

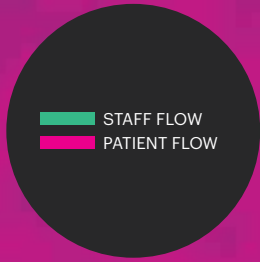
# EXIT ROOM CONCEPT: AN INNOVATIVE APPROACH TO INFECTION CONTROL

The use of anterooms as a safety buffer for highly contagious diseases was promoted through the eighties. These rooms were thought to provide a buffer zone where donning of Personal Protection Equipment (PPE), washing of hands and de-gowning could be properly executed. It also presumed an added safety by not allowing air from the room of the infectious patient to mix with the air of the “clean” zones of the hospital. Eventually these rooms were thought to be unnecessary because negative pressure in the room could prevent air escape and hand-cleansing stations could be placed anywhere.

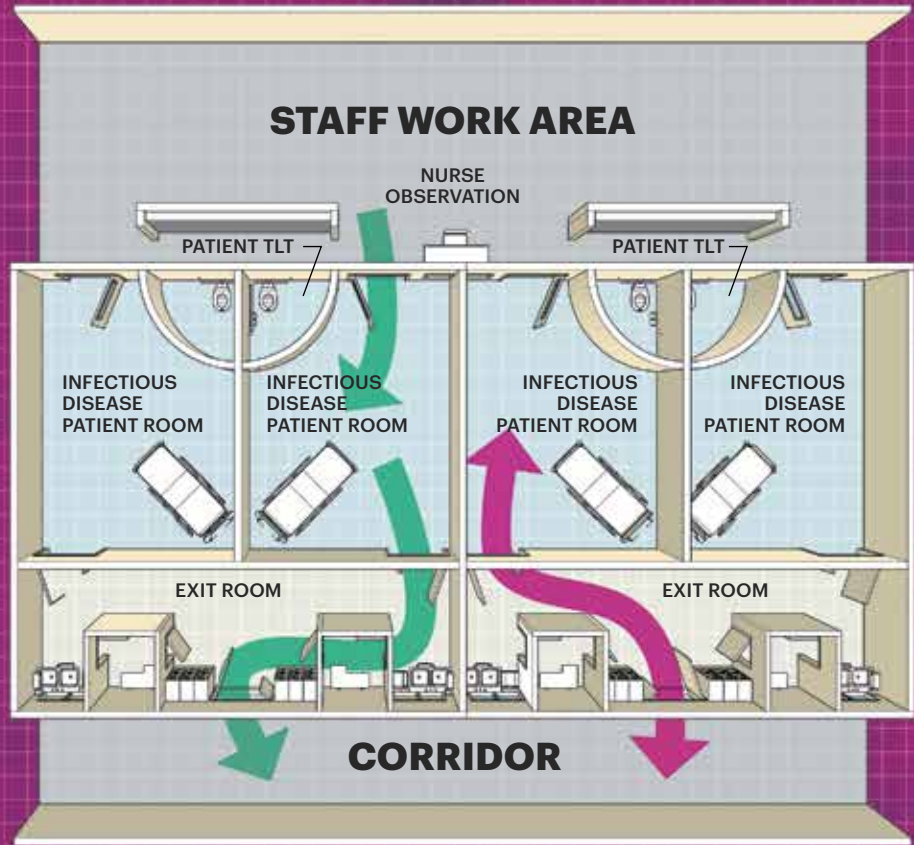
The recent Ebola outbreak has provoked many to have second thoughts regarding the elimination of anterooms. Considerations include de-gowning and handling of contaminated items. Perhaps such a room could be useful again. However, through careful examination of the clinical process, the workflow and general

infectious disease safety principles, there is little need to have a compartment prior to entering a room where a highly infectious patient resides. One is gowning with clean PPE and opening a door into a room where the airflow is moving into the room. However, the problem resides on the

# LEVERAGING UNIDIRECTIONAL FLOW

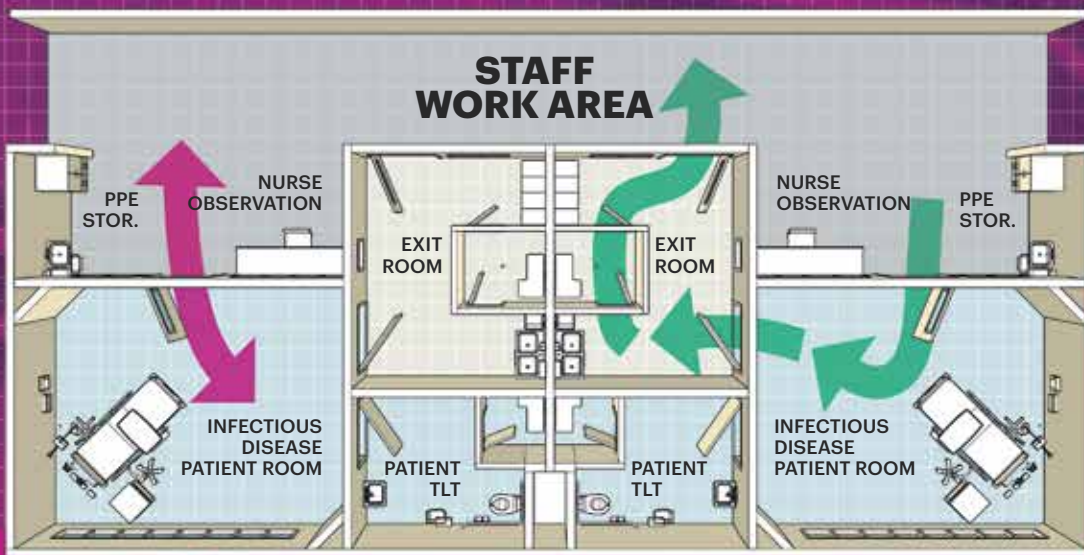


## EMERGENCY DEPARTMENT SETTING



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## INPATIENT SETTING



**OUTSIDE**

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exit. All the PPE, once used, must be assumed contaminated. Further, upon exiting a room (if done rapidly) the air currents created by the moving body might overcome the negative pressure pulling air back into the isolation room. In fact, this violates one general principle of contamination handling – that is never to backtrack. The flaw of the anteroom concept is that contaminated individuals return the same way they came in – potentially contaminating the clean area of the unit. One can argue that there needs to be a good space for PPE and gowning even if such a space does not contribute to infection prevention. Such a space could be useful, but an enclosed anteroom adds considerable cost and ultimately obscures the ability to visualize

the patient. A much more efficient space utilization could be achieved with a gowning “station” that provides access to PPE and hand-cleansing near the entry while still allowing direct visualization of the patient by nursing staff.

In the final analysis, the most appropriate strategy would be to develop an exit room on the backside of an isolation room with “clean-to-less-clean” flow process. Upon entering the exit zone of the room, a hand wash station and decontamination of protection suiting can be effectively packed in closed red bag for disposal, then the opportunity for a shower out provision is made available – compliant with BMBL for level select agents. Such a

## EXIT ROOM KEY FEATURES

**01**

Unidirectional flow of the care giver

**02**

An adequately spacious de-gowning area *(large enough for the clinician and potentially an observer)*

**03**

Self-decontaminating surfaces

**04**

Overhead or portable UV or HINS lighting for disinfection

**05**

Wash stations, “shower out” systems similar to BMBL guidelines

**06**

Biomedical Laboratory Guidelines

**07**

Dual in-line HEPA-filtration on exhaust and single on supply

**08**

Waste containment systems with liquid waste collection and treatment prior to discharge

**09**

A protocol checklist would be present and visible in the room



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room could provide for safe de-gowning, appropriate cleansing of the provider and containment/disposal of all contaminated materials. In fact, with the Ebola experience we are quickly learning that a comprehensive infectious disease isolation strategy must also address contamination that can occur from exposure to infectious body fluids. The new proposed strategy of an exit room would eliminate “backtracking” because there would be no further return of people or items to the clean area where the anteroom used to be positioned. This configuration allows for either decontamination or containment/disposal of contaminated items.

In the place of the anteroom an alcove with PPE and a hand-cleansing station would be in place. A protocol checklist would be present and require verification by a second provider this concept may work in an emergency department setting or in a slightly different configuration for an inpatient setting.

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*This concept was created in an interactive charrette between physicians, clinical nurses, architects and contractors. It is a concept that pushes the envelope on our current thinking on exit room design. The next step is to develop a “proof of concept” via systematic research on effectiveness and feasibility, to test this concept and implement it in practice.*

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