Advancing the Mission of Infection Control on the Biocontainment Unit at the Johns Hopkins Hospital Through Research and Training

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Background

The Johns Hopkins Hospital (JHH) biocontainment unit (BCU) was first opened in May of 2014 in response to the Ebola virus disease (EVD) outbreak in 2014. The JHH BCU is one of ten Regional Treatment Centers in the United States.

When there is no patient on the JHH BCU, it is actively engaged in advancing the mission of infection control through training and research. This project aims to outline how this is accomplished.

Methods

Methods of the project:
- Observe and participate the activities of the JHH BCU for 7 months.
- Engage in JHH BCU trainings and research.
- Meet with the various JHH BCU partners to discuss roles and projects in the JHH BCU.
- Write a manual discussing the alternative uses of the JHH BCU.

Results

In advancing the mission of infection control on the biocontainment unit, there were four major categories of activity: infection control training, multidisciplinary training and collaboration, PPE design and testing, and the built environment (Table 2).

Infection Control Training

The JHH BCU has taken action in addressing the national statistics of hospital-acquired infections (HAIs).1

From opening, the unit has been activated three times.1 Since opening, the JHH BCU has been activated three times.

Multidisciplinary Training and Collaboration

The JHH BCU has been actively involved in multidisciplinary training and collaboration. Various professions across the hospital were carefully trained in PPE donning/doffing protocol (Table 1). Other essential trainings occur on the JHH BCU including interdisciplinary mock code simulations, annual reviews, and critical care nurse orientation training.

PPE Design and Testing

In response to the Ebola virus disease outbreak, the team from Johns Hopkins University’s Center for Bioengineering Innovation and Design (CBID) has worked to create new personal protective equipment (PPE) that is more protective, easier to use, and decreases the risk of contamination. The JHH BCU has been an integral part of the CBID PPE initiatives.

Future Directions

The JHH BCU will continue to be engaged in various initiatives across disciplines, working with professionals across the hospital. Some discussed future directions are listed below:

- Future EVD PPE testing: protective ability, human factors testing, technical evaluations
- Further PPE protocol training, particularly as protocols, designs, and technologies are changed.

Conclusions

- The Johns Hopkins Hospital biocontainment unit is one of a small number of stand-alone units in the country.
- The JHH BCU is dedicated to its mission of infection control and patient safety while also striving to act as a leader for both current and future biocontainment units.
- This project serves as an informative description of the activities of the JHH BCU while the unit is not activated for patient care. These activities help advance the mission of infection control through research and training.
- The importance of infection control training, multidisciplinary training and collaboration, PPE design and testing, and the built environment cannot be understated and the JHH BCU plays an integral role in these areas.

References


Funding Source: The Helene Fuld Leadership Program for the Advancement of Patient Care Quality and Safety