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IFIC Construction, Design and Renovation Interest Group
Design of a general ward

Introduction

The aim of this document is to provide practical, evidence based (where appropriate) written materials about construction, design and renovation in health care facilities, that can be used in the co-operation between Infection control personnel, building planners and engineers

SIG recommendations are given in three levels:

- Basic - Even with severely limited resources, this is what you should do as a minimum
- Standard – this is what you should aim for in less wealthy countries
- Ideal – if you have the resources, this is what you could do

The primary aim of these recommendations is to give a simple and easy to use help for planning and designing a ward. For special needs and departments additional planning is necessary.

The recommendation is given for hospitals in which clean water supply and electricity are available throughout the day.

All surfaces must withstand cleaners/disinfectants. Carpets are not recommended.

A maximum of about 40 beds on a ward should not be exceeded because of very long distances for the staff to walk and difficulty in cohorting patients during an outbreak.

Planning the space of a patient’s room: People are getting longer and may need longer beds in the next decades.

Recommendations

Room	Basic	Standard	Ideal
Patients´ rooms/bays Each room must have a sink for handwashing and space for gloves and aprons.	If you must have wards with many beds, you should also have some bays or, ideally, single rooms to cohort or isolate infectious patients. Each room must be equipped with alcohol hand disinfectant.	2 beds, maximum 4 beds. There should also be some single rooms for infectious patients. Each bed must be equipped with alcohol hand disinfectant.	One bed per room. ¹ The room should be big enough to house 2 beds, for family member or another patient
Isolation rooms for infectious patients	Recommended, preferably with en-suite wash and separate toilet.	Some single rooms with en-suite wash/shower and toilet.	At least 2 of these rooms should have >12 air changes/h and anterooms with negative pressure .
Distance between beds	Minimum 1 meter.	2 meters recommended.	More than 2 meters recommended.
Patients´ toilets (2)	Toilets on each ward.	Sex-specific toilets on each ward, at least en-suite toilets in single rooms.	En-suite Toilets for each room.
Wash/shower/ bathroom One shower room per ward should be big	At least one wash/shower or bathroom on each ward in combination with	En-suite wash/shower for each patient room, recommended in combination with toilet.	En-suite wash/shower/toilet room for each patient room.

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Room	Basic	Standard	Ideal
enough for a shower bed or bathtub	toilet		
Other toilets ²	Separate toilets for both HCWs and visitors.	Separate sex-specific toilets for both HCWs and visitors.	Separate sex-specific toilets for both HCWs and visitors.
Nurses' workrooms (preparing care). Sharps must be collected in closed containers.	At least one room for both clean and dirty work. Organize a maximum distance between clean and dirty works to ensure separation.	One room for clean work (preparing medications) and one room for dirty work (cleaning/disinfection of medical products, bedpans and perhaps instruments). On large wards more rooms may be necessary to reduce walking distances.	One room for clean work (preparing medications) and one room for dirty work (cleaning/disinfection of medical products, bedpans and perhaps instruments). On large wards more rooms recommended to reduce walking distances.
Nurses' rooms	One room for organizing and breaks.	One room for organizing and one for breaks.	One room for organizing and one for breaks.
Doctors' treatment/examination rooms	One room desirable.	At least one room.	At least one room.
Waste room	There should be a specific area, preferably outside the ward, for the storage of waste awaiting collection. Waste sacks should be kept in large containers for collection.	May be combined with room for dirty work.	One special room for waste storage.
Kitchen ³		Small kitchen with sink and refrigerator.	Small kitchen with sink and refrigerator.
Storage of clean equipment and products		At least one great storage room.	At least one great storage room.
Bed reprocessing (including cleaning of mattress and bedstead). Sheets, blankets, pillows sent to laundry.	Bed reprocessing in patient room, not in corridor .	Bed reprocessing in patient room or in a reserved room on the floor.	Bed reprocessing in patient room or centralized.
Changing room for staff (if uniform is from hospital)		Centralized or one room only for changing on the ward.	Centralized or one room only for changing on the ward.
Housekeeping and laundry room	Separate cleaning and disinfection agents in some area. Sacks for dirty laundry	One room with sink, disinfectants, cleaning agents and cleaning cart. Sacks for dirty laundry	One room with sink, disinfectants, cleaning agents and cleaning cart. Sacks for dirty laundry

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HCW healthcare worker

¹Advantages of single rooms according to AIA 2006 and others:

- Patient length of stay ↓
- Medication errors & costs ↓
- NI rate ↓
- Patient transfers ↓
- Privacy ↑
- Noise level ↓
- Sleep disturbances ↓
- Patient satisfaction ↑
- Patient control ↑
- Crowding ↓
- Bed reprocessing in room

²Toilets must have window ventilation or mechanical air supply.³Cooking should be centralized in addition to small kitchen wards. Visitors bringing food should have a designated area for preparations.**Some literature:**

1. Single patient room study—Executive summary with chart-free access:
<http://www.premierinc.com/quality-safety/tools-services/safety/topics/construction/single-room.jsp>
2. IFIC: Basic concepts of infection control. 2007
3. NHS: Ward layouts with single rooms and space for flexibility. NHS 2005.
4. Shears, P.: Poverty and infection in the developing world: Healthcare-related infections and infection control in the tropics. *J Hosp Infect* 67, 2007, 217-224
5. Centers for Disease Control and Prevention. Guidelines for environmental infection control in health-care facilities: recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). *MMWR* 2003; 52 (No. RR-10): 1–48.. The full-text version of the guidelines appears as a web-based document at the CDC's Division of Healthcare Quality Promotion's Internet site at:
http://www.cdc.gov/ncidod/dhqp/gl_environinfection.html