment that helps comfort staff and allow them to focus attention on their daily routines that in part leads to resident safety.

SPECIFIC DESIGN AND PLANNING RECOMMENDATIONS

- Infection control begins at the front door
- Minimize the amount of touch points that contributes to the spread of disease
- Conveniently locate more hand washing/hand sanitizing stations.
- Conveniently locate PPE for Staff as well as visitors
- Signage with universal symbols to indicate safety precautions
- Translucent partition/shield guard at reception to protect staff
- Flexible family rooms near the front door that permit safe distancing visits
- Antibacterial surfaces and finishes
- Increased storage needs
- Increased pre-visit information gathering
- Occupancy sensors and/or hands-free control for lighting
- Hand swipe auto operators at doors where auto operator is needed
- Door hardware that allows pushing rather than touching and turning
- Public toilet rooms: Touchless faucets, soap dispensers, hand dryers, toilets, copper door hardware. ADA height toilets, inward flushing toilets, floor drains and finishes for easier cleaning
- Create corridors and public spaces that allow for safe social passing
- Design for increased flexibility and adaptability for increased levels of defense during an outbreak



ADDRESSING ENHANCED INFECTION PREVENTION

interior design considerations

Environments for seniors has always been a careful balance between resident safety and resident comfort. Finishes and furniture have an opportunity to play a significant role in minimizing the spread of infection diseases without compromising resident comfort.

Several things to consider when selecting interior finishes and furniture, include:

- Provide inherently anti-microbial surfaces where possible
- Rethink upholstery selections for furniture in communal spaces to those that can be cleaned with CDC recommended products
- Provide a variety of seating selections that include more single seat furniture with high arms that allows for safe social distancing as well as ease getting in and out of chairs.
- Provide more 2 top tables in dining rooms that can be put together for 4 tops or that allow to be pulled apart for safe distance dining.
- Minimize utilization of finishes can absorb contaminants, including carpet
- Select materials with less crevasses, transitions, and joints
- Cleaning protocols should influence material selection
- Manufacturer's cleaning recommendations should be reviewed and practiced
- Consider life cycle of a product can be as important as cost. Materials that break down sooner have potential to harbor germs and cause problems within facilities when they cannot immediately be replaced.
- Provide finishes in staff spaces that enhance respite
- Look to science and evidence that explore finishes with enhanced infection prevention



ADDRESSING ENHANCED INFECTION PREVENTION

technology

ENHANCED TECHNOLOGY STRATEGIES

Operators have to carefully balance the integration of technology with the demographics of each resident type to determine which systems would work best in their facility. Some of the following enhancements and upgrades can contribute to the health and wellbeing of the residents when implemented and managed appropriately. Technology needs to be simple and easy to use, as not to confuse and frustrate residents:

- Resident tracking within room devices for health tracing
- In room Audiovisual Technology that helps make video calls to family members
- Telepresence systems to support "video visits"
- Video intercom systems: ease of use, contactless operation, welcoming, clarity, cleanable/antimicrobial surfaces
- Thermal temperature screening cameras
- "Wave operators" to allow touchless door opening

TELEMEDICINE

TeleMedicine is already playing a crucial role for medical providers with the current COVID-19 pandemic by helping to eliminate unnecessary hospital visits, minimizing the spread of infection, and freeing up resources for those in critical need.

The 2018 FGI Guidelines (Inpatient & Outpatient) offers a proactive approach with many recommendations such as space requirements, acoustics, lighting, interior surfaces, site identification, equipment, and AV technologies that can be applied based on individual needs. For TeleMedicine, it will be essential to know what services will be provided in order to achieve a functional design based on patient population and type of outpatient clinic.

Areas can be created for TeleMedicine which maintain the requirements of HIPAA laws and pre-screen patients prior to an office visit, or identify those that need to be segregated when they come in. This could be used as a pre-screen for patients who have appointments already. There are limitations to this technology that should be recognized such as lighting and proper tools, that may be required on the patient side to help diagnose conditions.









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community spaces resident experience

COMMUNITY SPACES

Many senior facilities rely on personal interaction to create a sense of community, increase physical activity, and boost morale. When a disease or infection spreads throughout a facility, the facility is faced with a difficult decision to isolate the residents for their safety. Our challenge as designers is to create environments that allows for social interaction without hindering resident safety during an outbreak. These solutions listed below can provide temporary or long term solutions for flexing in and out of different phases of isolation when needed. We encourage all facility types to refer to guidance from state and local officials when making decisions about relaxing conditions within your own facility in response to large scale events.

In the dining rooms, we can provide flexible layouts and furniture solutions that provide both inclusivity as well as separation in a time of need. Furniture fabrics can be selected for cleanability and its resistance to increased cleaning protocols. We suggest more two-top tables that can pulled apart and movable planters with partitions that allow for separation for distance dining.

In the event that the facility has to minimize outside visitors, providing a flexible space near the entrance that allows for family members to visit their loved ones in a time of crisis that can be controlled, cleaned, and with a quality of air that prevents the transmission of diseases would provide residents opportunities to see family members if the conditions permitted. This space can be inside the facility or partially outside the facility. Utilizing first floor spaces with windows that allow for family members to remain outside a window if required. When visitors are allowed within a facility, locating a PPE and testing station near the front door will help ensure everyone is adhering to the facility's requirements. Providing a reception desk with adaptable translucent shielding will help ensure that proper protocol is maintained as well as protect staff that are overseeing these public spaces.

PUBLIC TOILET ROOMS

Since the public toilets typically see more people in a day, they can benefit from enhanced measures of defense. Components such as touchless lighting sensors, faucets, soap dispensers and hand dryers could also be all incorporated to minimize touch points. Door hardware that is easier to open and lock for privacy should also be considered. Vacuum toilets are available that flush inward to mitigate aeration and the spread of germs into the immediate atmosphere. All toilets could be specified at ADA height, so people are less inclined to grab onto things to hoist themselves on and off. Anti-microbial grab bars can also be specified. Surfaces should be simple and easy to clean. Public toilet rooms should have a minimum of half height, wipeable, tiling or wainscoting in lieu of just the wet wall. Public toilet rooms would also benefit from floor drains that allow housekeeping to wash down the entire room easily.



ADDRESSING ENHANCED INFECTION PREVENTION

case study: assisted living first floor



resident spaces resident experience

RESIDENT ROOMS

In the event a facility sees an out-break, patients are often put in isolation to protect them from the transmission of the disease. The transmission of diseases from one resident to another can be managed through careful operational protocol as well as enhanced architectural components in resident rooms, resident toilets, and resident corridors.

- Less touch points
- Cleanable and antimicrobial surfaces with minimal joints
- Door hardware that allows pushing rather than touching and turning
- Solid surface counter tops with undermount sinks that are deep enough to minimize splash
- Door and door hardware materials and handle styles that are cleanable and resist spread of germs
- Consider Luxury Vinyl Tile or sheet flooring that are residential in feel in lieu of carpet.
- Where tile is used, larger scale tiles with less joints, and joints that are sealed
- Use Velcro tabs for "easy on-easy off" window treatments that be cleaned frequently.
- Inherently anti-microbial shower curtains at resident bathrooms

RESIDENT TOILET ROOMS

Resident toilet rooms want to be designed to allow for easy cleaning as well as resident safety. Specifying toilets at ADA heights would limit the amount of touchpoints and make it more comfortable for residents to use. In addition, anti-microbial grab bars are now available over standard finish grab bars from the past. Vanities should be of less porous materials such as solid surface with integral bowl sink as well as backsplashes. Resident Toilet rooms with a minimum of half height, wipeable, tiling or wainscoting in lieu of just the wet wall is preferable makes it easier to clean over standard paints.



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case study: assisted living – single bedroom unit



case study: assisted living - studio unit





SHOWER CURTAINS

ANTI-MICROBIAL







staff spaces staff experience

Protection and satisfaction of staff members is as important as resident safety. For staff, similar to hospital layouts, providing supply and waste in convenient locations is a high priority. Providing hand washing stations that allows staff to wash hands regularly as well as locations for PPE and waste becomes important. The flow of soiled linens or waste should be reviewed to prevent contamination from back tracking towards uncontaminated areas. If possible, soiled and waste rooms should be located towards the end of the circulation path and near the exit door for safer transfer out of the building. If feasible, waste and soiled rooms can be designed with exhaust or more negative than the corridor to prevent airborne contaminants to be spread. All these design accommodations allow the staff to focus attention on being safe and keeping residents safe.

STAFF LOUNGE SPACE

During difficult times staff may suffer from additional stress and fatigue and require more respite than usual. Staff need a place to rest and recharge to successfully face the second half of their shift. Staff lounges and additional smaller spaces may need to be considered to aid in social distancing of clinicians and their colleagues. Various flexible smaller spaces could be provided to allow them to take their lunch break in lieu of congregating in the staff lounge around one single table. Rethinking how the medical staff hold meetings and gather together could be evaluated to ensure additional spaces are provided for flexibility when the facility is under certain conditions.

OPERATIONAL EFFICIENCIES

There are many operational efficiencies which could be reviewed to assist in the prevention of transmission of pathogens in the facility. When it comes to staff comfort and safety, new recommendations on cleaning and disinfection protocols should be set so they are distinct. Recommendations should be outlined for new cleaning regiments and protocols so staff and maintenance crews can clearly understand the distinction between, cleaning, sanitizing, and disinfecting. Identifying better routines to manage the storage and disposal of used and potentially infected materials will assist in avoiding contamination.



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STATISTICS.



enhanced isolation strategies

enhanced isolation strategies

For some healthcare systems that have seen increased spread of infectious diseases within their facility, there are temporary and permanent design solutions that can be implemented that may minimize the spread in the future. This may include levels of isolation that may allow for the general population to continue regular activities when the threat is manageable. These enhanced levels of defense could help a facility avoid entire facility lockdown. These solutions can range from temporary negative pressure rooms to pods of rooms where larger populations can be isolated.

RENOVATION OF EXISTING ROOMS

If your facility prefers to shelter in place for residents who become ill, there are ways to temporarily retro fit existing rooms to minimize the risk of airborne contaminants spreading into the corridor. Increasing exhaust out of the toilet bathrooms to make the whole room negative pressure to the corridor is an option, but its success lies in the size of existing ductwork. Another option is to temporarily remove a window and place a HEPA exhaust negative air machine to draw air away from the corridor. This would help in minimizing the flow of contaminants into the corridor.

ISOLATION ROOMS

If your facility sees numbers every year that warrant facility lockdowns, a dedicated isolation room that can be used as a show suite might be the answer. This first line of defense would provide the facility an opportunity to relocate a resident to a place that would minimize the spread of the disease.

This room would match the standard resident rooms and include a private bathroom, but would be fully furnished and ready to be occupied. The perimeter walls of the room would have full height partitions and the room would be airtight. The room would be negatively pressurized to minimize the risk of airborne contaminants to adjacent spaces such as other resident rooms or corridors. Surfaces and plumbing fixtures would all be designed with finishes and profiles that are easy to clean and antimicrobial where available.

As an increased line of defense, the room could be designed to Ashrae isolation room standards.

ISOLATION WINGS

Depending on the acuity level of the facility and the flexibility to relocate residents, some facilities may be interested in dedicating a specific pod or wing within their facility for isolation. If a facility is comfortable with this level of defense, a fraction of the rooms in a specific part of the facility can be designed to isolation standards. This wing would also have flexible spaces that would be able to serve as support spaces. This pod or wing would benefit from separate supply closets, negative pressure soiled holding, hand washing stations, and direct access to an isolated elevator that would minimize cross contamination between residents. Each resident room within a dedicated isolation wing could be designed to be airtight and negatively pressurized to adjacent spaces. If a facility requires a dedicated isolation pod or wing the best location for these rooms would be on upper floors with direct access to the roof for exhaust.





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case study: assisted living - enhanced isolation wing



conclusion

With the wide variety of Environments for the Aging, we have developed a variety of different solutions that can be implemented moving forward to enhance the comfort and well-being of your Assisted Living residents. As more is discovered about Covid-19 and other infectious diseases over time, we believe these types of solutions will evolve. At E4H we are dedicated to providing enhanced solutions for all types of healthcare environments. We strive to focus our attention on patient safety, staff satisfaction, and preparing our clients for the future.

We anticipate in the coming months and year, codes and guidelines will be revised in response to current healthcare climate. At that time, as an industry, we will have to re-examine what will then be required in all types of facilities. We encourage all facilities to refer to authorities having jurisdiction to stay informed of current code and guideline requirements that may affect their facility.



ADDRESSING ENHANCED INFECTION PREVENTION

