

Quick Guide, Chapter 6: Flow of Patients, Personnel, Equipment and Waste

Expanded information, case studies, references and other important items related to the flow of patients, personnel, equipment, and waste are available in Chapter 6 of this publication.

The risk of infection transmission in a hospital can be reduced by a number of strategies, including proper configuration of space, airflow design that minimizes the spread of pathogens, and design features that ensure the optimal flow of people and material to minimize cross contamination.

Separating patients who are actively ill with an infectious disease from other patients, either through isolation or barriers, is an important component of infection prevention. Consequently, designing spaces such as airborne infection isolation rooms is important. Another way to limit the spread of infection is the development of “respiratory hygiene/cough etiquette,” protocols which encourages patients and visitors with a cough or fever to cover their cough with tissues and to perform hand hygiene. This is especially important in emergency departments, where patients and their families often wait together for long periods of time and infectious patients may not be recognized immediately. Providing barriers (such as plexiglass dividers) for worker safety at triage entry points and provision of space for masks, tissues and hand sanitizer are examples of design considerations to support infection prevention.

Designing “flow” in a health care setting also can reduce the spread of infection. For example, emergency departments may be designed with “pods” and zones and may include procedures that allow for triage “flex” to accommodate changes in patient volume. Creative use of barriers can help when crowding may present a challenge. Design should also consider the movement of environmental waste in the hospital, so that it can be removed and disposed of without the risk of pathogen spread.

Among the best practices in hospital design for reducing the spread of infection are:

- A multidisciplinary team should consider all aspects of infection prevention when the functional program of a new health care facility is being developed.
- Just as with new construction, infection prevention staff should be part of the planning team for updating and renovating existing facilities. Reflexively recreating existing work flows or spaces should be avoided.
- Incorporate infection prevention staff into plans for all areas of the hospital, including disaster and surge capacity planning.
- Consider designing an All isolation room/area that enables unidirectional flow of health care professionals (HCP) entering/exiting for patients with highly infectious diseases.
- Use Human Factors Engineering (HFE) methods to analyze tasks as they are performed in existing spaces. Ask “what design features contribute to the lack of compliance”. Work with HCP to design spaces/systems that support efficient workflows for HCP to access clean supplies while still protecting clean and sterile supplies from contamination.
- Remember that the separation of clean and dirty functions to limit cross contamination is fundamental to infection prevention.
- In areas designed to control airborne contaminants, ensure the ventilation system provides appropriate pressure relationships, air-exchange rates, filtration efficiencies, temperature and relative humidity.
- Provide space outside of clinical areas for removal of supplies from external shipping boxes.

- Ensure adequate storage on patient units for reusable patient care equipment and a location where these items may be cleaned.
- Explore new technology or simple containment approaches for the disposal of human waste.