TOOLS

Therapeutic ED Treatment Room Annotation

Design Elements, Related Outcomes, and Design Strategies

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Layout-Within Room	Minimize stigma	Deinstitutionalized environment that provides a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as		Lenaghan et al., 2018; Lundin, 2021
	Minimize patient stress/anxiety	Deinstitutionalized environment that provides a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as		Lenaghan et al., 2018; Lundin, 2021
		Private rooms, based on patient acuity and model of care		Degl' Innocenti et al., 2020; Shepley & Pasha, 2013; Ulrich et al., 2012
		Well organized, orderly environment		Shepley et al., 2016; Shepley & Pasha, 2013
		Provide access to private ensuite patient bathroom		Liddicoat, 2019b; Sheehan et al., 2013; Shepley et al., 2016
		Consider bathroom door design and location to allow for adequate privacy while still allowing the staff members to make partial observations depending on patient acuity		Bayramzadeh, 2016
	Patient comfort	Deinstitutionalized environment that provides a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as		Lenaghan et al., 2018; Lundin, 2021
		Well organized, orderly environment		Shepley et al., 2016; Shepley & Pasha, 2013
		Provide access to private ensuite patient bathroom		Liddicoat, 2019b; Sheehan et al., 2013; Shepley et al., 2016
		Consider bathroom door design and location to allow for adequate privacy while still allowing the staff members to make partial observations depending on patient acuity		Bayramzadeh, 2016
	Patient sense of control/ independence	Well organized, orderly environment		Shepley et al., 2016; Shepley & Pasha, 2013
		Provide access to private ensuite patient bathroom		Liddicoat, 2019b; Sheehan et al., 2013; Shepley et al., 2016
		Consider bathroom door design and location to allow for adequate privacy while still allowing the staff members to make partial observations depending on patient acuity		Bayramzadeh, 2016
	Improved patient engagement	Deinstitutionalized environment that provides a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as		Lenaghan et al., 2018; Lundin, 2021
		Adequate space to accommodate telehealth/telepsychiatry		Lambert et al., 2020

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Layout-Within Room	Patient satisfaction	Provide access to private ensuite patient bathroom		Liddicoat, 2019b; Sheehan et al., 2013; Shepley et al., 2016
		Consider bathroom door design and location to allow for adequate privacy while still allowing the staff members to make partial observations depending on patient acuity		Bayramzadeh, 2016
	Reduced noise	Private rooms, based on patient acuity and model of care		Degl' Innocenti et al., 2020; Shepley & Pasha, 2013; Ulrich et al., 2012
	Enhanced privacy	Private rooms, based on patient acuity and model of care		Degl' Innocenti et al., 2020; Shepley & Pasha, 2013; Ulrich et al., 2012
		Provide access to private ensuite patient bathroom		Liddicoat, 2019b; Sheehan et al., 2013; Shepley et al., 2016
		Consider bathroom door design and location to allow for adequate privacy while still allowing the staff members to make partial observations depending on patient acuity		Bayramzadeh, 2016
	Enhanced communication; staff to staff	Adequate space to accommodate telehealth/telepsychiatry		Lambert et al., 2020
	Safe delivery of care	Adequate space to accommodate telehealth/telepsychiatry		Lambert et al., 2020
	Safety; reduce risk of harm to self or harm to others	Deinstitutionalized environment that provides a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as		Lenaghan et al., 2018; Lundin, 2021
		Adequate space for team response when required to manage aggressive patient	S	The Center for Health Design, 2019
		Room should be ligature-resistant or made ligature resistant by closing off equipment that could serve as a ligature point (e.g., lockable unbreakable glass cover, locking moveable partition, lockable sliding door/panel, pull-down rolling security door/coiling shutter)		BETA Healthcare Group & Emergency Medicine Council, 2018; The Joint Commission, 2017
		Design for surveillance and visibility that is not reliant on technology		BETA Healthcare Group & Emergency Medicine Council, 2018; Mills et al., 2010 as cited in The Center for Health Design, 2019; Peek-Asa et al., 2009 as cited in The Center for Health Design, 2019
		Direct sight lines from sitter, security and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Avoid concealed corners that are not visible from doorway		
		Provide access to private ensuite patient bathroom		Liddicoat, 2019b; Sheehan et al., 2013; Shepley et al., 2016
		Consider bathroom door design and location to allow for adequate privacy while still allowing the staff members to make partial observations depending on patient acuity		Bayramzadeh, 2016

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Layout-Within Room	Enhanced security	Adequate space for team response when required to manage aggressive patient	S	The Center for Health Design, 2019
		Room should be ligature-resistant or made ligature resistant by closing off equipment that could serve as a ligature point (e.g., lockable unbreakable glass cover, locking moveable partition, lockable sliding door/panel, pull-down rolling security door/coiling shutter)		BETA Healthcare Group & Emergency Medicine Council, 2018; The Joint Commission, 2017
		Design for surveillance and visibility that is not reliant on technology		BETA Healthcare Group & Emergency Medicine Council, 2018; Mills et al., 2010 as cited in The Center for Health Design, 2019; Peek-Asa et al., 2009 as cited in The Center for Health Design, 2019
		Direct sight lines from sitter, security and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Avoid concealed corners that are not visible from doorway		
	Reduce use of restraints	Deinstitutionalized environment that provides a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as		Lenaghan et al., 2018; Lundin, 2021
	Psychosocial support	Adequate space to accommodate telehealth/telepsychiatry		Lambert et al., 2020
Layout-Room Location	Minimize patient stress/anxiety	When possible, locate room on exterior to allow for exterior windows and provide natural daylight		
	Patient satisfaction	When possible, locate room on exterior to allow for exterior windows and provide natural daylight		
	Improved sleep quality	When possible, locate room on exterior to allow for exterior windows and provide natural daylight		
	Enhanced communication/ interaction with care provider	Room located to allow for direct sight lines from sitter, security, and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow nurse station to face the room entry without having to turn chair to see door		
	Enhanced communication; staff to staff	Room located to allow for direct sight lines from sitter, security, and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow nurse station to face the room entry without having to turn chair to see door		

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Layout-Room Location	Safe delivery of care	Room located to allow for direct sight lines from sitter, security, and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow nurse station to face the room entry without having to turn chair to see door		
	Safety; fall/injury prevention	Room located to allow for direct sight lines from sitter, security, and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow nurse station to face the room entry without having to turn chair to see door		
	Safety; reduce risk of harm to self or harm to others	Location of Treatment Room should limit access to uncontrolled exits	S	Mills et al., 2012 as cited in The Center for Health Design, 2019
		Design for surveillance and visibility that is not reliant on technology		BETA Healthcare Group & Emergency Medicine Council, 2018; Mills et al., 2010 as cited in The Center for Health Design, 2019; Peek-Asa et al., 2009 as cited in The Center for Health Design, 2019
		Direct sight lines from sitter, security and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow for direct sight lines from sitter, security, and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow nurse station to face the room entry without having to turn chair to see door		
	Enhanced security	Location of Treatment Room should limit access to uncontrolled exits	S	Mills et al., 2012 as cited in The Center for Health Design, 2019
		Design for surveillance and visibility that is not reliant on technology		BETA Healthcare Group & Emergency Medicine Council, 2018; Mills et al., 2010 as cited in The Center for Health Design, 2019; Peek-Asa et al., 2009 as cited in The Center for Health Design, 2019
		Direct sight lines from sitter, security and nursing staff to Treatment oom door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow for direct sight lines from sitter, security, and nursing staff to Treatment Room door and observation window		Fay et al., 2016; Lenaghan et al., 2018
		Room located to allow nurse station to face the room entry without having to turn chair to see door		
	Caregiver health/ support/respite	When possible, locate room on exterior to allow for exterior windows and provide natural daylight		

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Flooring	Minimize stigma	Durable flooring that is easy to clean and maintain non-institutional quality aesthetic		Shepley & Pasha, 2013
	Patient satisfaction	Durable flooring that is easy to clean and maintain non-institutional quality aesthetic		Shepley & Pasha, 2013
	Safety; reduce risk of harm to self and harm to others	Secured floor finishes (e.g., sheet vinyl, meeting class A rating) to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Seamless epoxy or sheet vinyl flooring with an integral (coved preferred) wall bases (metal or plastic strips along the top of the integral base should not be applied at the top edge)		
	Safety; infection prevention	Durable flooring that is easy to clean and maintain non-institutional quality aesthetic		Shepley & Pasha, 2013
	Safety; reduce risk of falls	Avoid intricate high contrast patterns and color combinations that may appear to animate or create other visual misperceptions		
	Enhanced durability	Durable flooring that is easy to clean and maintain non-institutional quality aesthetic		Shepley & Pasha, 2013
	Enhanced cleanability	Secured floor finishes (e.g., sheet vinyl, meeting class A rating) to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Seamless epoxy or sheet vinyl flooring with an integral (coved preferred) wall bases (metal or plastic strips along the top of the integral base should not be applied at the top edge)		
Walls	Minimize stigma	Signage including positive words such as 'Therapeutic' or 'Wellbeing' instead of words that carry stigma such as 'Mental Health' or 'Psych-safe'		BETA Healthcare Group & Emergency Medicine Council, 2018; Liddicoat, 2019a
		Painted finish		
		Design minimizing cues suggestive of danger		Connellan et al., 2013; The Center for Health Design, 2019
		Avoid "institutional" colors (i.e. "institutional green")		The Center for Health Design, 2019
		Subtle use of color in lieu of all-white walls		
	Minimize patient stress/anxiety	Signage including positive words such as 'Therapeutic' or 'Wellbeing' instead of words that carry stigma such as 'Mental Health' or 'Psych-safe'		BETA Healthcare Group & Emergency Medicine Council, 2018; Liddicoat, 2019a
		Design minimizing cues suggestive of danger		Connellan et al., 2013; The Center for Health Design, 2019
		Avoid "institutional" colors (i.e. "institutional green")		The Center for Health Design, 2019
		Subtle use of color in lieu of all-white walls		
		Sound-absorbing soft surface material (e.g. sound-deadening gypsum board)		Liddicoat, 2019b
		Nature in art and/or prints		Frumkin, 2001; Liddicoat, 2019a, 2019b
		Incorporate nature images/artwork into full wall/panels		

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Walls	Minimize patient stress/anxiety	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
		Sound-absorbing soft surface material (e.g. sound-deadening gypsum board)		Liddicoat, 2019b
	Patient comfort	Painted finish		
		Design minimizing cues suggestive of danger		Connellan et al., 2013; The Center for Health Design, 2019
		Avoid “institutional” colors (i.e. “institutional green”)		The Center for Health Design, 2019
		Subtle use of color in lieu of all-white walls		
	Improved patient engagement	Signage including positive words such as ‘Therapeutic’ or ‘Wellbeing’ instead of words that carry stigma such as ‘Mental Health’ or 'Psych-safe'		BETA Healthcare Group & Emergency Medicine Council, 2018; Liddicoat, 2019a
		Appropriate background for telehealth/ telepsychiatry (i.e., solid, neutral color to enhance visibility of patient)		Krupinski, 2014; Lambert et al., 2020
		Ligature resistant patient communication board that can be easily cleaned (e.g., integrated white board panel or wall finish painted with durable chalkboard paint/whiteboard paint)		
		Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Improved family engagement in patient care	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Patient satisfaction	Nature in art and/or prints		Frumkin, 2001; Liddicoat, 2019a, 2019b
		Incorporate nature images/artwork into full wall/panels		
	Reduced noise	Sound-absorbing soft surface material (e.g. sound-deadening gypsum board)		Liddicoat, 2019b
	Enhanced privacy	Sound-absorbing soft surface material (e.g. sound-deadening gypsum board)		Liddicoat, 2019b
	Enhanced communication/ interaction with care provider	Sound-absorbing soft surface material (e.g. sound-deadening gypsum board)		Liddicoat, 2019b
		Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Enhanced communication; staff to staff	Appropriate background for telehealth/ telepsychiatry (i.e., solid, neutral color to enhance visibility of patient)		Krupinski, 2014; Lambert et al., 2020
		Ligature resistant patient communication board that can be easily cleaned (e.g., integrated white		

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
		board panel or wall finish painted with durable chalkboard paint/whiteboard paint)		
Walls	Enhanced security	Finishes, molding, and other interior details are secured to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Abrasion-resistant and impact-resistant material (e.g., gypsum board hung on 20-guage or heavier metal studs spaced no more than 16 inches on center or double panels for drywall)		
		Communication system or panic (duress) alarm that is readily accessible	S	BETA Healthcare Group & Emergency Medicine Council, 2018; The Center for Health Design, 2019
		Video surveillance or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots	S	Mills et al., 2018 as cited in The Center for Health Design, 2019
	Efficient delivery of care	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Safe delivery of care	Appropriate background for telehealth/telepsychiatry (i.e., solid, neutral color to enhance visibility of patient)		Krupinski, 2014; Lambert et al., 2020
	Safety; reduce risk of harm to self or harm to others	Materials that are unbreakable, non-toxic (e.g., paint), free of flame retardance, and cannot be used to cause suffocation	S	The Center for Health Design, 2019
		Avoid objects and fixtures which might be used as weapons	S	Watts et al., 2012
		Maximum wall length of 12 feet		Facility Guidelines Institute, 2018
		Finishes, molding, and other interior details are secured to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Abrasion-resistant and impact-resistant material (e.g., gypsum board hung on 20-guage or heavier metal studs spaced no more than 16 inches on center or double panels for drywall)		
		Communication system or panic (duress) alarm that is readily accessible	S	BETA Healthcare Group & Emergency Medicine Council, 2018; The Center for Health Design, 2019
		Video surveillance or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots	S	Mills et al., 2018 as cited in The Center for Health Design, 2019
		Clock faces covered with non-breakable material and sloped frame, using tamper-resistant screws to hang high and out of reach	S	BETA Healthcare Group & Emergency Medicine Council, 2018
	Safety; medication safety	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Walls	Enhanced durability	Painted finish		
		Finishes, molding, and other interior details are secured to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Abrasion-resistant and impact-resistant material (e.g., gypsum board hung on 20-guage or heavier metal studs spaced no more than 16 inches on center or double panels for drywall)		
	Psychosocial support	Appropriate background for telehealth/ telepsychiatry (i.e., solid, neutral color to enhance visibility of patient)		Krupinski, 2014; Lambert et al., 2020
	Change-readiness/ universal design	Co-morbid headwall with medical gasses designed to be ligature resistant or locked behind panel		
Ceiling	Minimize patient stress/anxiety	High performance sound-absorbing gypsum wallboard (GWB) or use clip down ceiling tiles		Liddicoat, 2019b
	Reduced noise	High performance sound-absorbing gypsum wallboard (GWB) or use clip down ceiling tiles		Liddicoat, 2019b
	Enhanced privacy	High performance sound-absorbing gypsum wallboard (GWB) or use clip down ceiling tiles		Liddicoat, 2019b
	Enhanced communication/ interaction with care provider	High performance sound-absorbing gypsum wallboard (GWB) or use clip down ceiling tiles		Liddicoat, 2019b
	Enhanced communication; staff to staff	Visually unobtrusive video monitoring or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots		Mills et al., 2018 as cited in The Center for Health Design, 2019
		Video monitoring should be enclosed in tamper-resistant housing and include audio capability		Eklund & Hansson, 2001
	Safety; reduce risk of harm to self or harm to others	Avoid objects and fixtures which might be used as weapons	S	Watts et al., 2012
		Materials that are unbreakable, non-toxic (e.g., paint), free of flame retardance, and cannot be used to cause suffocation	S	The Center for Health Design, 2019
		Ligature resistant fire sprinklers	S	Liddicoat, 2019b
		No exposed pipes, sprinkler heads, light fixtures, vents, or ducts	S	Liddicoat, 2019b
		Minimum ceiling height of 9’-0”	S	Dobrohotoff & Llewellyn-Jones, 2011; Facilities Guidelines Institute, 2018
		Monolithic ceiling surface with key-lockable access panels that fit tightly to frames to restrict ceiling space access	S	The Center for Health Design, 2019
		Avoid privacy curtains and tracks	S	VA National Center for Patient Safety, 2016
		Finishes and other interior details are secured to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Visually unobtrusive video monitoring or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots		Mills et al., 2018 as cited in The Center for Health Design, 2019
		Video monitoring should be enclosed in tamper-resistant housing and include audio capability		Eklund & Hansson, 2001

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Ceiling	Enhanced security	Finishes and other interior details are secured to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
		Visually unobtrusive video monitoring or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots		Mills et al., 2018 as cited in The Center for Health Design, 2019
		Video monitoring should be enclosed in tamper-resistant housing and include audio capability		Eklund & Hansson, 2001
	Enhanced durability	Finishes and other interior details are secured to limit spaces where contraband items can be hidden		The Center for Health Design, 2019
Windows	Minimize stigma	Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		
		If exterior windows are included, provide visual privacy (e.g., high transom windows and/or solid, cordless window treatments or glazing without any strings or chains, or integral shades between glass panes)		BETA Healthcare Group & Emergency Medicine Council, 2018
	Minimize patient stress/anxiety	Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		
		If exterior windows are included, provide visual privacy (e.g., high transom windows and/or solid, cordless window treatments or glazing without any strings or chains, or integral shades between glass panes)		BETA Healthcare Group & Emergency Medicine Council, 2018
		When possible, locate room on exterior to allow for exterior windows		
		Maximize use of daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		When possible, view to nature/natural landscapes (e.g., patient courtyard)		Frumkin, 2001; Liddicoat, 2019a; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
	Patient comfort	Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		
		If exterior windows are included, provide visual privacy (e.g., high transom windows and/or solid, cordless window treatments or glazing without any strings or chains, or integral shades between glass panes)		BETA Healthcare Group & Emergency Medicine Council, 2018
	Improved sleep quality	When possible, view to nature/natural landscapes (e.g., patient courtyard)		Frumkin, 2001; Liddicoat, 2019a; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
	Patient satisfaction	When possible, locate room on exterior to allow for exterior windows		
		Maximize use of daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		When possible, view to nature/natural landscapes (e.g., patient courtyard)		Frumkin, 2001; Liddicoat, 2019a; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Windows	Enhanced privacy	If exterior windows are included, provide visual privacy (e.g., high transom windows and/or solid, cordless window treatments or glazing without any strings or chains, or integral shades between glass panes)		BETA Healthcare Group & Emergency Medicine Council, 2018
	Safety; reduce risk of harm to self or harm to others	Observation panel or window to allow continuous visual contact with the patient if located a sitter is located outside the room.	S	
		Solid, cordless window treatments or glazing without any strings or chains, or shades between glass panes	S	BETA Healthcare Group & Emergency Medicine Council, 2018
		Avoid objects and fixtures which might be used as weapons	S	Watts et al., 2012
		If operable windows are used, select ligature resistant windows that open 4" max		McMurray et al., 2020
		A vision panel in the door to see allow sight lines from corridor/nurse station to the patient lounger/recliner/bed		AEC News, 2017; The Center for Health Design, 2019
	Enhanced security	Observation panel or window to allow continuous visual contact with the patient if located a sitter is located outside the room.	S	
		Solid, cordless window treatments or glazing without any strings or chains, or shades between glass panes	S	BETA Healthcare Group & Emergency Medicine Council, 2018
		Avoid objects and fixtures which might be used as weapons	S	Watts et al., 2012
		If operable windows are used, select ligature resistant windows that open 4" max		McMurray et al., 2020
		A vision panel in the door to see allow sight lines from corridor/nurse station to the patient lounger/recliner/bed		AEC News, 2017; The Center for Health Design, 2019
		Polycarbonate or laminated unbreakable (safety) glass	S	Liddicoat, 2019b
	Enhanced durability	Polycarbonate or laminated unbreakable (safety) glass	S	Liddicoat, 2019b
	Caregiver health/ support/respite	When possible, locate room on exterior to allow for exterior windows		
		Maximize use of daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		When possible, view to nature/natural landscapes (e.g., patient courtyard)		Frumkin, 2001; Liddicoat, 2019a; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
Doors	Minimize stigma	Design minimizes cues suggestive of danger		Connellan et al., 2013 as cited in The Center for Health Design, 2019
	Minimize patient stress/anxiety	Design minimizes cues suggestive of danger		Connellan et al., 2013 as cited in The Center for Health Design, 2019
	Patient comfort	Design minimizes cues suggestive of danger		Connellan et al., 2013 as cited in The Center for Health Design, 2019

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Doors	Accessibility; ease of use	Ligature resistant door handles that do not allow patient to barricade the room		BETA Healthcare Group & Emergency Medicine Council, 2018; Liddicoat, 2019b
	Enhanced auditory privacy	Solid material (phenolic or similar) door to reduce noise		
	Enhanced communication/ interaction with care provider	Direct sight lines from security and nursing staff to Treatment Room door		Fay et al., 2016; Lenaghan et al., 2018
		Unbreakable glass window pane in door		
	Safe delivery of care	Direct sight lines from security and nursing staff to Treatment Room door		Fay et al., 2016; Lenaghan et al., 2018
		Unbreakable glass window pane in door		
	Safety; reduce risk of harm to self or harm to others	Ligature resistant door hinges, e.g., continuous hinge (e.g., geared or barrel type) with hospital tip (by manufacturer and not applied after hinge is installed), extending from the top of the door to the bottom in an unbroken manner	S	Liddicoat, 2019b; Lipscomb et al., 2006 as cited in The Center for Health Design, 2019
		Ligature resistant sliding doors or hinged doors that open in both directions or only to outside (or alternative anti-barricade strategies)	S	Liddicoat, 2019b
		No doors with hold-open devices or self-closers	S	The Center for Health Design, 2019
		Sight lines through vision panel in door to see into room and or if door is open can see in room to patient recliner/lounger/bed		
		Avoid lock features on inside of door		
		Direct sight lines from security and nursing staff to Treatment Room door		Fay et al., 2016; Lenaghan et al., 2018
		Unbreakable glass window pane in door		
		Ligature resistant door handles that do not allow patient to barricade the room		BETA Healthcare Group & Emergency Medicine Council, 2018; Liddicoat, 2019b
	Safety; fall/injury prevention	Direct sight lines from security and nursing staff to Treatment Room door		Fay et al., 2016; Lenaghan et al., 2018
		Unbreakable glass window pane in door		
	Enhanced security	Ligature resistant sliding doors or hinged doors that open in both directions or only to outside (or alternative anti-barricade strategies)	S	Liddicoat, 2019b
		No doors with hold-open devices or self-closers	S	The Center for Health Design, 2019
		Sight lines through vision panel in door to see into room and or if door is open can see in room to patient recliner/lounger/bed		
		Avoid lock features on inside of door		
		Direct sight lines from security and nursing staff to Treatment Room door		Fay et al., 2016; Lenaghan et al., 2018
		Unbreakable glass window pane in door		
		Ligature resistant door handles that do not allow patient to barricade the room		BETA Healthcare Group & Emergency Medicine Council, 2018; Liddicoat, 2019b

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Plumbing/Sink/ Alcohol Gel Dispenser	Efficient delivery of care	Ligature resistant sink with soap and alcohol gel dispenser located right next to room or, if located inside the room, that can be safely locked/concealed when necessary (e.g., locking movable partition, pull-down rolling security door/coiling shutter)		
	Safety; reduce risk of harm to self or harm to others	Ligature resistant sink with soap and alcohol gel dispenser located right next to room or, if located inside the room, that can be safely locked/concealed when necessary (e.g., locking movable partition, pull-down rolling security door/coiling shutter)		
		Plumbing is concealed	S	
	Safety; reduced risk of contamination/infection	Ligature resistant sink with soap and alcohol gel dispenser located right next to room or, if located inside the room, that can be safely locked/concealed when necessary (e.g., locking movable partition, pull-down rolling security door/coiling shutter)		
HVAC	Patient comfort	High-quality air filtration systems		
		Access to thermostat/options for heating/air		
	Patient sense of control/independence	Access to thermostat/options for heating/air		
	Safety; reduce risk of harm to self or harm to others	Serviceable components of HVAC terminal devices and covers, as well as vents, and grilles, should be located outside of the room (e.g., concealed within the duct system; accessed through the ceiling outside of the room)		Hunt & Sine, 2018; The Center for Health Design, 2019
		Ligature resistant supply and return air grilles/diffusers		
	Safety; air quality	High-quality air filtration systems		
Electrical	Improved patient engagement	Outlets for telehealth/telepsychiatry capabilities		Lambert et al., 2020
	Enhanced communication; staff to staff	Outlets for telehealth/telepsychiatry capabilities		Lambert et al., 2020
	Safe delivery of care	Outlets for telehealth/telepsychiatry capabilities		Lambert et al., 2020
	Safety; reduce risk of harm to self or harm to others	AFCI (Arc Fault Circuit Interrupter) & GFCI (Ground Fault Circuit Interrupter) outlets specified whenever possible		Cardell et al., 2009; The Center for Health Design, 2019
		Tamper-resistant cover plates for electrical outlets		BETA Healthcare Group & Emergency Medicine Council, 2018
	Psychosocial support	Outlets for telehealth/telepsychiatry capabilities		Lambert et al., 2020

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Lighting	Minimize stigma	Avoid "institutional" lighting; lighting should provide a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Soft, indirect, and pervasive or full-spectrum lighting		Karlin & Zeiss, 2006
	Minimize patient stress/anxiety	Avoid "institutional" lighting; lighting should provide a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Soft, indirect, and pervasive or full-spectrum lighting		Karlin & Zeiss, 2006
		Windows bring in daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Provide amber night lighting fixture		
	Patient comfort	Avoid "institutional" lighting; lighting should provide a sense of being welcome and secure		Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Soft, indirect, and pervasive or full-spectrum lighting		Karlin & Zeiss, 2006
		Lighting options that support a healing environment/provide positive distraction (e.g., light covers with nature images)		BETA Healthcare Group & Emergency Medicine Council, 2018
	Patient sense of control/independence	Access to options for lighting/controllable lighting with dimmable fixtures that can be adjusted for exam, tele-psych session, or to promote rest		BETA Healthcare Group & Emergency Medicine Council, 2018; Shepley & Pasha, 2013; Ulrich et al., 2018
	Improved patient engagement	Appropriate lighting for telehealth/telepsychiatry		Lambert et al., 2020
	Improved sleep quality	Windows bring in daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Provide amber night lighting fixture		
	Patient satisfaction	Windows bring in daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Provide amber night lighting fixture		
	Enhanced communication; staff to staff	Appropriate lighting for telehealth/telepsychiatry		Lambert et al., 2020
	Safe delivery of care	Appropriate lighting for telehealth/telepsychiatry		Lambert et al., 2020
	Safety; reduce risk of harm to self or harm to others	Ligature resistant lights	S	Liddicoat, 2019b; Watts et al., 2012
		Avoid fixtures which might be used as weapons	S	Watts et al., 2012
	Enhanced security	Avoid fixtures which might be used as weapons	S	Watts et al., 2012
	Psychosocial support	Appropriate lighting for telehealth/telepsychiatry		Lambert et al., 2020
	Caregiver health/ support/respite	Windows bring in daylight		Evans, 2003; Shepley et al., 2016; Shepley & Pasha, 2013; Ulrich et al., 2012
		Provide amber night lighting fixture		

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Furniture	Minimize stigma	Patient bed/chair option (i.e., behavioral health med/surg bed, platform bed, lounger, recliner) to meet specific performance standards for anticipated patient acuity needs as defined by the organization's care model		
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		Lenaghan et al., 2018; Lundin, 2021
		Avoid "institutional" colors (i.e. "institutional green")		
		Furniture design minimizes cues suggestive of danger		Connellan et al., 2013 as cited in The Center for Health Design, 2019
	Minimize patient stress/anxiety	Patient bed/chair option (i.e., behavioral health med/surg bed, platform bed, lounger, recliner) to meet specific performance standards for anticipated patient acuity needs as defined by the organization's care model		
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		Lenaghan et al., 2018; Lundin, 2021
		Furniture design minimizes cues suggestive of danger		Connellan et al., 2013 as cited in The Center for Health Design, 2019
	Patient comfort	Patient bed/chair option (i.e., behavioral health med/surg bed, platform bed, lounger, recliner) to meet specific performance standards for anticipated patient acuity needs as defined by the organization's care model		
		Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		Lenaghan et al., 2018; Lundin, 2021
		Avoid "institutional" colors (i.e. "institutional green")		The Center for Health Design, 2019
		Furniture design minimizes cues suggestive of danger		Connellan et al., 2013 as cited in The Center for Health Design, 2019
	Improved patient engagement	Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		Lenaghan et al., 2018; Lundin, 2021
		Furniture to support telehealth/telepsychiatry		Lambert et al., 2020; VA National Center for Patient Safety, 2016
	Enhanced communication; staff to staff	Furniture to support telehealth/telepsychiatry		Lambert et al., 2020; VA National Center for Patient Safety, 2016
	Safe delivery of care	Furniture to support telehealth/telepsychiatry		Lambert et al., 2020; VA National Center for Patient Safety, 2016
	Safety; reduce risk of harm to self or harm to others	Patient bed/chair option (i.e., behavioral health med/surg bed, platform bed, lounger, recliner) to meet specific performance standards for anticipated patient acuity needs as defined by the organization's care model		
		Furniture heavy enough to prevent it from being picked up and used as a weapon	S	VA National Center for Patient Safety, 2016
		Furniture free from areas that increase ability to hide contraband	S	
		Furniture positioned to allow a clear path to the door		BETA Healthcare Group & Emergency Medicine Council, 2018

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Furniture	Safety; reduce risk of harm to self or harm to others	Furniture within the room should be ligature resistant.		
		Avoid furnishings or other objects that might allow a patient to climb up to the ceiling	S	The Joint Commission, 2017
		Furnishings should be selected to minimize risk as a launching point		
		Materials that are unbreakable, non-toxic (e.g., paint), free of flame retardance, and cannot be used to cause suffocation	S	The Center for Health Design, 2019
		Furniture free from anchor points, knobs and pulls should be designed to not support weight	S	VA National Center for Patient Safety, 2016
		Furniture free of plastic, vinyl, or other materials that could be removed and used for suffocation or strangulation	S	VA National Center for Patient Safety, 2016
		Damage-resistant furnishings that are easily repaired or replaced		Liddicoat, 2019b; Shepley et al., 2016; Shepley & Pasha, 2013
		Tamper-proof bed/lounger/recliner with minimal leverage points and no sheets/blankets/pillow or mattress covers	S	Lambert et al., 2020; Liddicoat, 2019b; VA National Center for Patient Safety, 2016
	Enhanced security	Furniture heavy enough to prevent it from being picked up and used as a weapon	S	VA National Center for Patient Safety, 2016
		Furniture free from areas that increase ability to hide contraband	S	
		Furniture positioned to allow a clear path to the door		BETA Healthcare Group & Emergency Medicine Council, 2018
		Furniture within the room should be ligature resistant.		
	Enhanced durability	Damage-resistant furnishings that are easily repaired or replaced		Liddicoat, 2019b; Shepley et al., 2016; Shepley & Pasha, 2013
		Tamper-proof bed/lounger/recliner with minimal leverage points and no sheets/blankets/pillow or mattress covers	S	Lambert et al., 2020; Liddicoat, 2019b; VA National Center for Patient Safety, 2016
	Psychosocial support	Furniture to support telehealth/telepsychiatry		Lambert et al., 2020; VA National Center for Patient Safety, 2016
Casework/Storage	Minimize patient stress/anxiety	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Improved patient engagement	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Improved family engagement in patient care	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Enhanced communication/ interaction with care provider	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Casework/Storage	Efficient delivery of care	Lockable space to house medical equipment that includes cords of any kind (e.g., call bell cords, power cords) to support ligature resistant design		National Association for Behavioral Healthcare, 2019
		Medical equipment and resources secured in a safe manner out of sight when not required, but to be available if needed		
		Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Safety; reduce risk of harm to self or harm to others	Avoid clothes hooks if programmatically possible, or provide ligature resistant clothes hooks	S	Liddicoat, 2019b
		Avoid shelves if programmatically possible, or provide ligature resistant shelves for personal belongings and clothes	S	Liddicoat, 2019b
		Counters should be protected (e.g., behind a panel) or designed so they are not a launching point.		
		Avoid rods of any kind, including breakaway clothing rods	S	VA National Center for Patient Safety, 2016
		Lockable storage with automatic locking devices (e.g., touch-pad locks)	S	BETA Healthcare Group & Emergency Medicine Council, 2018
		Lockable space to house medical equipment that includes cords of any kind (e.g., call bell cords, power cords) to support ligature resistant design		National Association for Behavioral Healthcare, 2019
		Medical equipment and resources secured in a safe manner out of sight when not required, but to be available if needed		
	Safety; medication safety	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Change-readiness/ universal design	Co-morbid headwall with medical gasses designed to be ligature resistant or locked behind panel		
Technology/Internet/ Communication/ Monitoring Equipment	Minimize stigma	Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		Lenaghan et al., 2018; Lundin, 2021
	Minimize patient stress/anxiety	Required safety/security features are hidden, inconspicuous, or as unobtrusive as possible		Lenaghan et al., 2018; Lundin, 2021
		Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Improved patient engagement	Technology to support telehealth/ telebehavioral health integrated into wall system or footwall with no moving pieces		Lambert et al., 2020
		Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b

Design Element:	Desirable Outcome:	Design Strategies:	Safety (S)	Reference:
Technology/Internet/ Communication/ Monitoring Equipment	Improved family engagement in patient care	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Enhanced communication/ interaction with care provider	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Enhanced communication; staff to staff	Technology to support telehealth/ telebehavioral health integrated into wall system or footwall with no moving pieces		Lambert et al., 2020
		Visually unobtrusive video monitoring without blind spots and with audio capability enclosed in tamper-resistant housing		Eklund & Hansson, 2001
	Efficient delivery of care	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Safe delivery of care	Technology to support telehealth/ telebehavioral health integrated into wall system or footwall with no moving pieces		Lambert et al., 2020
	Safety; reduce risk of harm to self or harm to others	Avoid fixtures which might be used as weapons	S	Watts et al., 2012
		Video surveillance or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots	S	Dobrohotoff & Llewellyn-Jones, 2011 as cited in The Center for Health Design, 2019
		Visually unobtrusive video monitoring without blind spots and with audio capability enclosed in tamper-resistant housing		Eklund & Hansson, 2001
	Safety; medication safety	Display to provide patient with orientation to time and place, the treatment they have been given, the team delivering care, and expectations for decision making		Liddicoat, 2019b
	Enhanced security	Avoid fixtures which might be used as weapons	S	Watts et al., 2012
		Video surveillance or convex mirrors (with unbreakable glass) at the junction of the wall and ceiling to eliminate blind spots	S	Dobrohotoff & Llewellyn-Jones, 2011 as cited in The Center for Health Design, 2019
		Visually unobtrusive video monitoring without blind spots and with audio capability enclosed in tamper-resistant housing		Eklund & Hansson, 2001
	Psychosocial support	Technology to support telehealth/ telebehavioral health integrated into wall system or footwall with no moving pieces		Lambert et al., 2020
	Change-readiness/ universal design	Co-morbid headwall with medical gasses designed to be ligature resistant or locked behind panel		

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