Simulation Observation Log Template - Adapted from Colman, N., Doughty, C., Arnold, J. et al. Simulation-based clinical systems testing for healthcare spaces: from intake through implementation. Adv Simul 4, 19 (2019).

AHRQ and CHD Evidence-based Safe Design Principles [1]				
Design Framework **Latent Conditions**	**Examples**	**Latent Threat category**		**Notes**
Standardisation The presence of multiple locations of equipment and supplies and multiple ways of doing things adds to the cognitive burden on staff and increases the chances of error. Requiring reorientation with each activity wastes time and injects opportunity for distraction and error in decision making.	*E.g. Standardisation of kit, systems, paperwork.* • Did you notice any difficulty getting all necessary equipment and supplies to the patient(s) because of insufficient space or poor room layout or signage? • Was the location of equipment and supplies accessible during high-risk care episodes? • Is there sufficient space and an effective layout to adapt to different patient care needs - hoist? Oxygen access? • Did staff know where to access the emergency equipment? • Did the location of equipment and supplies create delays in patient care?	Equipment		
		Medication		
		Environment		
		Systems and protocols		
		Organisational		
		Education and training		
Staff Fatigue Fatigue harms alertness, mood, and psychomotor,	*E.g. Does the layout require excessive walking, cognitive load, etc.?*	Equipment		
		Medication		

and cognitive performance, all of which are linked to active failures.

The unit layout should minimise extensive walking to hunt and gather supplies, people, and should limit frequent work interruptions. | • Does the layout require extensive walking to get help, gather supplies or people?
• Did the layout result in frequent work interruptions? (work-station availability, cupboard opening, etc.)
• Did you notice any concerns related to staff fatigue during patient care?
• Does the location of storage areas allow for efficient workflow?
• Are the staff employing workarounds of systems to make it work – eg using other people's log-ins? | Environment | | |
		Systems and protocols		
		Organisational		
		Education and training		
Enhance Visibility to Patients

Staff depend on visual and auditory cues to respond to the needs of patients and prevent adverse events, such as falls. Building design should facilitate access to staff by patients with visual impairment. (Buzzers/bells etc) | *E.g. Can staff see patients, equipment, buzzer locations, etc.?*
• Did the overall design impact visibility of patients by staff?
• Can the patients negotiate all necessary areas? Are emergency bells available (bathrooms, toilets, bedspaces) | Equipment | | |
		Medication		
		Environment		
		Systems and protocols		
		Organisational		
		Education and training		
Reduce Noise

High noise levels result in staff stress, exhaustion, | *E.g. Privacy, high noise (inside or outside), staff walking through.*
• Was there privacy in clinical staff workstations? | Equipment | | |
| | | Medication | | |
| | | Environment | | |

and burnout and impact patient anxiety.	• Were patients able to converse privately with staff?	Systems and protocols		
		Organisational		
		Education and training		
Reduce Communication Breakdown Communication discontinuities and breakdowns and lack of timely access to critical information may adversely affect patient safety.	*E.g. Does the environment allow for staff communication within the unit/Day Surgery Unit/wider hospital?* • Does the physical environment support effective teamwork and communication? • Can staff access all systems? • Signage? • Getting help	Equipment		
		Medication		
		Environment		
		Systems and protocols		
		Organisational		
		Education and training		
Control/Eliminate sources of infection Most healthcare-associated infections are contact- transmitted to patients from the hands of healthcare staff and contact with contaminated surfaces.	*E.g. Clean/dirty areas, waste separation, PPE.* • Is there an adequate physical separation and/or isolation method (e.g., separate soiled workroom, supply chain flow separation) in the ward layout to prevent contamination of clean supplies and equipment? • Bed spacing • Gel and mask stations	Equipment		
		Medication		
		Environment		
		Systems and protocols		
		Organisational		
		Education and training		
		Equipment		

Minimise environmental hazards Hazards in healthcare environments can cause slips, trips, and falls among patients and staff. Design should limit the placement of equipment, drip stands, furniture in the path of movement.	*E.g. Slip, trip and fall hazards, social distancing in ward and staff areas.* • Was there unnecessary crowding of equipment and/or personnel during patient care? • Room for escorts/advocates/guide dogs	Medication		
		Environment		
		Systems and protocols		
		Organisational		
		Education and training		
Automate where possible Automation of certain tasks increases accuracy and reduces the probability of error. Design should minimise verbal handovers of patients or transfer of information manually.	*E.g. Computer systems in use, logins available.* • Did you notice any risk to patient safety because of difficulty getting vital patient information? • Did you notice any threats to incorrect patient identification? • Computer systems allow changing and updating of patient information.	Equipment		
		Medication		
		Environment		
		Systems and protocols		
		Organisational		
		Education and training		
Support patient and family involvement in care The involvement and participation of patients and family members can help to reduce adverse	*E.g. Privacy, wayfinding, accessible communication.* • From a patient and family experience perspective, does the way-finding seem intuitive/easy-to-follow?	Equipment		
		Medication		
		Environment		
		Systems and protocols		

events such as errors and falls.	• Did you notice any threats to maintaining patient privacy? • An easily accessible communication system (e.g. telephone, intercom) for staff between patient areas and other healthcare spaces (e.g. nursing station)	Organisational	
		Education and training	
Consider Adjacencies[2] Consider vertical and horizontal adjacencies to optimise processes, patient movement, and distribution of materials, equipment, and supplies. Design should limit cross-traffic of patients and materials, food, waste, supplies.	*E.g. Travel through department, wheelchair accessibility throughout, transfer to wider hospital.* • Was the transfer of patients safe? • Did you notice any risks associated with transporting patients through the building? (e.g., ample corridor width, minimal turns, wide doorways, open layout, ample spaces to accommodate trollies, hoists, lighting, colours etc.) • Do you have any concerns about the ambulation of obese or mobility-impaired patients? From chair to trolley, from floor to trolley, etc.	Equipment	
		Medication	
		Environment	
		Systems and protocols	
		Organisational	
		Education and training	

[1] Adapted from Agency for Healthcare Research and Quality (AHRQ) and Center for Health Design (CHD) evidence-based safe design principles.

[2] Adjacencies refer to areas that directly support patient care and may include (but are not limited to) diagnostic areas such as radiology, laboratory, or clinical support areas such as clean supply, equipment rooms, soiled utility rooms, nourishment rooms and/or care team workstations.