Universal Precautions and Hierarchy of Controls:
A Duke Perspective

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Background: Universal Precautions

Extreme Contact Precautions
Eg: Ebola

Routine clinic visit                phlebotomy           bacterial meningitis                  diarrhea   RSV / flu                             Ebola

Extreme Airborne Precautions
Eg: SARS
Minimizing Risk of Exposure
(approach to implementing feasible and effective controls)

Hierarchy of Controls

- **Elimination**
  - Physically remove the hazard

- **Substitution**
  - Replace the hazard

- **Engineering Controls**
  - Isolate people from the hazard

- **Administrative Controls**
  - Change the way people work

- **PPE**
  - Protect the worker with Personal Protective Equipment

Most desirable/effective

Least desirable/effective

Source: NIOSH

Funding for this training provided by the National Institute of Environmental Health Sciences’ Worker Training Program
Personal Protective Equipment:

• We all *think* “more” PPE is better

• Donning *and* Doffing is crucial

• High proportion of infected HCW, became infected when doffing (removing) their PPE

• The best PPE is the PPE you have been trained in and that you understand, and that is applicable for your area, and your risk.
PPE Guidance in Duke isolation: different according to risk
Administrative Controls:

“The last thing you should rely on is that 1mm thick piece of Tyvek... Proper biosafety isolation should have occurred many meters away!”
Duke Experience:

- Individual patient room
- Isolated hallways
- Secured ward entrance
- Camera / teleconference availability to clinical space
- Space for storage, reserve equipment, backup lab etc
Adult Learning Experience

- Target adult worker populations, not just in hospitals
- Active participation
- Hands-on activities
- Case studies
- Peer-sharing activities
- Electronic options
DICON exists as an externally-facing Infection Control service *within* the Department of Medicine and Division of Infectious Disease

- Provides:
  - Training Courses
  - Prevention Initiatives
  - Website and Symposia
Available Courses

Course access is available by subscription, contact us or your institution's training coordinator about signing up

- Stopping the Spread
- Care and Maintenance of Central Venous Catheters
- Prevention of Surgical Site Infections
- Safe Injection Practices: Core Competencies
- Insertion of Central Venous Catheters
- Safe Practices for Central Venous Catheters
Training Courses for Healthcare Providers

• On-line Training Course for insertion of CVCs for physicians—provides CME credits

• On-line Training Course for care and maintenance of CVCs for nurses—provides CEUs

• Video modules for stopping the spread of infections by using proper hand hygiene practices

• Safe Injection Practices: Core Competencies for all healthcare workers

• Preventing SSI in the Operating Room—provides CME and CEU credits
Training Courses for Healthcare Providers

• On-Line courses have been used by over 200 hospitals and surgery centers
  > 50,000 HCW—Insertion of CVC
  > 20,000 Nurses—CVC Care & Maintenance
  > 18,000—Safe Injection videos viewed
  > 60,000 Hand hygiene course completions by Duke employees and non-Duke employees

• License agreements with hospitals in 29 states
Prevention Initiatives

• Goal: Provide hospitals with practical solutions to common important problems
  – “Pre-cooked food”
  – “How to”
  – Data and references
  – Adaptable templates
  – Prevent infections and thus save hospital money

• Examples
  – Invasive Spinal Procedures
  – Colorectal Surgery
  – Catheter-associated UTI
  – *Clostridium difficile* infection (CDI)
Simulation Lab

- Collaboration with Duke University Human Simulation and Patient Safety Center
- Training for patient transport
- Training for activating Isolation ward, donning / doffing

Practice the management of:
- Dropped sample
- Ripped glove
- Respiratory Distress / Emergency Airway
- Vascular Access
- Patient Delirium / Combativeness
- Extreme hypotension
- CXR
- U/S
- Lab specimen handling
- Trash/Linen handling
Expect the unexpected?

- Waste Management / Engineering
- Decontamination
- Simulation
- Media / Communications
- Psychologic support for staff
- Procurement delays
- Staff rostering and back-fill
- Legal framework (state, federal)
Finally:

Communication & Media Control

Harnessing the media can be a great method of risk mitigation and education

Beware media hyperbole
Questions?