INTRODUCTION

Our approach
We recognize that our clients are faced with many uncertainties and change as the pandemic evolves. Our number one goal is to be there for our clients offering the support, guidance and leadership that people expect from EUA.

With the residual impact and the changing needs of the market environments we support – workplace, industrial, learning, healthcare, science + technology, living and community – we continue to refine our approach, services and solutions. With safety and well-being at the forefront of these industry sectors, we are researching, innovating and sharing ideas on how we can deliver design solutions to support our clients’ unique and evolving needs.

Our design experts are asking probing questions to achieve desired flexibility, quantify capacities and assess technologies that deliver forward-looking and high-performing design solutions. At EUA, we are passionate about what we do. We believe that design has the ability to elevate people’s potential. Now, more than ever, our pace of innovation remains ready to serve our clients.

This guide
As we continue to support clients with their healthcare facilities, our healthcare team is looking ahead to how design will be impacted by the current COVID-19 pandemic response. We know our clients will need to anticipate future disruptions and patients are anticipating changes in the way they receive care once they return. Our team of healthcare designers and planners has been looking at ways our clients may ask us to design differently in the future.

Over the coming days and weeks we look forward to sharing our thoughts on the following topics.

- Reducing patient presentations at the facility
- Isolating infectious patients who present
- Improving the facility’s ability to reduce the spread of infection
- Providing surge capacity for high volume episodes

Planning a building that seeks to fully address all aspects of operations during a pandemic is a major undertaking. This level of consideration is often not a part of typical project discussions. We understand that the physical and financial impacts of implementing these strategies may not be possible for all projects. However, it is important to be intentional about the decisions each organization makes around pandemic planning for each project. A thoughtful and intentional approach will help the health system leverage resources to effectively address the next pandemic situation.

We know your inbox is probably as full of predictions of what the worldwide pandemic will mean to our daily lives. We don’t have a crystal ball, so we chose to look at tangible ways that our approach to healthcare design can and likely will change as we move forward. Our approach isn’t one size fits all. We are committed to bringing ideas and options for you to evaluate and decide what is right for your situation. We look forward to discussing these ideas with you in a virtual design meeting until we can meet in person.

For more information, contact:
Paul Stefanski at 414.291.8198 or visit euacom
One game changer resulting from the pandemic is relaxed restrictions on the reimbursement of telehealth. It has become a major strategy to reduce facility visits that increase the risk of transmission. Patients are more receptive to receiving care in this on-line environment and will want to continue with the newfound convenience and flexibility after the pandemic subsides. Planning considerations will hinge upon the certainty of the reimbursement environment.

**Possible Impacts to Clinic Planning Modules**

### Private Office with 2.5 Exam:Phys
Current state where all care occurs in the exam room. Maintains the provider demand for private offices for virtual visits. Doesn’t increase space; combines offices and telehealth.

### Telehealth with 2.5 Exam:Phys
Move telehealth rooms to the ‘front’ so they are seen as a care delivery space. Provider offices are combined in an open team work environment.

### Telehealth with 2.0 Exam:Phys
Dedicated telehealth rooms with a combined provider and staff open work area. Exam:physician ratio reduces due to increased virtual visit use.

### Telehealth with 2.0 Exam:Phys
Telehealth rooms double as smaller offices for providers. Exam:physician ratio reduces due to increased virtual visit use.

**IT Impacts**

- Added audio/visual equipment in many spaces
  - Provider offices
  - Exam rooms
  - ICU / inpatient rooms
  - Pharmacies – virtual medication checks (where regulations allow)

Amazon Echo video calling devices are being used to communicate between physician/staff and patients, to decrease foot traffic into the room and minimize staff exposure.
- Less risk to all individuals
- Reduces quantity of PPE required over time

**Infrastructure Impacts**

Increase planning for flexible, multi-purpose rooms for use by physicians, specialists, consultation and video visits.

Reduce exam room demand since some visits occur in the office or off-site.
REDUCING PATIENT PRESENTATIONS AT THE FACILITY

SITE PLANNING

As healthcare facilities become fully operational there will be varying approaches to accepting patients. In order to prevent and control the passage of pathogens into the building organizations will need to consider all traffic coming on site; including patients, staff, vendors and materials. Utilizing the parking lot can be a key to managing who and what are entering the facility as well as keeping unnecessary visitors outside of the building. The scale of the facility will also impact what is possible.

The following considerations can be applied to all project types to help ensure a safe and efficient facility.

A Single point of entry and exit promotes one-way traffic flow on the site.

B Gatehouse staffed to give direction, provide patient tracking device or smart phone technology to allow patients to wait outside of clinic or dispense PPE as needed. Locate to allow space for queuing of vehicles after entering site.

C Drive-thru testing should be identified during site planning. Drive-thru testing can be used to avoid having potentially infectious patients enter the building until after they have been screened by a provider. See page 5 for additional information on drive-thru testing.

D Number parking stalls to allow parking assignment if staff needs to meet a patient prior to entering the facility. For urban sites provide outside ‘waiting’.

E Drive-thru services for pharmacy and lab allow patients to receive services without entering the building.

F Entry to clinic for pre-registered and screened patients. Patients arriving early may be asked to wait in their vehicles until their appointment time to reduce congestion in waiting areas.

G Staff entry with temperature screening and disbursement of required PPE.

H Patient transfer for any patient needing hospitalization is directed through a separate door to avoid cross-traffic with incoming patients and staff.

I Service traffic is separated from other traffic to ensure efficient deliveries with minimal time on site.

J Materials / vendor entry includes a screening point to ensure delivery personnel meet PPE protocols.
REDUCING PATIENT PRESENTATIONS AT THE FACILITY

DRIVE-THRU TESTING DETAILS

PROCESSES FLOW OVERVIEW

1. **Screening**
   - Identifying patients for testing
   - Criteria for testing will be dynamic and will be informed by CDC or other public health guidance, patient demand, availability of supplies, (test kits and PPE), and health system capacity.
   - If screening by phone, remove this step on site
   - If patient does not meet criteria for testing, do not test

2. **Intake**
   - Registering patient for testing
   - Criteria for testing will be dynamic and will be informed by CDC or other public health guidance, patient demand, availability of supplies, (test kits and PPE), and health system capacity.
   - Patient does not meet criteria for testing

3. **Collection**
   - Obtaining test sample from patient

4. **Processing**
   - Submitting test sample to analysis

5. **Consultation**
   - Intervening on complex cases

6. **Education**
   - Informing patient of best practices

REFERENCE

All information compiled from: Design Institute for Heath. [https://static1.squarespace.com/static/5a7f5d63e45a7c14e0fd7a7i5eaadcd32ff2116d10120ce158825590126/COVID-10+Drive-Thru+Testing+Guide+V3.pdf](https://static1.squarespace.com/static/5a7f5d63e45a7c14e0fd7a7i5eaadcd32ff2116d10120ce158825590126/COVID-10+Drive-Thru+Testing+Guide+V3.pdf) Accessed 5/8/2020.

For more information, contact: Paul Stefanski at 414.291.8198 or visit euacom
ISOLATING INFECTIONOUS PATIENTS WHO DO PRESENT

VESTIBULE DESIGN

1 **SIZE**
In cold climates undersized vestibules will fail to keep out the cold and wind. They need to be larger so the doors in sequence have time to close and, ideally, are not aligned with the prevailing winds. A larger vestibule can accommodate additional functions and equipment. Consider space for wheelchairs, waiting, valet stations and seasonal equipment in cold climates. This ‘extra’ space may prove useful when additional screening is needed during a pandemic.

2 **SCREENING**
Healthcare organizations strive to pre-screen all patients before they arrive at facilities during a pandemic. Even with pre-screening, in-place providers will confirm and screen people entering a facility. Wheelchair staging areas and valet stations located adjacent to vestibules are opportunities to safely position staff and monitor entry points. Temperature screening can also take place in this sheltered space before patients approach non-clinical staff and other patients in the registration area.

3 **PHYSICAL DISTANCING**
A small vestibule offers no chance for physical distancing when people enter and exit at the same time. Consider a larger vestibule with additional circulation space that allows for physical distancing. Better yet, is there a way to have patients leave from another door so there is a one-way flow of patients in and out of the facility?

4 **INFECTION CONTROL**
Building entry doors should be hands free. This requires motion activated door operators (no push plates) or sliding doors at all entry points. Even under normal operations this ensures visitors are not touching door hardware surfaces that have not been wiped clean. To encourage regular use, intentional and convenient locations for hand sanitizer stations and mask dispensers are important at the entry.

**SCREENING AREA**

- **Screening Area**
  - Separate staff access to Screening Area
  - **Screening**
  - **Unscreened**
  - **Screened**
  - **Staff**

**ENTRY CANOPY**
- Add temporary enclosure for additional weather protected queue space.

**Hands Free**
- Doors with automatic operators.

**Floor Markings**
- Visual cues to encourage proper physical distancing in queues.

**Flex Space**
- Consider access to adjacent rooms for screening staff and PPE.

**Thermoscan**
- Consider space for temperature screening equipment and staff as patients enter.

**Security**
- Remote door release after patients pass screening.

**One-way Traffic**
- Consider a second exit path after the visit is completed.

**NORMAL OPERATION**
Wheelchair Storage, Seasonal Equipment, Seating, Valet Station

**PANDEMIC OPERATION**
Staff, PPE, Contactless Screening

**DROP-OFF CANOPY OR TEMPORARY STRUCTURE**

**REGISTRATION & CLINIC**

**6 FEET**

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ISOLATING INFECTIOUS PATIENTS WHO DO PRESENT
REGISTRATION

Pre-screening and telehealth will play a big part in reducing the number of patients who need to enter a facility, but for those who need in-person care, safety is a priority. After decades of moving toward an open hospitality model for registration staff in healthcare settings, we will be revisiting the need for better separation between patients and staff. This may take the form of permanent fixtures in the design or by providing space for temporary barriers during times of heightened risk. In almost any scenario, registration will require additional measures to protect users during face-to-face interactions.

The extent of these measures will depend on the organization’s goals for each site during seasonal flu or pandemic scenarios. Focus should be on separation between the registrar and patient, managing physical distancing between patients and physical distance between staff.

1. PROMOTE PHYSICAL DISTANCING

Patient to staff separation may include glazing screens between registration staff and patient to prevent transmission. Depending on the facility, these could be fixed panels or movable barriers.

Patient to patient distancing can be encouraged with interior design cues. Consider visual indicators in the flooring (stripes, color blocks, etc.) to promote safe queuing distances while improving patient privacy.

Staff to staff separation at registrations stations may increase to ensure a minimum 6’ spacing and sufficient physical distancing between staff.

2. INFRASTRUCTURE AND PLANNING

Planning will consider placing a negative pressure multi-purpose room adjacent to registration to isolate patients with symptoms of an infectious disease. This can be an office during regular operations and an isolation room during pandemic.

Mechanical systems will consider return air placement to remove potential airborne contaminants in waiting areas before they reach other patients and staff.
ISOLATING INFECTIOUS PATIENTS WHO DO PRESENT
WAITING ROOMS

Waiting rooms will see a great deal of redesign from an operational and physical standpoint. After years of moving toward a hospitality model with soft seating in small clusters we may see a trend toward hard surfaces that are easier to clean. Always specify furniture with non-porous surfaces and fabrics that are easy to clean/wipe.

1 OPERATIONAL CHANGES

- **Schedule** visits to minimize the need for waiting.
- **Limit** patients to a single visitor or one caregiver during appointments. This should be communicated during appointment confirmation calls to ensure only the appropriate people attend a visit.
- **In-car waiting** where patients can remain isolated until they are notified by phone may be considered.
- **Isolate** unwell patients in an exam room rather than waiting with others.
- **Digital marketing displays** replace traditional brochure racks.
- **Face masks** should be worn by all visitors and will be provided if they do not come with one.

2 PHYSICAL CHANGES

- **Remove accessories** like magazines and toys.
- **Additional** tissues, waste baskets and hand sanitizers readily available/visible for visitors.
- **Demountable partitions** may section seating zones for various patient groups. We recommend providing zones for 1-2 chairs and some spaces for wheelchairs. Research is needed on the effectiveness of this strategy, but may provide comfort that physical distancing is being maintained.

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The heightened awareness of the need to protect staff and patients during an infectious disease outbreak will lead us to ask new questions regarding patient flow in the clinic setting. Variations on current models may lead to new approaches to patient and staff movement to ensure continued safe operations during a pandemic or the annual flu season.

1 **PRE-SCREEN AND PRE-REGISTER**
Limit in-person visits during a pandemic. Organizations will need to PRE-REGISTER and SCREEN all patients before they arrive at the facility.

2 **TRIAGE AT THE FRONT DOOR**
Sort well and unwell patients immediately upon arrival. Thermoscanners and PPE can be set up in the vestibule so patients are protected before entering the registration area. Divert anyone showing at risk symptoms. Triage and assess patients before allowing them to enter a common waiting area. Isolate those who show symptoms that could indicate a contagious condition.

3 **ONE-WAY PATIENT FLOW**
Separate waiting and registration and establish alternatives means to monitor waiting areas. Create a one-way flow for patients that ensures well patients don’t need to cross paths with potentially unwell patients who are entering the building. Well patients are discharged without passing through registration area.

- **A** Vestibule may be used as a screening station for temperature taking and donning PPE before patients enter the clinic.
- **B** Registration is staffed to act as a triage point to move symptomatic patients into a dedicated assessment area and away from any common waiting areas.
- **C** Transfer routes are planned to shift severe cases to isolation facilities or hospitals for specialized care.
- **D** Vertical circulation is located past the point where patients clear screening and registration.
- **E** Clinic pods can be assigned by acuity level and isolated from one another and assigned to patients with different acuity levels. This minimizes the chance of well patients and staff crossing paths with unwell patients.
- **F** Separate exit for patients leaving the clinic to avoid passing through the registration area where unscreened patients will be present.

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**“Library” Model for Clinics**

New clinic planning models may look to the local public library as a model for an adaptive building that will remain operational during a pandemic. Many new libraries have community rooms that are accessed after hours while securing the main library functions. A clinic arranged with this model would place community spaces (meeting and group therapy, physical therapy or even staff break rooms) with access to the clinic main entry. Under normal operations this layout would make a large room available to the public for community events or after-hours clinic education programs while the larger clinic remains secure. During a pandemic, the community rooms would be converted to serve as a buffer between screened and unscreened patients.

This conversion will allow:

- **A** Pre-register and pre-screen all patients.
- **B** Convert community spaces to an intake area that is separate from the clinic.
- **C** Clinic is entirely dedicated to screened patients.
- **D** During pandemic, well patients are discharged through a separate entry to maintain one-way flow.
- **E** Staff can enter without passing unscreened patients.
Hospital entrances and lobbies are typically larger spaces that orient users, allow for waiting and gathering and serve as a hub to connect major public circulation. This confluence of function can create opportunities for transmission if not properly managed. Promote concepts to separate areas for these functions and compartmentalize where possible. Reduce cross-traffic between zones. Promote one-way traffic flow to avoid cross-traffic.

1. **REDUCE CROSS TRAFFIC**
   Consider movement of visitors. Promote one-way traffic flow where possible. Clearly demark circulation paths in flooring.

2. **COMPARTMENTALIZE**
   Remove registration traffic from visitor traffic entering and exiting through lobby.

3. **DISTANCE**
   To help manage queuing of larger patient volumes, include a registration waiting area with space for physical distancing measures. Provide ample space for standing traffic at elevators and registration.

4. **SEPARATE**
   Patients who suspect they may have an infectious condition are instructed to use separate facilities or designated entrance.

A. Screening protocol for arriving patients and visitors will be dependent upon prevalence of infectious disease cases. Visitors could be screened outside of the building in temporary facilities or in the vestibule.

B. Provide ample standing area for visitors to maintain physical distancing as users exit the elevators with visual cues to separate circulation from elevator queuing.
Entry sequences for the Emergency Department have complexity beyond the main entrance to the hospital. For current state and new construction, look for opportunities to implement principles that reduce cross-traffic, promote one-way throughput, and compartmentalization for containment.

1 **REDUCE CROSS TRAFFIC**
Consider movement of visitors. Promote one-way traffic flow where possible. Clearly demark circulation paths and standing areas in flooring.

2 **COMPARTMENTALIZE**
Remove registration and waiting traffic from flow of visitors entering and exiting through lobby.

3 **DISTANCE**
Waiting areas will need more space for physical distancing measures. Provide barriers to minimize transmission. Provide ample space for standing traffic at registration.

4 **SEPARATE**
Patients who suspect they may have an infectious condition are instructed to use separate facilities or designated entrance.

A Registration should be close to behavioral health, triage, and isolation for intake and isolation of patients.

B Isolation room to sequester potentially infectious patients.

C Utilize smoke compartments and cross corridor doors in conjunction with separate air handling units in order to cohort infectious patients and create zones of containment.

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Elevators are challenging to use while maintaining physical distancing measures. Different cab sizes will dictate the appropriate number of occupants. Organizations will be looking to provide a comfortable and safe experience for patients and staff needing elevators in their facilities. Besides the clear need for hand sanitizer stations at the call buttons, some additional approaches to consider are:

1 **LIMIT USE**
   - **Promote stair use** for staff and visitors where possible to reduce elevator traffic. For new planning considerations, locate visible open stairs to promote public use.
   - **Limit occupants** to maintain physical distancing.
   - **Attendants** may be needed to call elevators, reduce touch points and control traffic.

2 **SEPARATE**
   - **Provide visual indicators** in flooring that demark elevator unloading and standing areas
   - **Social norms** for entering and exiting will need to be promoted to give way to those exiting.
   - **Assign up / down elevators** to be temporarily available to move people in and out more effectively.

3 **ENHANCED CONTROLS**
   - **Motion activated call buttons** remove a touchpoint
   - **Use technology** such as your phone as a call button, voice commands and facial recognition.
   - **Consider enacting “Sabbath mode”** every day.
   - **UV lights and air purification.**

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Many facilities do not have separate spaces to receive, break down, and disinfect supplies properly. Hospitals and surgery centers use this type of zoning, which can be scaled appropriately for all facilities as needed during emergent situations.

**1 Safe Material Handling Protocols**
Institute safe material handling protocols. Outside packaging may be removed prior to allowing goods into the facility. Delivery frequency may be reduced to avoid extraneous trips and increased contact at the site. Establish clean-in and dirty-out pathways to avoid cross-contamination.

**2 Temporary Facilities**
Use temporary facilities when space is not available in the building trailers, pods or tent structures for break down and disinfection of goods. Separate process for food handling may require mobile refrigeration.

**3 Staff and Vendor Entry Sequence**
Establish a clear process for vendors and staff to enter the facility. Depending on the risk, some organizations may exclude vendors from the building. For those who allow access, careful screening is likely to occur.

**A** Clear entry for staff and vendors. Doors may require access via a central security station or on-site staff.

**B** Vestibule for staff and vendors.

**C** Testing and triage area adjacent to vestibule for screening and donning required PPE.

**D** Separate goods entry may be provided to avoid vendor access to the larger facility.
PUBLIC RESTROOMS

Public Restrooms are seen as spaces with a high risk of transmitting infection during a pandemic. Visible cleaning policies and hands-free features can put users at ease. Additional planning considerations can further reduce points for infection and may be implemented in new facilities.

1 MAZE ENTRANCES
Maze entrances versus doors to restrooms reduces user touch points.

2 HANDS-FREE DESIGN
Sensor-operated toilets, faucets, and paper towel dispensers. Many organizations avoid sensor-operated toilets and faucets due to higher first cost and maintenance. Hardwire these fixtures to avoid battery replacement concerns and understand that the cost supports infection prevention during normal operation as well.

3 INCREASED CLEANING & MAINTENANCE
- Increased cleaning may be necessary to ensure frequent touch points are sanitized on a regular basis.
- Attendants may be considered in high-traffic restrooms. Attendants can also limit access if the restroom becomes too busy for physical distancing requirements.
- Additional HVAC maintenance and inspection to ensure exhaust fans are working properly to remove air from this high-traffic area.
- Automated cleaning functions.

For more information, contact: Paul Stefanski at 414.291.8198 or visit euacom
Providing Surge Capacity for High Volume Episodes: Inpatient Nursing Unit

Facilities will take different approaches to separating patient populations in a pandemic. Ideally, infectious patients will be treated at an alternate care site or specially designated and dedicated facility. Hospitals with multiple bed units can segregate patient populations on separate floors or wings. Not all facilities will have this capability and may find the need to serve infectious and non-infectious patients within the same bed unit. In this scenario strategies can be employed to separate non-infectious and infectious patients in the same bed unit.

1. **Separate Infectious Patients**
   - Hospital bed units are typically divided into smoke compartments to facilitate defend in place strategies for fire events. This employs a system of smoke tight walls and cross-corridor doors to divide the bed unit. These same tools can be used to prevent the spread of infection from one part of the unit to the other. Use cross-corridor doors and walls to separate patient populations. Create temporary barriers and doors where this is not feasible.

2. **Provide Separate Entrances**
   - Entry onto a bed unit could be by way of an elevator or an on grade entrance. Separate entry points should be established for the two patient populations on unit. If by elevator, utilize a separate elevator to serve the infectious side of the unit. Another elevator should be used for non-infectious patient transport, supplies, visitors, and staff. Elevators with front and back entrances can be used to promote on-stage / off-stage concepts and helps avoid brining patients and supplies through public spaces.

3. **Ventilate**
   - Provide a negative pressure relationship in the infectious side of the unit. Temporary window units can be installed in each room to create isolation rooms or the entire smoke compartment could be converted to a negative pressure nursing unit.

4. **Re-purpose Departments**
   - Before resorting to temporary surge facilities organizations may consider re-purposing lower acuity patient care spaces for increased patient beds. Departments to consider include:
     - Rehabilitation Departments
     - Perioperative Rooms
     - GI Suites
     - Infusion Centers

   These spaces are often equipped with medical gases and emergency power. Re-purposing spaces within the hospital should allow for more efficient use of existing staff, infrastructure and support services.

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Cohort non-infectious patients on one side of the unit or ideally, on a separate floor. If needed, double up patients.

Infectious patients grouped on one half of the inpatient unit. Acuity adaptable rooms will help to more effectively treat these patients.

Elevators in each smoke compartment serve to separate infectious patients from non-infectious patients and staff during a pandemic event.

Ventilate with temporary window units or modify existing infrastructure to create a negative pressure environment.