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Using The Center for Health Design's Safety Risk Assessment (SRA) in Dialysis Units

Washington Patient Safety Coalition

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The Center for Health Design's Safety Risk Assessment

- The Safety Risk Assessment Toolkit (https://www.healthdesign.org/insights-solutions/safety-risk-assessment-toolkit-pdf-version):

  This toolkit helps healthcare design teams proactively identify and mitigate built environment conditions that may impact patient and worker safety in healthcare environments.

  Through extensive review of research, consensus building with industry experts, and pilot testing, the Toolkit was created to support the 2014 FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities.

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Safety Risk Elements

TOOLS: SAFETY RISK ASSESSMENT   HOME PAGE

Home

It may seem overly simple to indicate a list of safety features that can improve safety, but patient safety begins with an awareness of safety features maintained within the facility. Poorly designed and operated healthcare environments contribute to adverse events and subsequent patient harm, such as healthcare associated infections, medication errors and patient falls.

The goal of this tool is to provide guidance to consider the underlying (latent) conditions that can lead to harm. This tool supports the requirement for a safety risk assessment (SRA) found in the 2104 *FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities.*

A large and growing body of evidence indicates that the physical environment impacts patient and staff safety, as well as stress and satisfaction; staff effectiveness; and organizational resource outcomes in hospitals and other healthcare settings. Facility replacement and renovation projects provide an opportunity to identify and mitigate or eliminate built environment latent conditions that lead to active failures impacting patient safety.

There are six components of consideration: infection control, patient handling, medication safety, falls, behavioral health, and security. You may want to get started by looking at some high-level concepts and considerations in the *Safe Design Roadmap*.
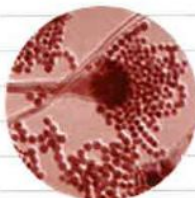
Links to safe design roadmap

Skip the Safe Design Roadmap:
Get Started with Project Information

Take Me to the Safe Design Roadmap

Links to project data

I'm ready to go directly to the risk data and design considerations

Infection Control	Patient Handling	Falls	Medication Safety	Behavioral Health	Security

Links to one of six SRA components

Design Considerations

TOOLS: SAFETY RISK ASSESSMENT   DESIGN CONSIDERATIONS

Your estimated risk, priority, and cost magnitudes

Sources of design considerations

Item #

Explanatory text in comments

CHD: This is the generic priority, as estimated by the expert workgroups. It may change, based on your population

The contamination of linen and
Physical separation (e.g. a sepa
preventing the transfer of patho
other supplies.

Research	Consensus	Opinion	Sor t #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	How is this done? Explanations/Clarifications (How Accomplished, Reasons Against)	Location	Building category	FGI
x			101	Include physical separation/ isolation methods (e.g. separate soiled workroom, supply chain flow separation) in unit layout to prevent contamination of clean supplies and equipment.	Med-High					SEN	Unit Layout	B
x			102	Include physical separation /isolation methods in rooms to prevent cross-transmission between patients (e.g. single room, appropriate physical distance/separation between roommates if multi-bed rooms are used).						GEN	Room Layout	B
x			103	Include adequate number of negative isolation rooms for air-borne infectious patients in patient care areas based on projected number of such pa op						GEN	Unit Layout	B
x			104	Include isolation rooms for high-risk, immuno-compromised patients in the patient care areas based on projected number of such patients during normal and contingent surge operations.	Highest					GEN	Unit Layout	B

CHD: Direct and indirect contact constitute a major route of pathogen transmission between patients (Chang & Nelson, 2000). Reducing the chances of direct/indirect contact between patients through physically separating and isolating patients, especially the provision of single-bed patient rooms, has been associated with significantly lower risks of HAI's and better health outcomes (MacKenzie et al., 2007; McManus, Mason, McManus, & Pruitt, 1992).

Rationale shown as comments to design considerations

Field for explanations

Location, building category filters

Design Considerations

Infection Control Design

Risk Data: Infection Control	Project Data	Safe Design Roadmap

Sort #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	Why should this be considered? (Rationale) (This cell hyperlinks to references)
105	Provide a sufficient number of hand hygiene devices to support convenient use by staff, patients and families. (This consideration is also relevant under the following category: room layout)	Highest				Hand hygiene is considered the single most important method of infection prevention because pathogens are often transferred via the unwashed hands of staff, patients and families. The number of hand hygiene devices is an important factor significantly impacting hand hygiene performance. More sinks, gel dispensers, and other hand hygiene devices likely make it easier for staff, patients and families to gain access to the devices and clean their hands when needed (Kaplan & McGuckin, 1986).
106	Designate a single-patient use bathroom for each patient for the duration of their stay on the unit.	Highest				Shared bathrooms may serve as reservoirs of infectious pathogens discharged from one patient and contribute to the transmission of the pathogens to other patients who use the same bathroom during the same time period. Even in bathrooms less frequently used by patients, pathogens could be brought in through staffs hands or used equipment and supplies. Single-patient bathroom may help reduce cross-contamination and improve environmental cleanliness.
107	Design room layout to allow easy visual and physical access to hand hygiene devices (such as sinks, alcohol hand rub dispensers, etc.).	Highest				Hand hygiene is considered to be the single most important method of infection prevention because pathogens are often transferred via the unwashed hands of staff. Well located hand hygiene devices may make it easy for staff and other individuals to see and use the devices to clean their hands.
108	Position sink location so that splashes from the sinks cannot reach the patient zone or clean supplies.	Med-High				Water splashes from sinks to nearby patient care areas have been found to increase risk of contamination and infection transmission of water-borne pathogens. Research has found that the location and orientation of hand hygiene devices are important factors that impact the possibility of water being splashed from sinks reaching nearby patient care area (Hota et al., 2009).

Infection Control

Action

Install hand wash sinks in convenient and visible locations. Separation of soiled utility and clean supply room.

Impact

Prevent contamination of clean supplies and equipment.
Shorten distance for soiled materials moving through the unit.

CLEAN

CLEAN

SOILED
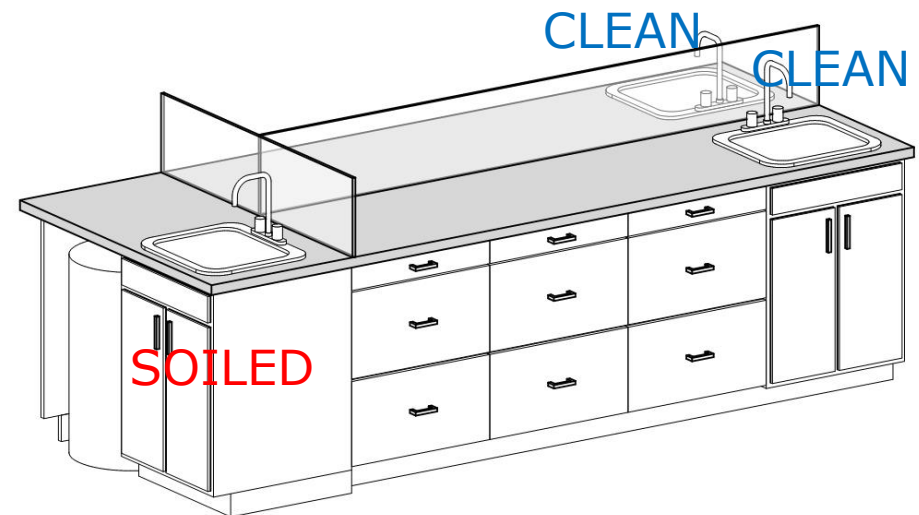
Infection Control

Action

Provide a sufficient number of hand hygiene devices to support convenient use by staff, patients, and families. Supplement hand wash sinks with hand sanitizers' stations

Impact

Single most important method of infection prevention.

Patient Handling Design

Risk Data: Patient Handling	Project Data	Safe Design Roadmap

Sort #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	Why should this be considered? (Rationale) (This cell hyperlinks to references)
407	Designate enough conveniently located storage spaces for patient handling equipment and accessory supplies (e.g., slings, lateral transfer devices, slide boards) in each area where patient handling occurs, including rooms for patient care. (This consideration is also relevant under the following category: unit layout.)	Med-High				Patient handling and movement assistive devices/equipment may take up precious patient care space. They should be stored away when not in use to avoid causing clutter that often result in other safety risks such as falls (see #304).
408	Optimize locations of electrical supply for charging and/or using patient handling equipment so they are easily accessible for the users.	Med-Low				Electrical supply is necessary for charging and using many types of patient handling and movement equipment. Inconvenient, hard-to-reach locations of electrical outlets may impede the use of patient handling and movement equipment.
409	Ensure the safe and easy movement and use of patient handling and mobility equipment (e.g., patient rooms as well as diagnostic / operating / holding area / rehabilitation rooms) when designing the room layout in all areas where patient care is provided.	Highest				Extra spaces may be needed for the safe and efficient maneuver/use of patient handling and movement equipment; the spatial requirements vary significantly across different pieces of equipment (Hignett & Evans, 2006). Various patient handling and movement devices' spatial requirements should be considered in determining the layout of patient care spaces including patient rooms as well as other spaces where patient care activities occur.
410	Design the patient bathroom layout to facilitate safe and effective use of patient handling and movement equipment. (See also falls items 308.)	Highest				Staff members perform many patient handling tasks in bathrooms. Bathrooms typically have tight space and potentially could hinder the use of certain patient handling and movement equipment. Like ADA bathroom design, the use of the patient handling devices should be considered in patient bathroom layout design (Hignett & Evans, 2006).
411	Make patient room and bathroom doors wide and tall enough for the use of patient handling and movement devices. (See also falls items 308.)	Highest				Often, staff needs to move patient through room doors when they use patient handling and movement equipment to support or assist patients (for example, moving a patient on bed/wheelchair/lift). The door clearances should be big enough to allow safe and efficient passage of patient, staff, together with the equipment.

Patient Handling

Action
Designate enough storage space for patient handling equipment and supplies. (wheelchairs, scooters, Arjo lifts, etc.)

Impact
Prevents these mobility aids from becoming barriers and hazards to patients and staff

Patient Handling

Action

Ensure the safe and easy movement and use of patient handling and mobility equipment. Install patient lifts and bariatric beds

Impact

Safe transfer of patient, back safety for our staff, and allows bariatric patients to receive dialysis in an outpatient setting

Falls Prevention Design

	Risk Data: Falls	Project Data	Safe Design Roadmap

Sort #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	Why should this be considered? (Rationale) (This cell hyperlinks to references)
300	Protect entrances from weather (e.g., canopies, walk-off mats).	Med-Low				Canopies can protect entrances from inclement weather, while walk-off mats wide enough to cover the door width and long enough to capture several steps can reduce the tracking of contamination into the building (The Joint Commission, 2012). Umbrella bags can provide temporary measures (The Joint Commission, 2012), but should not become obstructions in the path of travel.
301	Design unit layout to maximize ability for staff to easily see the patient's head in all rooms from work stations or a routine circulation pattern (e.g., no hidden rooms in the corners).	Med-Low				Studies suggest locating higher risk patients closest to the nurse/team station. While this may be seen as operational, the design can support improved visibility and proximity through: 1) The unit shape to provide better sight lines (Amato, Salter, & Mion, 2006; Choi, Noblis, & Georgia Tech, 2011; Vassallo, Azeem, Pirwani, Sharma, & Allen, 2000); 2) The location of common tasks (e.g., charting) (Choi et al., 2011; Gutierrez & Smith, 2008.) 3) visibility of the patient head, including from the corridors with a normal walking pattern (Choi et al., 2011).
302	If direct visibility is not possible through unit layout, consider availability of additional patient monitoring (e.g., video surveillance, alarms). Also see 306. (This consideration is also relevant under the following category: technology integration.)	Med-Low				While layouts should be designed to afford visibility, some interventions included assignments to specially equipped rooms (i.e., video surveillance) (Hardin, Dienemann, Rudisill, & Mills, 2013; Hitcho et al., 2004), but many studies include placement near the nurses' station (Galbraith, Butler, Memon, Dolan, & Harty, 2011; Gutierrez & Smith, 2008; Hathaway, Walsh, Lacey, & Saenger, 2001; Hitcho et al., 2004; Kilpack, Boehm, Smith, & Mudge, 1991; Krauss et al., 2008; Quigley et al., 2009) or monitoring using bed alarms (Barker, Kamar, Morton, & Berlowitz, 2009; Carroll, Pappola, & McNicoll, 2009; Gurascio-Howard & Malloch, 2007; Kolin, Minnier, Hale, Martin, & Thompson, 2010; Krauss et al., 2008; McKinley et al., 2007; Morton, 1989; Spetz, Jacobs, & Hatler, 2007) .

Falls

Action

Protect entrances from the weather by installing canopies over the patients' entrance.

Impact

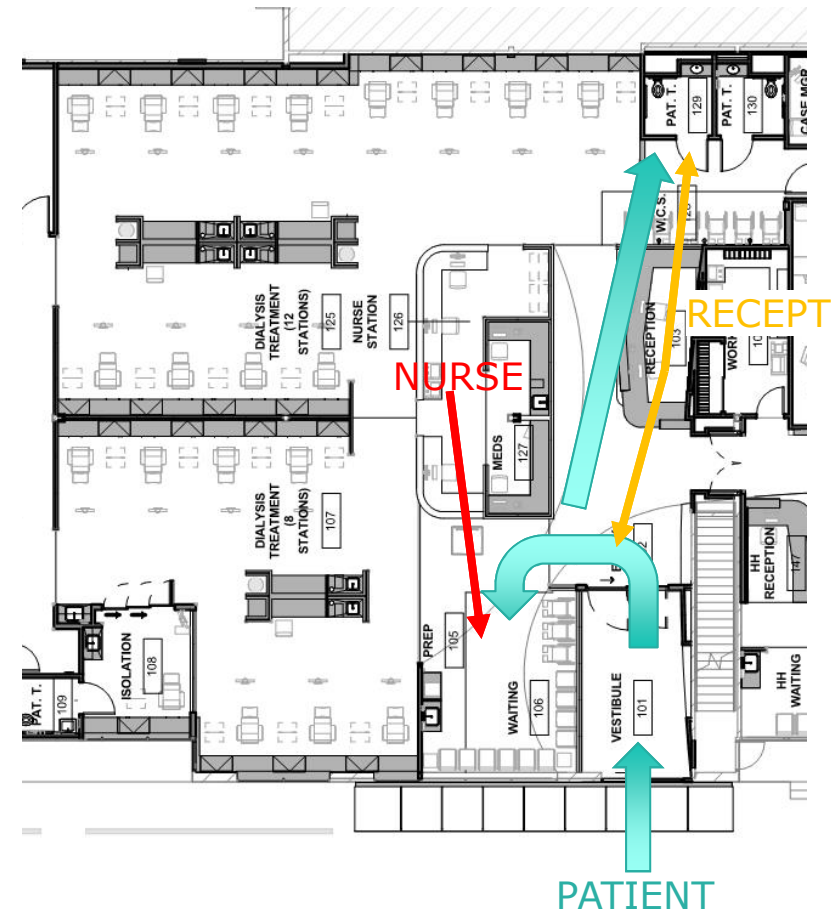Reduces the chance of falls due to slippery surfaces

Falls

Action

Layout the center such that all patients are visible to the clinical staff.

Impact

Allows staff to anticipate, observe and assist in order to avoid falls

Falls

Action

Incorporate scale into the patients' path. Align scale's surface with floor.

Impact

Prevents potential falls due to transfer to an elevated scale.

Falls

Action

Layout the center such that all patients are visible to the clinical staff.

Impact

Allows staff to anticipate, observe and assist in order to avoid falls

Falls

Action
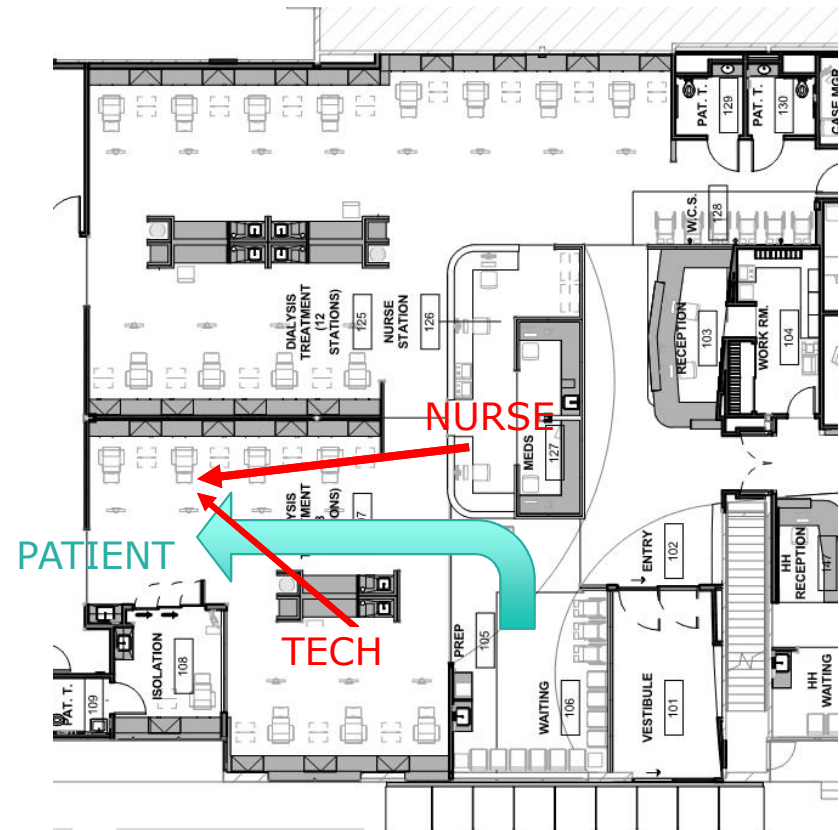
Layout the center such that all patients are visible to the clinical staff.

Impact

Allows staff to anticipate, observe and assist in order to avoid falls
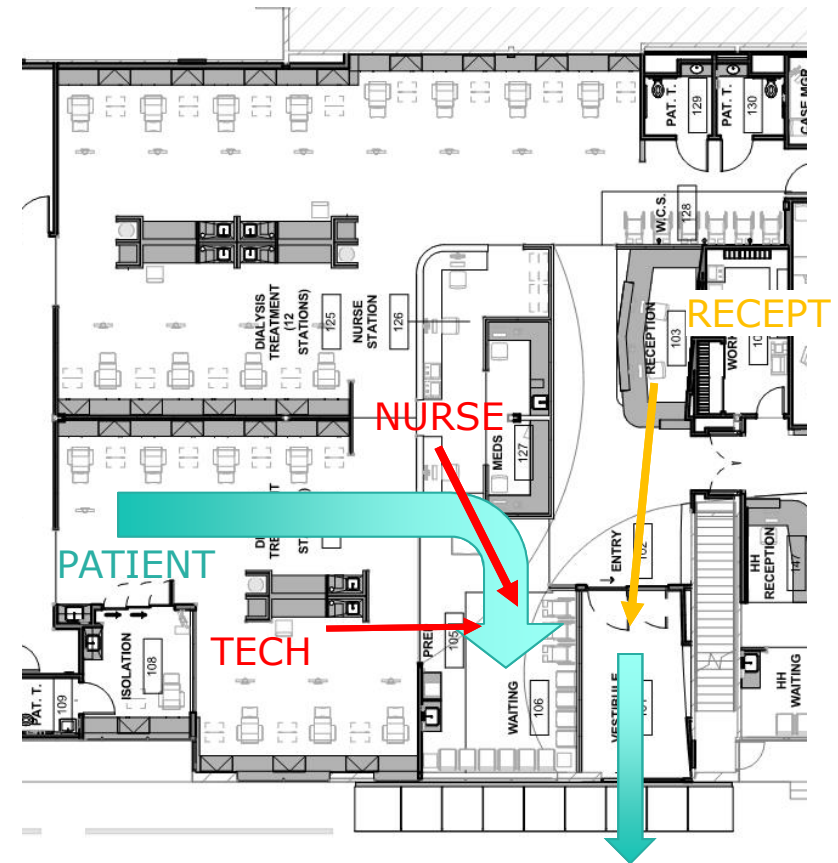
Medication Safety Design

	Risk Data: Medication Safety	Project Data	Safe Design Roadmap

Sort #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	Why should this be considered? (Rationale) (This cell hyperlinks to references)
200	Clearly identify the purpose, associated work tasks and workflow in the functional and operational program for each medication safety zone in order to design ergonomic and efficient workspaces. (This consideration is also relevant under the following category: room layout.)	Med-Low				Refer to the functional and operational program provided for the project to understand the work tasks and workflows that are anticipated for the space (Grissinger, 2012; United States Pharmacopeia (USP), 2010). It is important that the design enables the fulfillment of the defined tasks in the most efficient manner possible. This is linked to increased efficiency and reduced fatigue, which can have an impact on errors. Empirical evidence on specific strategies to improve efficiency is lacking.
201	Locate the medication safety zones out of circulation paths to minimize distraction and interruption. (This consideration is also relevant under the following category: room layout.)	Med-High				There is high probability of interruptions occurring when medication preparation activities take place near or in a circulation zone (such as a corridor). Medication safety zones should be located away from areas with heavy staff, patient or family activity. Research supports that sensory/perceptual interference (e.g., interruption by a co-worker) can impair error-free performance due to the cognitive load of switching tasks (i.e. time to reorient to the task after being interrupted) or prospective memory failure (i.e. forgetting where you left off). Being interrupted can result in both procedural failures (e.g., failure to read labels, check patient ID or record administration on medication chart) and clinical errors (e.g., wrong drug, dose, formulation, strength) (Chaudhury, Mahmood, & Valente, 2009; E. A. Flynn et al., 1999; L. Flynn, Liang, Dickson, Xie, & Suh, 2012; Mahmood, Chaudhury, & Valente, 2011).
202	Limit traffic through the medication safety zone. (This consideration is also relevant under the following category: room layout)	Med-High				When medication safety zones are located in spaces where other activities also take place (such as a clean utilities room), the additional traffic in the room can increase the potential of distractions and interruptions. Research supports that sensory/perceptual interference (e.g., interruption by a co-worker) can impair error-free performance due to the cognitive load of switching tasks (i.e. time to reorient to the task after being interrupted) or prospective memory failure (i.e. forgetting where you left off). Being interrupted can result in both procedural failures (e.g., failure to read labels, check patient ID or record administration on medication chart) and clinical errors (e.g., wrong drug, dose, formulation, strength) (Grissinger, 2012; United States Pharmacopeia (USP), 2010).

Medication Safety

Action

Locate the medication station to minimize distraction and interruption while maximizing the RN's ability to maintain visual contact of patients and dialysis technicians

Impact

Limits the potential disruption to the nurse preparing medications, thus reducing the chance for medication errors.

Medication Safety

Action

Pilot new "mobile" sharps container so it is visible and accessible to the staff

Impact

Limits the opportunity for needle stick and blood borne pathogen exposure.

Behavioral Health Design

Risk Data: Injury - Behavioral Health		Project Data	Safe Design Roadmap

Sort #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	Why should this be considered? (Rationale) (This cell hyperlinks to references)
516	Design layout to eliminate blind spots and areas where staff can become isolated and overcome; where the layout cannot be changed, reduce the hazards by other means (e.g., corner mirrors or cameras).	Highest				Studies suggest staff and others can be subject to harm in areas that lack visibility. Where the layout precludes visibility, convex mirrors at the junction of the wall and ceiling can eliminate blind spots (Dobrohotoff & Llewellyn-Jones, 2011; J. Hunt & Sine, 2014; Peek-Asa et al., 2009).
517	Design layout to maximize visibility and accessibility to all patient-occupied areas, including treatment spaces (e.g., exam rooms).	Highest				While operational procedures for patient observation may vary, expert opinion suggests that at-risk patients be placed closest to the nursing/team station or near staffing travel patterns to provide greater visibility (J. Hunt & Sine, 2009; Lieberman et al., 2004; McPhaul et al., 2008; Peek-Asa et al., 2009, p. -; Stewart, Ross, Watson, James, & Bowers, 2012; Yeager et al., 2005). Physical layout (corners or other structural blocks) is cited as a barrier to adequate patient observation (J. Hunt & Sine, 2009; P. D. Mills et al., 2012; Stewart et al., 2012). As at-risk patients may be difficult to identify, visibility and accessibility to all patient areas is a primary consideration.
518	Provide nurse stations/team care areas with open access to communication while being safe for staff.	Med-High				Expert opinion suggests that nurse stations (team areas) should be designed to afford the least possible barrier between staff and patients. However, staff safety needs to be addressed through the counter design to reduce risk of patient jumping or climbing and offering staff work spaces that are separated from duties of patient care (Andes & Shattell, 2006; J. Hunt & Sine, 2014; Karlin & Zeiss, 2006; Riggs, Due, & Connellan, 2013). Some organizations have moved to a decentralized model that promotes increased circulation of staff (Yeager et al., 2005)
519	Provide separate secure rooms for patient at risk for suicide or harm to self and others in the ED (e.g., psychiatric, criminal).	Highest				Root cause analysis has revealed that inadequate holding areas was a contributing factor to suicide and self-harm in the ED (P. D. Mills et al., 2012).
520	Provide visual access for staff to all areas of secure holding (including cameras or mirrors for blind spots) to mitigate self-harm and detect elopement.	Med-Low				Due to the required level of monitoring, visibility is a priority in secure holding (e.g., ED)/seclusion room location and design (C. Curran, 2005; J. Hunt & Sine, 2014; P. D. Mills et al., 2012). Windows and/or camera surveillance may be required.

Behavioral Health

Action

Provide a private room for patients needing calm environment while maintaining visibility to staff

Impact

Calms the environment for other patients. Allows staff to deal with a patient's behavioral issues in private
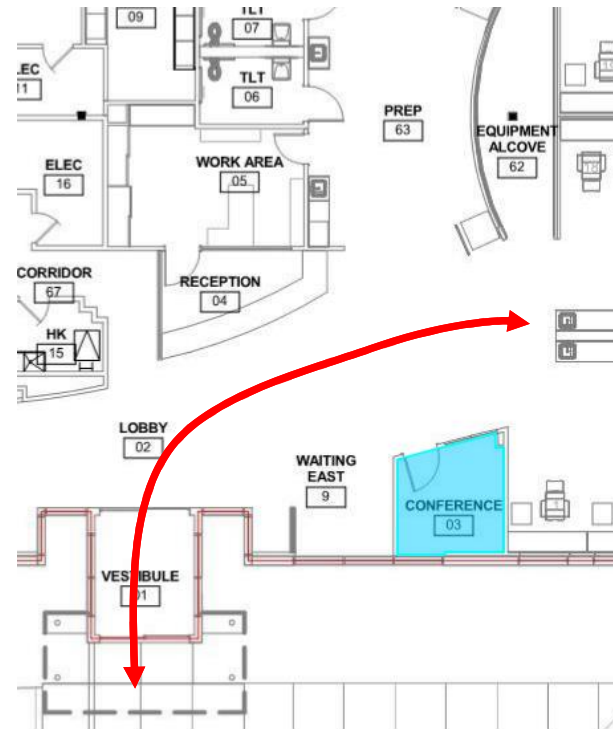
Behavioral Health

Action

Provide a private but visible consultation room for patients, family members, and staff to meet.

Impact

Maximize visibility and accessibility at the same time maintaining patient confidentiality.

Security Design

	Risk Data: Security		Project Data			Safe Design Roadmap

Sort #	What is being discussed? (Design Consideration)	Generic Risk Estimate	Your Risk Estimate	Your Priority	Cost Magnitude	Why should this be considered? (Rationale) (This cell hyperlinks to references)
607	Limit and control points of entry into the site (vehicular and pedestrian).	Med-Low	▶ Select	▶ Select	▶ Select	The first level of protection of the healthcare facility is at the perimeter of the site itself (IAHSS, 2012). Securing the perimeter with controlled entry points can reduce security related risks to patients, staff and family within the facility.
608	Provide adequate and unobstructed lighting to enable surveillance of the grounds surrounding a healthcare facility. (This consideration is also related to the category: lighting.)	Highest	▶ Select	▶ Select	▶ Select	Sufficient lighting is a key component of the surveillance of the site, grounds, and parking lots/structures for the protection of a facility building perimeter. This can help mitigate risks, as well as prompt action on any breaches identified.
609	Avoid/eliminate places of potential concealment/habitation in the landscape and maximize visibility (unobstructed sightlines).	Highest	▶ Select	▶ Select	▶ Select	Places of potential concealment/habitation in the areas surrounding a healthcare building may impede visual surveillance and contribute to heightened risk of security breaches. Minimizing the existence of these types of places may help protect a building's perimeter by enhancing the surveillance of the surrounding site, grounds, and parking structures.
610	Design parking facilities according to specific security considerations including: limiting and controlling entries/exits; protective lighting; physical protective barriers; and video surveillance.	Med-Low	▶ Select	▶ Select	▶ Select	Surface parking lots and multilevel parking structures can be both scary and dangerous. Control of vehicular access and pedestrian egress, protective barriers, and lighting, are key effective measures used in practice in creating a secure parking facility, both physically and psychologically. In addition, adequate surveillance of the site, grounds, and parking structures can help mitigate risks, as well as prompt immediate action on any breaches identified.
611	Position attendant booth, parking offices or security stations (if used) where attendants/officers can directly monitor activity in the parking area.	Med-Low	▶ Select	▶ Select	▶ Select	To protect the building at its perimeter, adequate direct visual surveillance of the site, grounds, and parking structures is needed. This can help mitigate risks, as well as prompt action on any breaches identified.
612	Maximize visibility and line of sight into areas of the parking lot.	Med-High	▶ Select	▶ Select	▶ Select	To protect the building at its perimeter, adequate surveillance of the site, grounds, and parking structures is needed (including non-technological means). Direct line of sight from staff to parking areas may help mitigate risks, as well as prompt action on any breaches identified.

Security

Action

Secure outdoor perimeter of center. Allow only for staff supervised/enabled entry using access control systems.

Impact

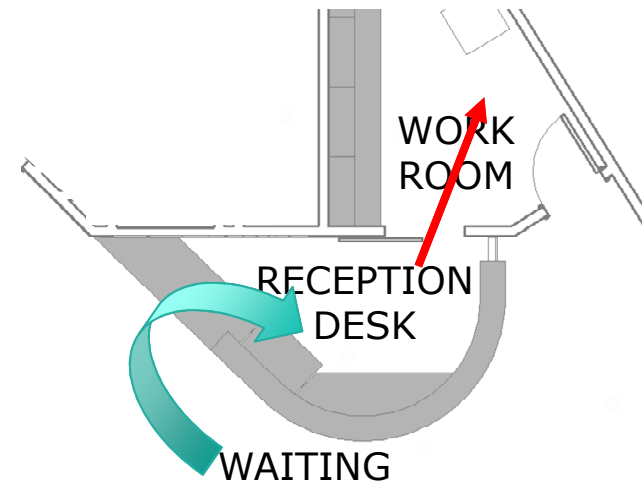Limit danger from intruders, either from bodily harm or theft

Security

Action

Plan for staff designated safe space and for an escape route when threatened.

Impact

Segregate back of house areas with card access. Study layout of confined spaces (e.g. private rooms)

WORK ROOM

RECEPTION DESK

WAITING

Safety Risk Assessment Elements

1. Infection Control
2. Patient Handling
3. Falls
4. Medication Safety
5. Behavioral Health
6. Security

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Questions?

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