

The Nebraska Biocontainment Unit

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University of Nebraska
Medical Center



Nebraska
Medicine

Nebraska's Journey

TIMELINE

- ❖ **The 9 Year Journey**
- ❖ **August 1st, 2014 US State Department Visit**
 - Preparations
- ❖ **September 2nd...Call from US State Dept.**
 - ~Are you Ready?
 - Unit Activation 9/3/14
- ❖ **Wheels Up in Monrovia 9/4/14**
 - 1st Patient Arrival 9/5/14: Dr. Rick Sacra (LOS 20 days)
 - 2nd Patient Arrival 10/6/14: Ashoko Mukpo (LOS 15 days)
 - 3rd Patient Arrival 11/15/14: Dr. Martin Salia (LOS 2 days)

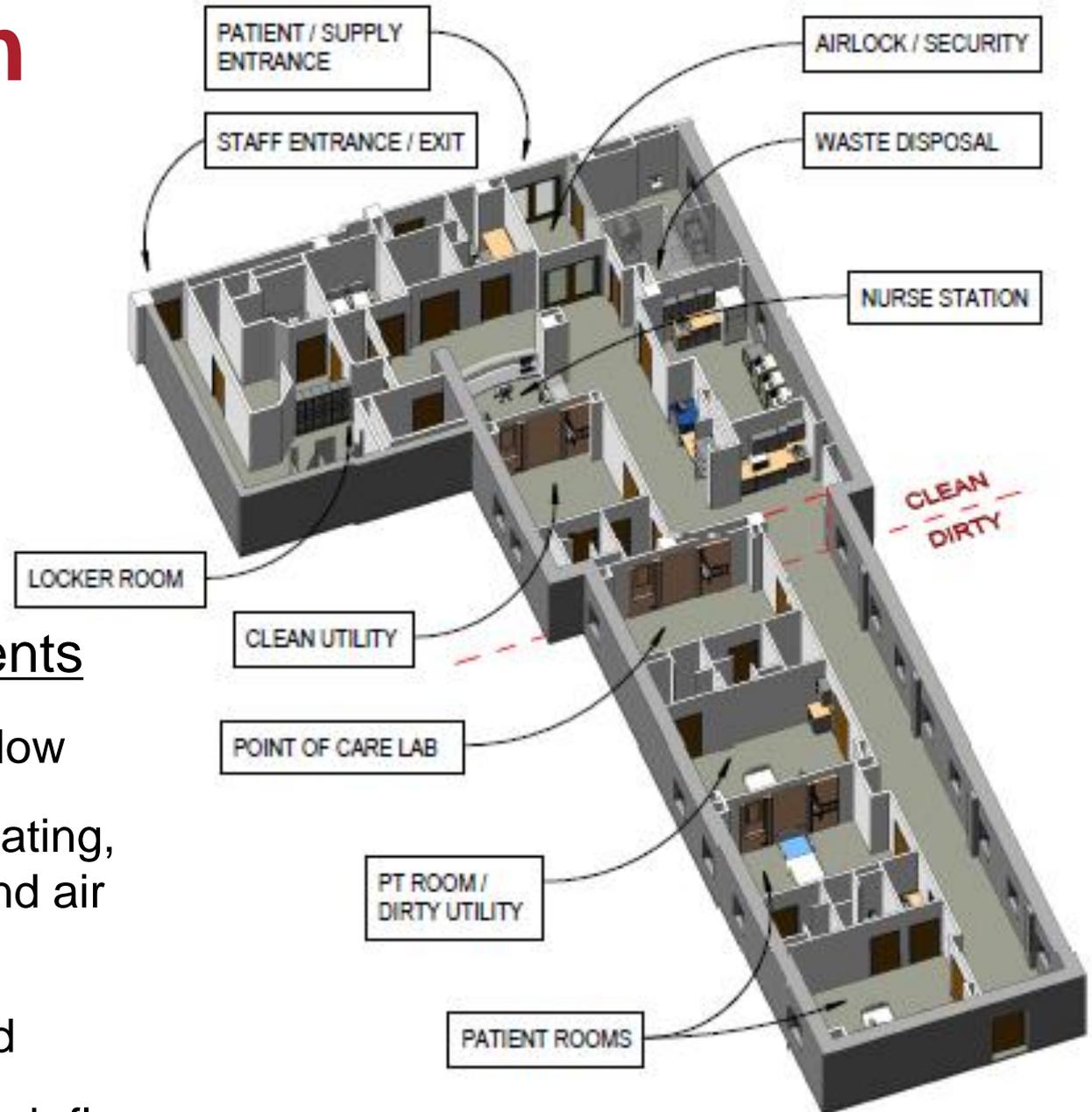


Leadership & Expertise Matters

NBU Leadership Team



Design



Key Elements

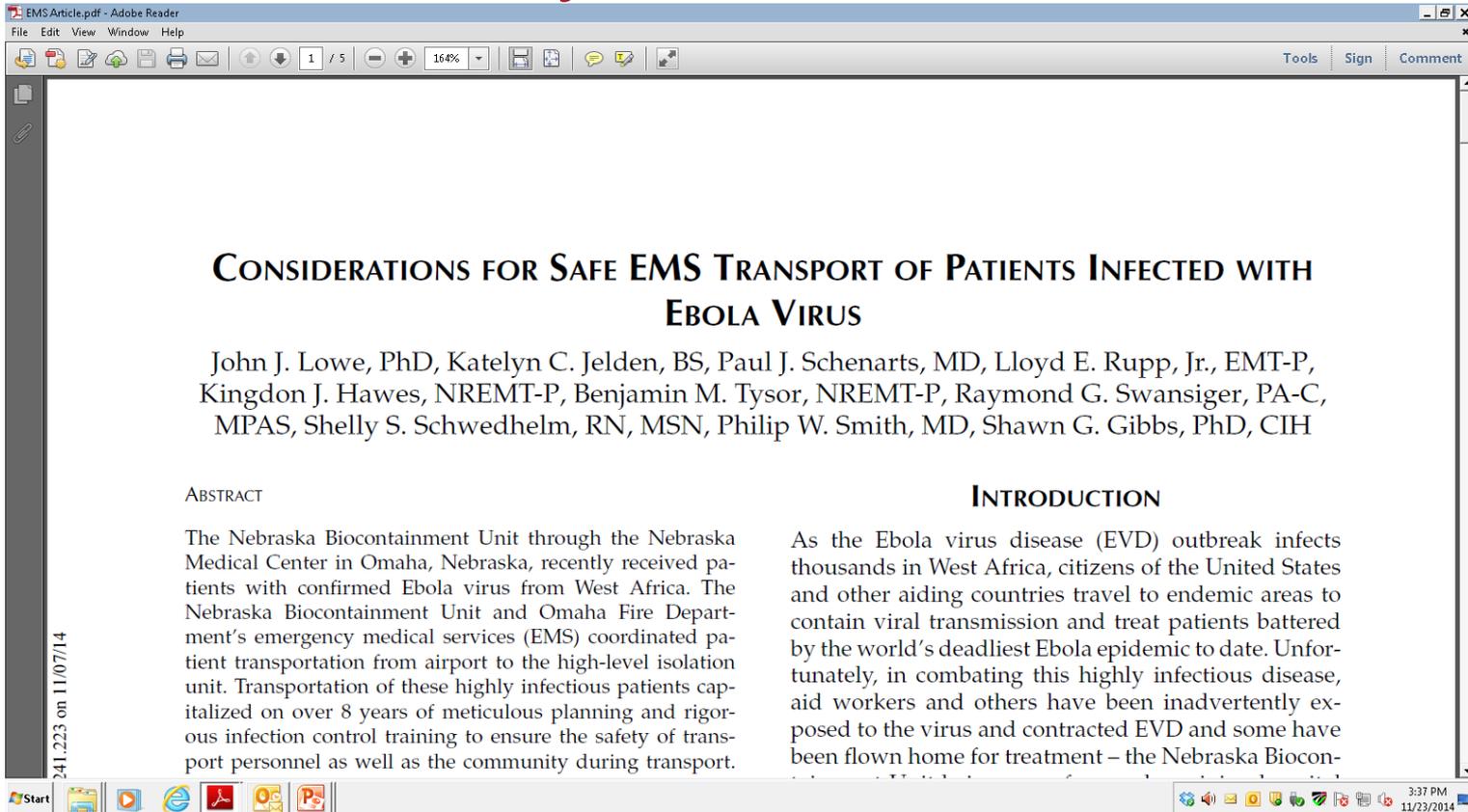
- Department flow
- Dedicated heating, ventilation, and air conditioning
- HEPA Filtered
- Patient room air flow

Transfer Process



PREHOSPITAL EMERGENCY CARE

Nov. 2014; Early Online: 1–5



The screenshot shows a window titled "EMS Article.pdf - Adobe Reader". The window contains the following text:

CONSIDERATIONS FOR SAFE EMS TRANSPORT OF PATIENTS INFECTED WITH EBOLA VIRUS

John J. Lowe, PhD, Katelyn C. Jelden, BS, Paul J. Schenarts, MD, Lloyd E. Rupp, Jr., EMT-P, Kingdon J. Hawes, NREMT-P, Benjamin M. Tysor, NREMT-P, Raymond G. Swansiger, PA-C, MPAS, Shelly S. Schwedhelm, RN, MSN, Philip W. Smith, MD, Shawn G. Gibbs, PhD, CIH

ABSTRACT

The Nebraska Biocontainment Unit through the Nebraska Medical Center in Omaha, Nebraska, recently received patients with confirmed Ebola virus from West Africa. The Nebraska Biocontainment Unit and Omaha Fire Department's emergency medical services (EMS) coordinated patient transportation from airport to the high-level isolation unit. Transportation of these highly infectious patients capitalized on over 8 years of meticulous planning and rigorous infection control training to ensure the safety of transport personnel as well as the community during transport.

INTRODUCTION

As the Ebola virus disease (EVD) outbreak infects thousands in West Africa, citizens of the United States and other aiding countries travel to endemic areas to contain viral transmission and treat patients battered by the world's deadliest Ebola epidemic to date. Unfortunately, in combating this highly infectious disease, aid workers and others have been inadvertently exposed to the virus and contracted EVD and some have been flown home for treatment – the Nebraska Biocon-

241.223 on 11/07/14

3:37 PM 11/23/2014



Waste Streams

- Solid waste stream
- Liquid waste
- HCW linens
- Patient Electronics



Waste Handler PPE

- Biocontainment Unit staff handle all waste processing: Nurses, Medical Technicians, & Industrial hygienists
- 464.4 cu ft of solid waste per patient
- 1,011 lbs per patient



Healthcare and Emergency Responder Organization Education Through Simulation. Personal Protective Equipment: Biological Level-C Doffing. Omaha: University of Nebraska Medical Center, 2010 Available at 2014.

<http://app1.unmc.edu/nursing/heroes/mpv.cfm?updateindex=53&src=yt> Accessed October 29, 2014





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Commentary

Nebraska Biocontainment Unit perspective on disposal of Ebola medical waste

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Lowe, J.J., Gibbs, S.G., Nguyen, J., Schwedhelm, S.S., Smith P.W. Nebraska Biocontainment Unit perspective on disposal of Ebola medical waste. *American Journal of Infection Control*. 2014; (30):1-2. **In Press**

<http://dx.doi.org/10.1016/j.ajic.2014.10.006>



NBU Staff Selection Process

The NBU Team includes: Nurses, Respiratory Therapists and Patient Care Techs who hold primary positions within Nebraska Medicine and volunteer to become members of our team

- Each individual undergoes a selection and training process that involves:
 - A formal interview
 - Validation process with home unit manager
 - Employee health screening
 - NBU specific orientation
- During the interview, individuals are evaluated for:
 - Passion for new knowledge
 - Self directed mindset
 - Critical thinking skills
 - Teamwork capabilities

Team members are selected from all clinical backgrounds to provide diversity and a high level of clinical skill mix.

The NBU staff comprises clinicians from intensive care, emergency department, medical/surgical, operating room, labor and delivery, infusion center etc...

This diversity of knowledge and skills stimulates the team to problem solve and challenge each other on unique strategies to consider.



Staff Roles within the NBU

Each staff member is trained to perform all tasks within the NBU with the exception of patient care activities that only registered nurses may perform.

Primary RN

- Coordinates all patient care activities with the other RN's and provides a nursing report to oncoming staff

RN's

- Support the primary RN and rotates within the other roles

Doffing Partner (RN, RT or PCT):

- An active participant who assists with the doffing of PPE following specific guidelines
- Performs tasks in the designated dirty zone

Autoclaver (RN, RT or PCT)

- Responsible for processing trash and linens

Tasker (RN, RT or PCT)

- Performs tasks (stocking, cleaning, donning partner...). Stays in the clean zone



The Nursing Care of a patient in the NBU is not significantly different than caring for a patient in any other unit

Nurses in the NBU continue to:

- Chart in the EHR
- Complete the nursing care plan
- Provide patient education
- Coordinate all care needs
- Bar-code scan Medications
- Process and complete medical orders
- Count the Narcotics in the Automated Dispensing System
- Consult and communicate with the medical team
- Provide support to the patient's family etc...

**The difference is performing our duties while
adhering to strict
Infection Control Procedures**



Infection Control Procedures

- Donning and Doffing PPE procedures
- Designated donning and doffing PPE areas
- Designated clean and dirty zones
- Designated zones in which staff performing their roles can enter
- Daily cleaning checklists with dedicated cleaning equipment for each zone
- Designated areas to keep 'clean' equipment vs equipment that has been in the patient care area i.e. x-ray machine
- Designated pathways for removing waste and used linen
- A method for transferring equipment, medications and other supplies from 'clean to dirty' and 'dirty to clean'
- A method for communication 'Provider to Provider' 'Provider to Patient' 'Patient to Family or SO'



Standard Operating Procedures:

- Intravenous access; peripheral vs central line
- Obtaining and processing laboratory tests
- Obtaining and processing diagnostic services
- Protocols and agreements in place for specialized care i.e. dialysis, mechanical ventilation
- Protocols and agreements with public utilities i.e. waste management
- Plans for care of the deceased i.e. crematorium, transport to the crematorium

**Plan, Practice, Learn and Adapt
for your unique situation**





Bio Seal



Isopod



Pass through autoclave



Supplies & Medications

- Pre-determined par levels of supplies and medications are brought to the NBU at the time of activation.
- NBU staff maintain the par level by ordering daily from the hospital supply system.
- Special order items and frequently used items are kept in an external ‘overstock’ room for easy access by the team.



Communication



Personal Belongings.....



NBU Team Self Care



- Shared Governance: Staff involved in decision making. Builds team confidence .
- Hydration and nutrition
 - Meals, Drinks and Snacks available in the staff lounge
- Clothing
 - Scrubs, Underwear, Socks, Shoes
- A place to shower
 - With quality hygiene products
- A place to rest
- Coaching and support as needed
- Self-scheduling is used. Leadership assists in balancing the schedule
- Schedules are set-up in advance of activation
- Daily communications/huddle information shared and emailed each day
- Leadership connects with day and night shift every day during activation
- Team email address used for updates, interesting information sharing, etc.



Leadership & Lessons Learned:

A Happy Ending.....



Have you hugged a cured ebola patient today?

Washington Post, November 12th, 2014

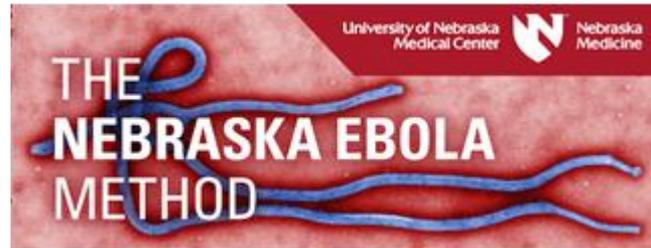


Morgan's Story

<http://m.ketv.com/news/omaha-ebola-nurse-works-tirelessly-for-patients-family/29810608>



Nebraska Ebola Method App



The two courses, The Nebraska Ebola Method for Clinicians and The Nebraska Ebola Method for General Public, provide instruction and information through videos and printable documents.

The clinicians course is available now via the iTunes U app for iPad and iPhone, through this direct link -- <https://itunesu.itunes.apple.com/enroll/FDL-BXP-WTF> -- or by searching in iTunes U. The course also is available through Moodle at <http://phtc.unmc.edu/moodle> for viewing on a desktop, laptop or other mobile devices.



True heroism is remarkably sober, very undramatic. It is not the urge to surpass all others at whatever cost, but the urge to serve others at whatever cost. ~Arthur Ash



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Questions ?



The Focus

100% ED Screening



- All EDs are a little different
- Identify the strategies that work for your ED and hospital

Where will they go?

- Separate location area, move out of main thoroughfare
- Bathroom adjacency is important
- Extra room located in zone for trash staging or family needs
- Ability to close off- egress option?
- Run through the “what if’s”...
- What will your process/workflow look like?
 - Nebraska Medicine Example:**
ED Ebola Protocol



The ED Tools

PPE

- Slow Down...
- Practice like you play....
- Roles (must have donning and doffing partner)!
- PPE Kit



Go Kit

- Laminated CDC case definition and risk algorithm
- IV Start Kits X 2
- Appropriate lab tubes
- Bleach wipes
- Disposable stethoscope



Lab

- See Health Alert Network Advisory Oct. 24, 2014
- Nebraska Medicine ED Algorithm example
- Nebraska Medicine ED Protocol example

