

Common Mistakes in Designing Psychiatric Hospitals

An Update

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A Note from the Authors

This paper was originally published in the American Institute of Architects Academy of Architecture for Health's *Online Journal* in 2009. Because of the large number of requests for copies and the fact that five years have passed, we planned to perform a minor edit of the paper to bring it into agreement with current trends. We were surprised to find how much our thinking has changed over this period and decided that a complete restructuring and significant changes were needed.

The opinions in this article are those of the authors and are not intended to represent the position of the U.S. Department of Veterans Affairs.

About the Facility Guidelines Institute

The Facility Guidelines Institute is a not-for-profit corporation founded in 1998 to provide leadership and continuity to the revision process for the *Guidelines for Design and Construction of Health Care Facilities*. FGI now functions as the coordinating entity for development of a *Guidelines* series of documents using a multidisciplinary, consensus-based process and for provision of ancillary services that encourage and improve their application and use. FGI invests revenue from sales of the *Guidelines* documents to fund the activities of the next revision cycle as well as research that can inform the Guidelines development process.

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Contents

| | |
|--|----|
| Provision of a Therapeutic Environment | 2 |
| Patient and Staff Safety Concerns | 4 |
| Programming | 8 |
| General Layout for a Psychiatric Unit | 8 |
| Varying Levels of Precautions | 10 |
| Solutions | 18 |
| References | 19 |
| About the Authors | 20 |



Common Mistakes in Designing Psychiatric Hospitals

A successful design for a psychiatric hospital requires careful coordination of a multitude of factors; there is no one-size-fits-all solution. The final design will be unique to the individual facility and its stated goals and philosophies. In particular, many elements typically used in general hospitals to address the specific needs of patients and staff are needlessly carried over into behavioral health facilities, even though the functions they are intended to address are not present or needed in psychiatric units.

Some organizations state they have a very low tolerance for risk and want the safest possible environment for their patients. Other organizations, desiring a more home-like ambience, require upgraded finishes that appeal to a different aesthetic. These two approaches can lead to very different design solutions. Most hospitals fall somewhere between the two extremes.

Other basic differences between organizations that can affect their design goals are their funding source (public or private) and organizational structure (not-for-profit or for-profit). Other variables that influence key components of the final design are patients' average length of stay, diagnoses, acuity, age, and co-existing medical conditions and whether they are voluntary admissions or committed by the court.

Suicide prevention and other patient and staff safety issues in psychiatric treatment units present a unique set of issues for the designer. In the six years since this paper was first published, we have continued to visit newly constructed facilities that have serious design mistakes that must be corrected before patients can be admitted.

Unique in our experience was a request from one of these visits from the hospital's insurance company. We found it interesting that the insurance company recognized there were problems with this facility although the design architects were confident their design was safe. Other facilities have spent substantial amounts of money remodeling existing units with changes that not only did not resolve patient and staff safety issues, but in some cases actually made the units less safe.

Provision of a Therapeutic Environment

A therapeutic environment can be defined as a patient care environment that helps make patients more receptive to the treatment provided by staff. Some who provide services to psychiatric patients feel the built environment where these patients receive services should resemble a “typical residential” atmosphere. Unfortunately, patients from different backgrounds may have entirely different views of what constitutes a home-like setting. A more realistic goal, then, should be to create a non-threatening environment in which patients can feel relaxed and comfortable. To achieve this, architects must work closely with hospital staff, patient groups, interior designers, and psychiatric hospital consultants and refer to the *Guidelines for Design and Construction of Hospitals and Outpatient Facilities* (Facility Guidelines Institute 2014) to find the right mix of elements that will create this atmosphere. The mix will likely be different for each hospital and sometimes units within a facility may have different requirements, although for safety reasons each individual unit should have uniform features.

As previously stated, many elements and items typically provided in general hospitals to address the needs of patients and staff are carried over into behavioral health facilities even though those functions are not needed for the services provided in psychiatric units and may, in fact, be contrary to safe design.

For example, lighting with 2'x4' fluorescent fixtures, commonly used in general hospitals, does not provide a residential feel and replacing such fixtures with round or oval vandal-resistant fixtures

or vandal-resistant wall sconces can simultaneously improve safety and make a big difference in the character of a facility. As well, paddle-style door hardware, which is intended to help staff open doors with their hands full, is rarely seen outside of hospitals and is generally not necessary in behavioral health facilities. The *Design Guide for the Built Environment of Behavioral Health Facilities* (Hunt/Sine 2015), co-authored by us, contains references to several types of light fixtures and door hardware that offer a higher level of safety for both patients and staff in behavioral health facilities.

These are but two examples of many general hospital elements that are not desirable for use in typical behavioral health units. Providing them unnecessarily reinforces the institutional character of such facilities, may needlessly increase cost, and may actually lessen safety in the built environment. Other general hospital elements, such as medical gas outlets, bedpan washers, nurse call systems, light fixtures located directly over the bed to enable staff to perform medical procedures, and wrist handles on faucet valves, are simply not needed in a psychiatric unit.

At the very least, when designing behavioral health units, attention should be paid to the following principles:

- Use of color, texture, and natural materials such as transparent wood finishes can provide a more residential feel.
- Lighting must limit patient access to the bulbs, and thus to their glass and electrical contacts. Table lamps are very difficult to do well and should generally be avoided.
- Soft, upholstered furniture with wood accents that is constructed to withstand severe abuse can be anchored in place to avoid stacking or throwing.
- Bathrooms must be designed with safety in mind, and compromises in these rooms can have disastrous results.

The typical code issues of lighted exit signs, fire sprinklers, fire extinguishers, and so on must be provided, even though they may contribute to a facility's institutional appearance.

Patient and Staff Safety Concerns

In the *Design Guide*, we state that “no built environment—no matter how well designed and constructed—can be relied on as an absolute preventive measure. Staff awareness of their environment, the latent risks of that environment, and the behavioral characteristics and needs of the patients served in that environment is an absolute necessity.” Preventing a patient who has made up his or her mind to commit suicide from succeeding may require the use of constant physical or chemical restraints, and that is not treatment. Providing these patients with treatment and the opportunity to improve involves taking risks. The facility staff and the design team must determine what degree of risk is acceptable and appropriate for a particular facility and patient population.

Many standard protocols for behavioral health facilities rely heavily on patient scores on a suicide risk assessment tool. The staff may use this score to assign a patient to a room located near the nurse station or to put a patient on “suicide precautions” such as 15-minute checks or one-on-one observation. However, dependence on these assessment tools has two problems:

1. Numerous studies have concluded that the suicide risk assessment tools currently available are not reliable. (Haney 2012, Tishler and Reiss 2009, Milone 2001, Simon 2006a, Simon 2006b)
2. Measures typically used to mitigate the risk of self-harm, such as 15-minute checks and moving “suicidal” patients into specially equipped rooms near the nurse station, have not been proven effective in preventing suicides. The Joint Commission has documented that the average number of inpatient suicides reported to them as sentinel events over the 10-year period 2004 to 2013 (Joint Commission 2014) was 77.5 per year. The numbers for 2012 and 2013 were 85 and 90, respectively. Clearly, this problem has not been solved and suicide frequency is again on the rise.

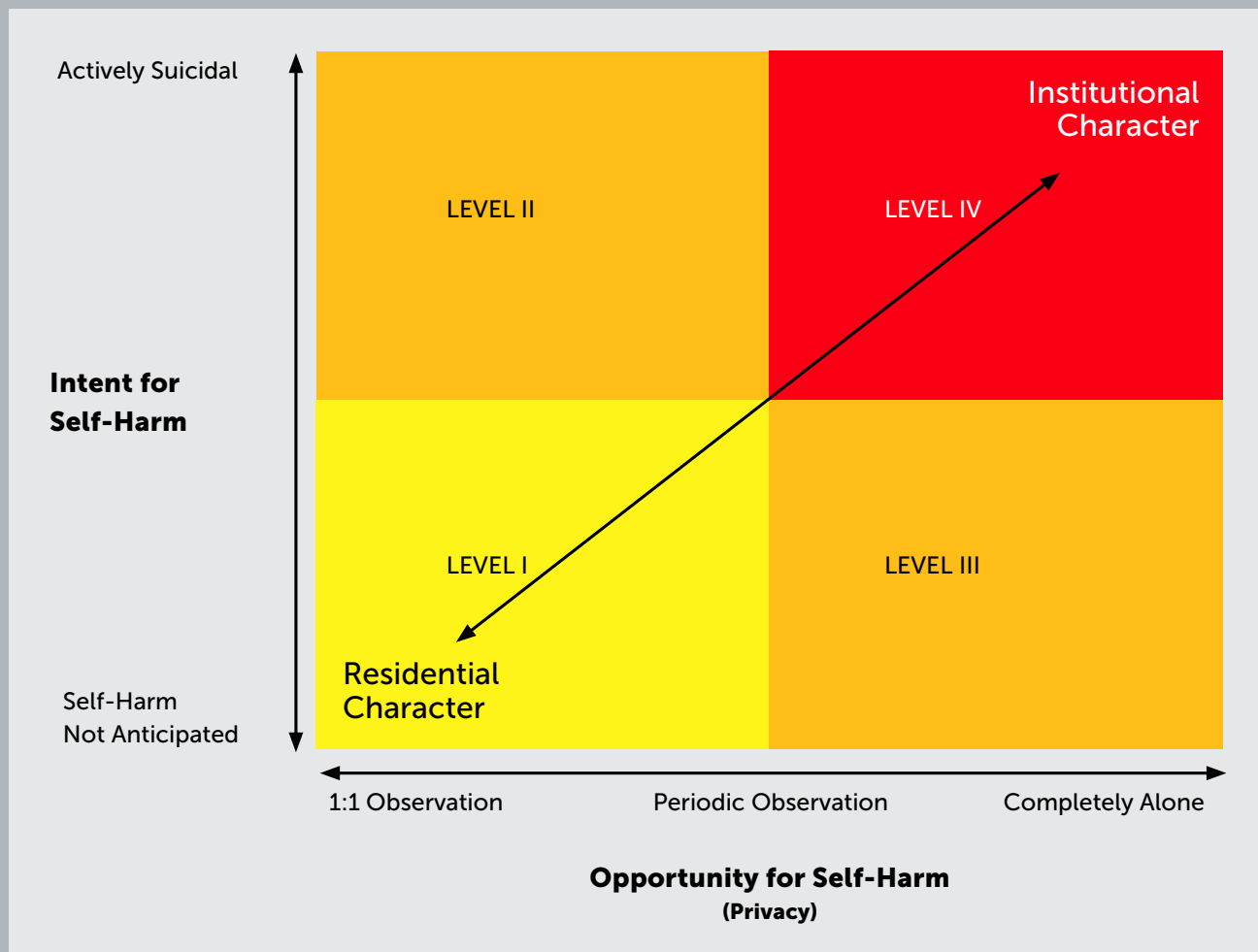
Once staff and the design team have determined the overall level of risk tolerance for a psychiatric hospital or nursing unit, the next step is to assess the acceptable level of risk for each patient-accessible area. The level of risk from the built environment that is acceptable in a group room where staff members are always present is different from that in a room where patients will be alone for long periods, such as bedrooms or bathrooms.

The 2014 edition of the FGI *Guidelines* requires performance of a safety risk assessment (SRA) for all new construction and major renovation projects. One aspect of the SRA is identification of areas that will serve patients “at risk of mental health injury and suicide.” For these at-risk locations, the SRA team must identify “mitigating features” and include them in the SRA report. This requirement appears in Section 1.2–3.6, Behavioral and Mental Health (Psychiatric Patient Injury and Suicide Prevention), which also specifies that “behavioral and mental health patient care settings . . . shall be designed to protect the privacy, dignity, and health of patients and address the potential risks related to patient elopement and harm to self, to others, and to the environment. The design of behavioral/mental health patient areas shall accommodate the need for clinical and security resources.”

The appendix to Section 1.2–3.6 discusses the “behavioral and mental health risk assessment,” but because this text appears in the appendix it is presented as a recommended practice rather than a requirement. Reference is made to the *Design Guide* for further information about risk assessments.

The conversation between clinical staff and designers about patient safety can be facilitated by using a patient safety risk assessment matrix that considers the opportunity for a patient to be alone in a particular space (of any type) on one axis and the level of risk of self-harm by the patient on the other axis. The greater the opportunity for a patient to be alone, the greater the opportunity for self-harm and the more caution that should be taken regarding design choices and materials. Because patient intent for self-harm is often opaque and difficult to assess, it is preferable to weight decisions toward the high end of the scale.

Hunt/Sine: Patient Safety Risk Assessment Matrix



Level I: Areas where patients are not allowed or are under constant supervision, such as staff and service areas

Level II: Areas where patients are highly supervised and not left alone for long periods, such as corridors, counseling rooms, activity rooms, and interview rooms

Level III: Areas where patients may spend time with minimal supervision, such as lounges and day rooms.

Level IV: Areas where patients spend a great deal of time alone with minimal or no supervision, such as patient rooms (semi-private and private) and patient toilets

This risk matrix is informed by Veterans Health Administration longitudinal studies of locations frequently used for acts of self-harm by inpatients and Joint Commission data as well as Richard Prouty's seminal works on risk maps. Rather than seeking agreement on what is meant by a particular room name, designers and clinicians who use the matrix may seek instead to agree on the actual or anticipated degree of aloneness or privacy a patient will experience in a room or space, whatever it is called. That agreement will drive design choices for the room or space.

The risk assessment matrix is intended to facilitate conversation regarding patient safety and design between operators, clinicians, and designers, and its use can help build consensus about the patient population a space is designed for and what risks apply to patients in that space. However, the tool should not be used to predict risk levels in a particular facility, which will change over time. Neither should the design of this matrix be interpreted to mean that patient privacy is a risk to be avoided. On the contrary, privacy is generally considered desirable in behavioral health facilities. Nonetheless, privacy does have a risk associated with it that should be considered and mitigated through good design when possible.

The character of the therapeutic environment can range from more “residential” for locations where the perceived intent of self-harm is low and observation is high to progressively more institutional as both intent for self-harm and opportunity to be alone increases (and the upper right corner of the diagram, Level IV, is approached).

As discussed previously, accurately assessing the level of “intent for self-harm” may prove difficult. Therefore, cautious use of the “self-harm not anticipated” lower end of the vertical axis in the matrix is advised. Many psychiatric patients are very intelligent and creative. Those with suicidal ideations spend a great deal of time thinking about ways to commit suicide and can devise some very unexpected methods. Many have had multiple hospitalizations and become very good at hiding their true thoughts from staff. Also, some types of patients, such as those who are bipolar, may actually become very relaxed and happy once they have made the decision to commit suicide and have figured out exactly how and when to carry out the

act. Therefore, the prudent approach is to assume that it is not a question of *if* a facility will have a patient attempt suicide, but *when*.

Programming

As with all projects, a successful design begins with a comprehensive functional program. Typical information obtained from the client includes the number of beds, number of offices, and so on. In addition, we highly recommend careful consideration of the requirements in the FGI *Guidelines*. The *Guidelines* has been formally adopted by many jurisdictions and, in our opinion, is the established standard of care for the design of health care facilities. It is not uncommon to encounter resistance from clients who do not want to provide seclusion rooms that meet the *Guidelines* requirements or do not want to allow for as much activity space as required. However, compliance with the parameters outlined in this document may provide a lower level of legal exposure for the institution and the designer if the design should ever need to be defended in a court of law. Therefore, we recommend that the size of the patient rooms, ratio of activity areas per patient, number and design of seclusion rooms, location and number of patient toilets and bathing facilities, and other features be provided as prescribed in the FGI *Guidelines*. If the client insists on varying from these standards, these deviations and the reasons for them should be clearly documented and concurrence sought from the appropriate authority having jurisdiction.

General Layout for a Psychiatric Unit

Possibly the most important design feature of a psychiatric hospital or unit is maximizing visual observation of patients from the nurse station. If this is not addressed early in the schematic design phase, it will likely never be attainable. However, it is not unusual to find that more elements than are practical are desired to be adjacent to the nurse station and even the most comprehensive remodeling project may have difficulty addressing these desires. Compromises will have to be made, and the reasons for the decisions should be well documented.

Another consideration for design of the nurse station is that some patients like to gather around it. For this reason, providing some space near the nurse station for quiet activities such as table games or comfortable seating for reading can be a good idea. When this common operational issue is not planned for, makeshift adjustments will be improvised once the facility is in use and these usually end up obstructing corridors or inhibiting staff movement.

The number of patients per room is another major issue. The 2014 edition of the FGI *Guidelines* calls for a maximum of two patients per room in adult facilities. Despite a great deal of discussion about the possible advantages of single-patient rooms, no standard requires single rooms and no conclusive evidence indicates they provide either clinical or safety advantages for behavioral health patients. The National Association of Psychiatric Health Systems polled its members regarding this issue and found a considerable amount of support for providing at least a few double rooms for certain patients who may benefit from this arrangement. Deciding whether to provide single or double rooms for a project should be carefully weighed with the client.

The 2010 edition of the FGI *Guidelines* called for one patient toilet room per patient room located directly accessible to the patient room without the need to enter the corridor. Some facilities are not comfortable with this requirement and prefer the staff to be able to observe when patients enter the toilet rooms. The 2014 FGI *Guidelines* permits such an arrangement under certain conditions.

In addition, care must be taken to avoid conflict during operation between an in-swinging patient room/corridor door and an out-swinging patient toilet room door. This conflict was observed in a newly constructed 300-bed state hospital and is very difficult to remedy after construction. A little care and awareness on the part of the designers could have prevented the staff of this facility from having to deal with this problem for the useful life of the building.

The 2014 FGI *Guidelines* recommends that patient room doors swing out into the corridor to reduce the ability of patients to barricade themselves in their rooms by blocking an inward-swinging door.

However, using this door swing direction often requires provision of fire code-required recesses or alcoves in the corridor, which create observation difficulties.

Corridor doors also may be required to be fire-rated and/or equipped with smoke seals and closers depending on the codes applied in a particular jurisdiction. (More about how to address issues with corridor door hardware and barricading can be found in the *Design Guide for the Built Environment of Behavioral Health Facilities*.)

Varying Levels of Precautions

In applying the requirements of the FGI *Guidelines*, it is important to remember that the same level of concern for safety precautions is not required for all parts of a unit. The four levels of patient safety concern identified in the patient risk assessment matrix each have their own unique design restrictions, as described below. In addition, a fifth level of precautions is discussed that does not appear on the matrix because the risks are unknown.

Please note: The precautions for each level include all of the precautions for the previous levels as well.

Level I: Staff-Only or Direct Supervision. These are areas where patients are not allowed or are under constant supervision, such as staff and service areas and the nurse station or patient laundry room. Standard commercial finishes, light fixtures, air grilles, and so on are usually acceptable for use in these locations.

Level II: High Observation. Patients in these areas (e.g., corridors, counseling rooms, activity rooms, and interview rooms) are highly supervised and left alone for only very short periods.

Corridors within direct line of sight of the nurse station that do not have alcoves or blind spots often have accessible ceilings and standard light fixtures. However, it should be recognized that staff may not always be present at nurse stations, especially on third or evening shifts, when patient-to-staff ratios are usually high.

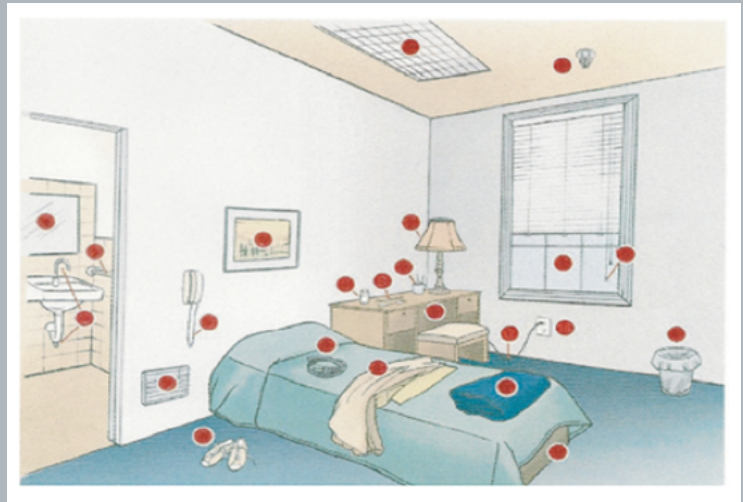
This level of precaution may be suitable for activity rooms used only with staff present, such as activity therapy rooms and group rooms. However, patients have been known to work together to distract staff to one area so other patients can access hazardous items in areas that are normally under observation.

Level III: Periodic Observation. These are areas (e.g., lounges and day rooms) where patients may spend time with minimal supervision.

Television viewing rooms and other informal, non-structured activity spaces may require fewer precautions than Level IV spaces. However, the decision to apply Level III precautions to such spaces should be carefully discussed with facility staff and any potentially hazardous features that are included should be clearly identified and documented.

Light fixtures in spaces with Level III precautions should have substantial lenses securely anchored in place and frames secured with tamper-resistant screws. Accessible ceilings should not be used, and all fire sprinkler heads are to be as vandal-resistant as possible. Window treatments should not include curtains, drapes, or vertical blinds of any type. Mini-blinds behind security glazing without any exposed cords, chains, or wands are recommended.

Common Hazards in a Behavioral Health Patient Room



The Pennsylvania Patient Safety Authority developed this illustration to show some of the patient safety issues most commonly reported to the agency in 2007. An interactive version is available at http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/behavioral_health/Documents/pt_room.swf. (Pennsylvania Patient Safety Authority 2007)

Access to all mechanical units should be secured by locks or tamper-resistant fasteners. Air grilles should have perforated faces with openings no larger than $\frac{3}{16}$ " in diameter in any patient-accessible area needing Level III precautions.

All cabinet doors and drawers should be locked at all times and have flush pulls and recessed hinges. If the cabinets contain articles for patient use, the doors should be removed and the shelves securely anchored in place (non-adjustable). Furniture should be very sturdy and made to withstand severe abuse and, if possible, anchored in place. Table lamps should not be provided, and care should be taken with mounting of pictures or artwork.

Level IV: Minimal Observation. Areas where patients spend a great deal of time alone with minimal or no supervision, such as patient rooms (semi-private and private) and patient toilets, require Level IV precautions.

In areas with minimal observation, architectural details and finishes must be used that can minimize the risk of suicide. For example, the tight fit required for corridor doors makes it possible to close the door on an article placed over it (e.g., a sheet with a knot in the end) to create a hanging device or ligature. Devices are available that will sense such activity and activate an alarm.

Door hinges may also provide attachment points for ligatures. The three butt hinges with non-rising pins and rounded "hospital tips" often used in general hospitals provide the opportunity for patients to tie something around an individual hinge while the door is open. Continuous geared hinges with tapered tops are preferred, as they cannot be used in this way.

The doorknob or door lever also may provide an attachment point. Use of standard knobs, levers, paddle-type devices, and typical pulls is strongly discouraged in psychiatric facilities. Several devices are available that attempt to address the potential hanging issues associated with these devices.

Keeping the doors of vacant patient rooms locked at all times is strongly recommended. Use of locks with a “classroom” function is preferable to help prevent a patient from being inadvertently locked in a room. If deadbolts are used, they should have a ligature-resistant turn piece on the inside that will retract the bolt but not extend it so patients cannot lock themselves in a room.

Windows and window coverings also require special consideration. In the past, very heavy stainless steel screens were often installed as a safety measure. Although still used in some facilities, these screens provide a very institutional or prison-like appearance. As well, patients have been known to use toothpaste or feces to write obscene words in the wire mesh.

A variety of window glazing materials that cannot be easily broken to produce sharp shards of glass and, if broken, will stay in the frame to resist egress are appropriate for use in psychiatric facilities. Tempered glass breaks into very small pieces that do not stay in the frame; laminated glass will stay in the frame but yields shards. Polycarbonate sheets satisfy both of these requirements (provided the stops are deep enough to account for the amount of deflection in large pieces), but may require frequent replacement if graffiti is scratched onto its surface. New hurricane- and bomb-resistant glazing materials and films that can be applied to increase shatter resistance are more suitable.

Patient room furniture should be anchored securely, with the possible exception of a desk chair (if provided). This is to reduce the possibility of patients using furniture to barricade themselves in a room or stacking or piling the furniture for other purposes. Patients have been known to throw furniture or use it to strike staff. Electric hospital beds present extreme hazards and have been used in successful suicides.

Cabinet doors can provide convenient hanging hazards, and many drawers can be removed or broken to yield sharp objects that can be used as weapons. For these reasons, the 2014 edition of the

FGI *Guidelines* requires use of shelves for folded garments for patient storage rather than “arrangements for hanging garments” in new construction and major renovations. We recommend that all cabinet doors and drawers be removed from existing patient rooms as well. In addition, all shelves should be securely anchored in place.

Patient toilets are the location of many acts of self-harm because patients are alone in them without supervision and the rooms typically have many potentially hazardous features. It is important that patient toilet room doors swing out of the room to reduce the opportunity for patients to barricade themselves in these rooms and to allow staff access in the event a patient passes out while in the toilet room. Toilet room doors themselves can present numerous hazards. Several suitable products are available to use instead of standard doors. Some facilities are considering the option of leaving doors off the toilet room in single-patient rooms with no direct line of sight into the toilet room from the corridor when the corridor door is open.

Towel bars are a good example of the contradictory issues architects must address. If the bars can be easily removed, patients can use them as weapons to harm themselves or others. However, if the bars are securely anchored, they present a hanging risk. For these reasons, the FGI *Guidelines* forbid the use of towel bars. Use of towel hooks or robe hooks that collapse under weight is recommended instead.

Grab bars are not as easily avoided as they must be provided in at least a percentage of the patient toilets to comply with ADA and other requirements. As well, it is recommended that all patient toilets have at least one ligature-resistant grab bar to assist patients who are on medications that disturb their sense of equilibrium.

The most common solution to open grab bars as a hanging hazard has been to install a bar with a stainless steel plate welded to the bottom to close the opening between the bar and the wall. However, this arrangement creates an undesirable side effect where the plate meets the bottom of the bar where water can collect and create an infection control problem. Other grab bar choices are suggested in the *Design Guide*.

Patients have been known to “hang” themselves from objects as close to the floor as 18 inches, and one study found that 50 percent of non-judicial hangings were from heights below the waist of the victim (Frampton and Charmel 2008). In fact, patients can commit suicide by attaching a strip of torn bed sheet to a loop imbedded in the floor or under a door. At this point the danger is no longer hanging or strangulation but anoxia, which is a condition where something is tied tightly enough around the patient’s neck to cut off blood flow to the brain. The patient has to position his or her body so that tension will remain on the ligature after loss of consciousness. After 4.5 to 5 minutes, anoxia can result in either death or irreparable brain damage. Water supply pipes under lavatories, sink P-traps, flush valves for toilets, faucets, and even the lavatories themselves are potential attachment points for ligatures and should be protected. Other known problem areas are glass mirrors, shelves, soap dispensers, paper towel dispensers, and toilet paper holders.

Possible solutions vary depending on whether a project involves new construction, remodeling, or both. As usual, solutions for new construction are the easiest because most plumbing can be concealed in the wall and other items can be recessed to mitigate problems. A number of products have been developed specifically to assist with remodeling projects. One example is a cover with a sloped top for existing flush valves and related piping. Provision of a pushbutton-activated valve is preferable. Covers are available for the pipes under wall-mounted lavatory fixtures. These should be trimmed to fit tightly to the bottom of the fixture to avoid opportunities for patients to hide contraband such as razor blades, drugs, or other items. All mirrors should be of tempered glass with security film and be equipped with stainless steel, tamper-resistant frames; distortion should be minimal.

Hard plastic paper towel dispensers and soap dispensers can be fairly easily removed from the wall and broken to yield very sharp pieces of plastic that can be used as weapons. One manufacturer of commonly used hard plastic soap dispensers now has a lockable steel cover that fits over the standard dispenser to reduce the level of risk to these patients. Toilet paper dispensers can be hanging hazards, and springs from spring-loaded tubes that hold the paper can be removed or

smashed and made into sharp objects. One solution is a stainless steel tube that is recessed into the wall to hold the entire roll. Some facilities object to this as an infection control issue because everyone using the roll has to handle it. Another option is a steel product that completely contains the roll of paper.

The lavatory faucet and valves also provide attachment points. Wall-hung lavatories are losing favor because of their institutional appearance and because they provide little space for patients to set their toiletries. Solid-surface countertops with integral sinks are much more functional and residential in nature. Pipes below the countertop can be enclosed with a rather typical looking vanity cabinet (with recessed pulls and securely locked doors) or ADA profile cabinets where required. Several ligature-resistant faucet sets are on the market. Ligature-resistant valves that will give patients control of the duration of flow and temperature of the water (within limits) are preferable as these give behavioral health patients, who have so much control taken away from them, some control of their environment. In our opinion, no paper towel dispensers currently available are appropriate for use in patient areas. Shelves, either recessed or ligature-resistant surface-mounted units, can be provided to hold a few towels. Some object to this suggestion, saying patients will use the towels to clog the toilets. However, if they are so inclined, they can simply remove a quantity of paper towels from a typical dispenser, which also provides other hazards.

Patient showers and bathtubs are of major concern. In our opinion, patients should only use bathtubs while under direct supervision of staff. The obvious hazard of potential drowning plus the added risks from valves and fill spout are problematic. Patients can use showers if careful attention is given to all aspects of the design of the room, including the following:

- Institutional-type showerheads have been around for a number of years and work reasonably well in this environment.
- A variety of water control valves provide ligature resistance as well as control of water temperature and duration of flow.

Some of these valves are also usable in ADA showers. For remodeling work, assemblies that have stainless steel panels with the head and valve already mounted are available.

- Soap dishes should be recessed and not have grab handles.
- Grab bars, if present, should be as discussed above.
- If possible, shower stalls should be designed so a shower curtain is not needed. Use of shower curtains is highly discouraged since they simultaneously provide an attachment point and a ligature in the form of the curtain. If they must be used, an aluminum track mounted flush to the ceiling with an absolute minimum of breakaway fasteners could be provided. However, our experience is that the curtain can be bunched up so the holding weight of all the fasteners can be added together (anoxia does not require that the person's entire body weight be supported). The shower curtains themselves should always be made of a breathable material such as woven fabric with applied waterproofing.
- As elsewhere, lighting fixtures in patient toilets and showers should be a security type with fully enclosed frames, lenses of polycarbonate or similar material, and security fasteners.
- Air grilles and fire sprinkler heads should be provided as discussed above.

Level V: Special Considerations. Areas where staff interact with newly admitted patients who present unknown risks or where patients may be in a highly agitated condition create unique issues that fall outside the ranges described in Levels I through IV and require special considerations for the safety of both patients and staff. Such areas include seclusion rooms, examination rooms, and admission rooms. Seclusion rooms are clearly defined in the FGI *Guidelines* and will not be elaborated on further here.

In admissions screening rooms or intake assessment areas, staff encounter patients who are unknown to them and who may become agitated and violent when they realize they will be admitted. These rooms should have a minimum of furniture and everything possible should be securely anchored in place. Computers, telephones, and cords and cables should be kept as far from the patients as possible.

Careful attention should be given to the furniture arrangement and the location of the door. Seating for staff should always be closer to the door than the patients' chairs. Although somewhat counter-intuitive, this arrangement is very important so that staff always have an escape route in case a patient becomes violent. Duress alarms are also highly desirable in these rooms.

Examination/treatment rooms contain multiple potentially hazardous items that are essential to the function of the room and thus cannot be removed. Therefore, it is strongly advised that two staff members always be present when a patient is in these rooms.

Solutions

Psychiatric inpatient facilities present a unique set of challenges, and the solutions to designing safe facilities are often completely different from what is typically done for medical/surgical units in a general hospital. Decisions about design for psychiatric facilities should be thoroughly discussed with facility staff beginning during the programming phase and continuing at decision points throughout a project. As well, the decisions made should be documented, including the reasons behind them, before proceeding to subsequent phases of a project.

Space does not allow detailed discussion of solutions to all of the problems mentioned in this paper and, in any case, answers are often very specific to a particular facility. In addition, a product that is perfectly acceptable for one patient population may not be acceptable for another. One source for assistance with these issues is the *Design Guide for the Built Environment of Behavioral Health Facilities*, which is now available on the Facility Guidelines Institute website at www.fgiguide.org/beyond.

References

- Combs, H., and S. Romm (2007). "Psychiatric Inpatient Suicide: A Literature Review." *Primary Psychiatry* (December 1, 2007). Available from: <http://primarypsychiatry.com/psychiatric-inpatient-suicide-a-literature-review>.
- Facility Guidelines Institute (2014). *Guidelines for Design and Construction of Hospitals and Outpatient Facilities*, 2014 edition. American Society for Healthcare Engineering.
- Frampton, S., and P. Charmel (2008). *Putting Patients First: Best Practices in Patient-Centered Care*. Jossey-Bass.
- Gunnell, D., et al (2005). "The epidemiology and prevention of suicide by hanging: a systematic review." *International Journal of Epidemiology* 34(2):433–42. Available from: <http://ije.oxfordjournals.org/content/34/2/433.full>.
- Haney, E., M. O'Neil et al. (2012). "Suicide Risk Factors and Risk Assessment Tools: A Systematic Review." Evidence-Based Synthesis Program (ESP) Center, Portland VA Medical Center, Department of Veterans Affairs (March 2012). Available from: www.hsrd.research.va.gov/publications/esp/suicide-risk.cfm.
- Hunt, J., and D. Sine (2015). *Design Guide for the Built Environment of Behavioral Health Facilities*, Edition 7.0. Facility Guidelines Institute. Available from: www.fgiguide.org/beyond.
- The Joint Commission (2014). "Summary Data of Sentinel Events Reviewed by The Joint Commission" as of 3/25/14. Available from: www.jointcommission.org/assets/1/18/2004_to_2Q_2013_SE_Stats_-_Summary.pdf.
- Milone, R. (2001). "Involuntary Hospitalizations" in D. Wahl, ed., *Ethics Primer of the American Psychiatric Association*. American Psychiatric Association.
- Pennsylvania Patient Safety Authority (2007). "Behavioral Health Patient Room: Common Hazards." Pennsylvania Patient Safety Reporting System. Adapted from "Diligence and Design in Behavioral Health Impact Patient Safety," PA-PSRS Patient Safety Advisory, Vol. 4, No. 3. Available from: http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/behavioral_health/Documents/pt_room.pdf.
- Simon, R. (2006a). "Imminent Suicide: The Illusion of Short-Term Prediction." *Suicide and Life Threatening Behavior* 36(3):296–301.
- Simon, R. (2006b). "Suicide Risk Assessment: Is Clinical Experience Enough?" *Journal of the American Academy of Psychiatry and the Law* 34(3):276–278. Available from: <http://www.jaapl.org/content/34/3/276.full>.
- Tishler, C., and N. Reiss (2009). "Inpatient Suicide: preventing a common sentinel event." *General Hospital Psychiatry* 31(2):103–9.

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