

***The Nurse  
Informaticist's Role in  
Disaster Planning,  
Response, Recovery  
and Mitigation***

SINI 2018



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And for their direction to resources, many thanks to:

Robin Manke, VCUHS Disaster Coordinator/Nurse Manager

Kevin Pannell, VCUHS IT PM and NREMT with background in Fire/EMS,  
public health preparedness and all-hazards incident management

# Who is VCU Health? We are a ...

- Mid-size urban academic medical center located in central Virginia
  - 45 inpatient units w/37,938 discharges
  - 90 ambulatory clinics w/714,669 visits
  - Level 1 Trauma Center - 5 EDs w/93,354 visits
  - Regional Burn Center
  - Regional Unique Pathogens unit
- Small rural safety-net hospital located in southwest Virginia
  - 70 inpatient beds
  - 140 long term care beds
  - Home Health/Hospice
  - 10 ambulatory clinics

# Good Place to Start/Learn More

FEMA.gov -



## **Federal Emergency Management: A Brief Introduction**

**Bruce R. Lindsay, Coordinator**

**Analyst in American National Government**

# How do your NI skills translate to FEMA Emergency Preparedness goals?



Figure 1.1: The Preparedness Cycle

The Strategic Plan sets out three overarching Strategic Goals:

- **Build a Culture of Preparedness**

- Every segment of our society, from individual to government, industry to philanthropy, must be encouraged and empowered with the information it needs to prepare for the inevitable impacts of future disasters.

- **Ready the Nation for Catastrophic Disasters**

- FEMA will work with its partners across all levels of government to strengthen partnerships and access new sources of scalable capabilities to quickly meet the needs of overwhelming incidents.

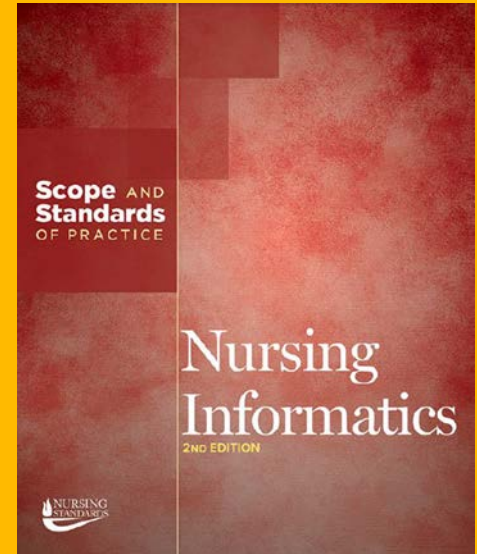
- **Reduce the Complexity of FEMA**

- FEMA must continue to be responsible stewards of the resources we are entrusted to administer. We must also do everything that we can to leverage data to drive decision-making, and reduce the administrative and bureaucratic burdens that impede impacted individuals and communities from quickly receiving the assistance they need.

# What is our skill set?

## Functional Areas of Nursing Informatics

- Administration, Leadership, and Management
- System Analysis and Design
- Compliance and Integrity Management
- Consultation
- Coordination, Facilitation, and Integration
- Development of Systems, Products, and Resources
- Education and Professional Development
- Genetics and Genomics
- Information Management and Operational Architecture
- Policy Development and Advocacy
- Quality and Performance Improvement
- Research and Evaluation
- Safety, Security, and Environmental Health



# FEMA Core Capabilities

## Core Capabilities

This page contains the 32 core capabilities identified in the [National Preparedness Goal](#) and is intended to assist everyone who has a role in achieving all of the elements in the Goal.

These capabilities are referenced in many national preparedness efforts, including the [National Planning Frameworks](#). The Goal grouped the capabilities into five mission areas, based on where they most logically fit. Some fall into only one mission area, while some others apply to several mission areas.

If you have any questions, please contact the National Integration Center at [FEMA-NIC@fema.dhs.gov](mailto:FEMA-NIC@fema.dhs.gov).

> [Expand All Sections](#)

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> [Planning](#)

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> [Public Information And Warning](#)

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> [Intelligence And Information Sharing](#)

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# Disaster Prevention and Mitigation

- Definition - Measures that eliminate or reduce the impacts and risks of hazards through proactive measures taken before an emergency or disaster occurs

Lindsey 2012

- Activities to get involved in:
  - Identify/rank your risks, think bigger than your EMR, i.e. ascom phones, telemetry, call alert systems
  - Clinical area design, i.e. location of red electrical outlets, wiring closets
  - Hardware selection and distribution, i.e. cord length, battery life, UPS's and surge protectors
  - Inventory systems - physical location of servers and direction of data flow – Where is your TB0?
  - Define system redundancy and backups, i.e. Hot Sites, frequency of data snapshots



What  
are  
our  
risks?





# Floods and Tornadoes and Earthquakes – Oh My!



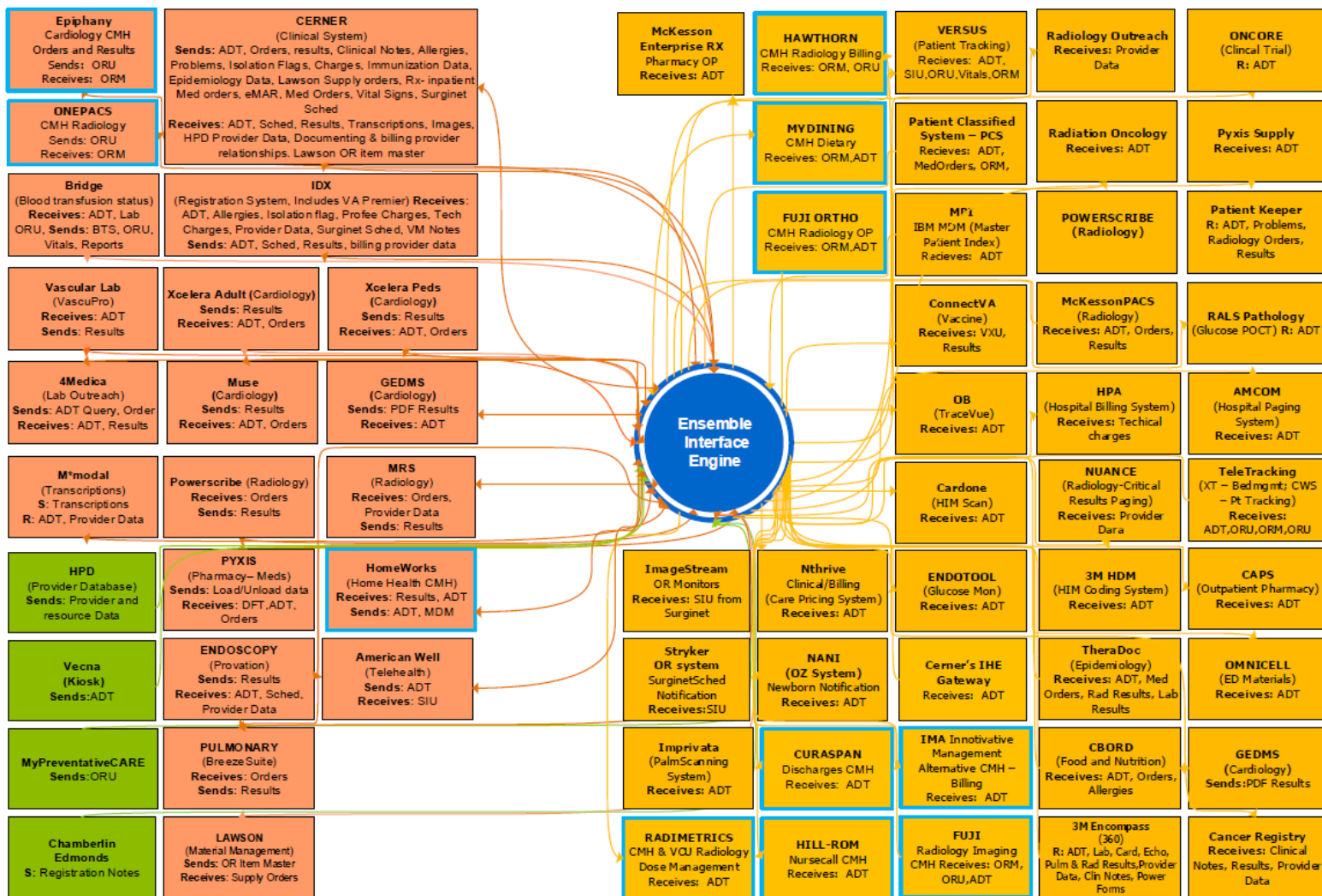
# 1 of 34 approved Unique Pathogen units in the US

Use standard WOWs with BCMA, standard terminal cleaning procedures





# Know the flow!



# Disaster Preparedness/Planning

Definition – To enhance the capacity to respond to an incident by taking steps to ensure personnel and entities are capable of responding to a wide range of potential incidents

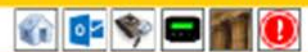
Lindsey 2012

Activities to get involved in:

- Define which systems are mission critical and establish SLAs
- Develop communication responsibilities and call trees with escalation plans
- Define impacts of systems being down and what triggers a formal disaster response – Dr Data
- Define command center components and hardware needs

# No such thing as too much planning, keep going!

- Create downtime policies with procedures and forms by dept, i.e. Dr Power, Dr Wet, Dr Data
  - Registration – finding existing MRNs vs issuance of new ones
  - Dept specific – Nursing, Provider, Allied Health, Ancillaries
    - Orders processing
    - Documentation
    - Results reporting for stats and routines
- Make emergency management materials readily available – Are you a webmaster?
- Assist depts with setting up a location for downtime supplies, include a list contents and how to order
- Participate in disaster drills, i.e. internal paper drills, regional drills with mulaged victims



Maintained By: SharePoint Team,  
Last Updated: 4/25/2016  
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# VCU Health System Intranet

- Life Safety and Environment of Care
  - Life Safety Department
  - Environment of Care Documents
  - Safety Manual
  - Emergency Preparedness Plans**
  - Emergency Preparedness Plans
  - Regional Mass Casualty Incident Plan

- H.I.S. Security Applications
  - Access Request
  - IDX Confidentiality Forms
  - Print Username/Password
  - User Confidentiality Agreement

- H.I.S. On-Call
- Patient Bill Of Rights
  - Arabic
  - English
  - Spanish
  - Vietnamese

- Plan for the Provision of Patient Centered Care
- Responsibility Listing

HR4U. O  
One ema

Resis  
Beware of ph

Dr. M  
If you missed the  
it again you can v

- Frequently Visited**
- Accounts Payable
  - Acute Care Pediatrics

Job Action Sheet LOGISTICS SECTION  
Service Branch

## INFORMATION TECHNOLOGY/INFORMATION SERVICES UNIT LEADER

**Mission:** Provide computer hardware, software and infrastructure support to staff.

Date: \_\_\_\_\_ Start: \_\_\_\_\_ End: \_\_\_\_\_ Position Assigned to: \_\_\_\_\_ Initial: \_\_\_\_\_  
 Position Reports to: Service Branch Director Signature: \_\_\_\_\_  
 Hospital Command Center (HCC) Location: \_\_\_\_\_ Telephone: \_\_\_\_\_  
 Fax: \_\_\_\_\_ Other Contact Info: \_\_\_\_\_ Radio Title: \_\_\_\_\_

Immediate (Operational Period 0-2 Hours)	Time	Initial
Receive appointment and briefing from the Service Branch Director. Obtain packet containing the Unit's Job Action Sheets.		
Read this entire Job Action Sheet and review incident management team chart (HICS Form 207). Put on position identification.		
Notify your usual supervisor of your HICS assignment.		
Document all key activities, actions, and decisions in an Operational Log (HICS Form 214) on a continual basis.		
Appoint IT/IS Unit team members and in collaboration with the Service Branch Director, complete the Branch Assignment List (HICS Form 204).		
Brief team members on current situation; outline Unit action plan and designate time for next briefing.		
Assign staff to the HCC to provide IT/IS support and maintain system. Respond immediately to requests for assistance from the HCC.		
Establish priorities for use of available IT/IS systems, as needed.		
Coordinate IT/IS activities with the Operations Section's IT Unit Leader.		
Inventory IT systems, hardware and software; identify potential needs and work with the Supply Unit Leader to obtain equipment and supplies.		
Expand IT capability to pre-designated or additional/new areas per the hospital's Emergency Operations Plan.		
Make external requests for assistance in collaboration with the Supply Unit Leader, as needed; notify the Service Branch Director of all critical issues and requests.		
Document all communications (internal and external) on an Incident Message Form (HICS Form 213). Provide a copy of the Incident Message Form to the Documentation Unit.		

Intermediate (Operational Period 2-12 Hours)	Time	Initial
Meet routinely with the Service Branch Director for status reports, and relay important information to Unit members.		
Continue to evaluate IT system performance; troubleshoot issues as indicated.		
Maintain internal IT/IS and /LAN connectivity, consulting with external experts when needed.		

August 2008

**Paging**  
On-Call Schedule On-Line

**Safety First Every Day.**

**33 Days Since Last Safety Event**

**Lessons Learned**

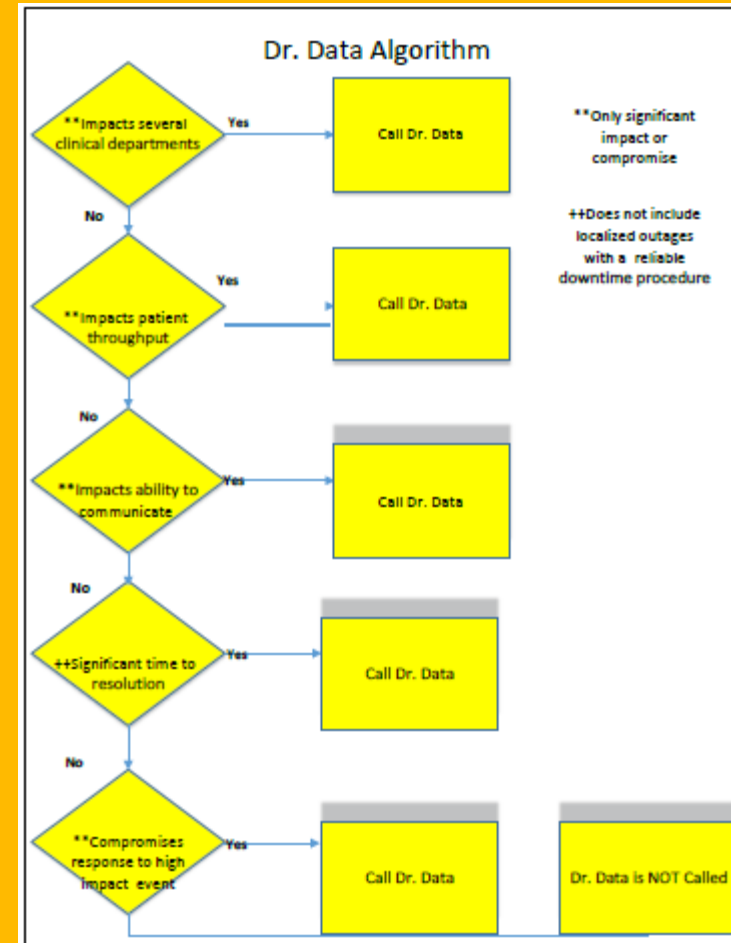
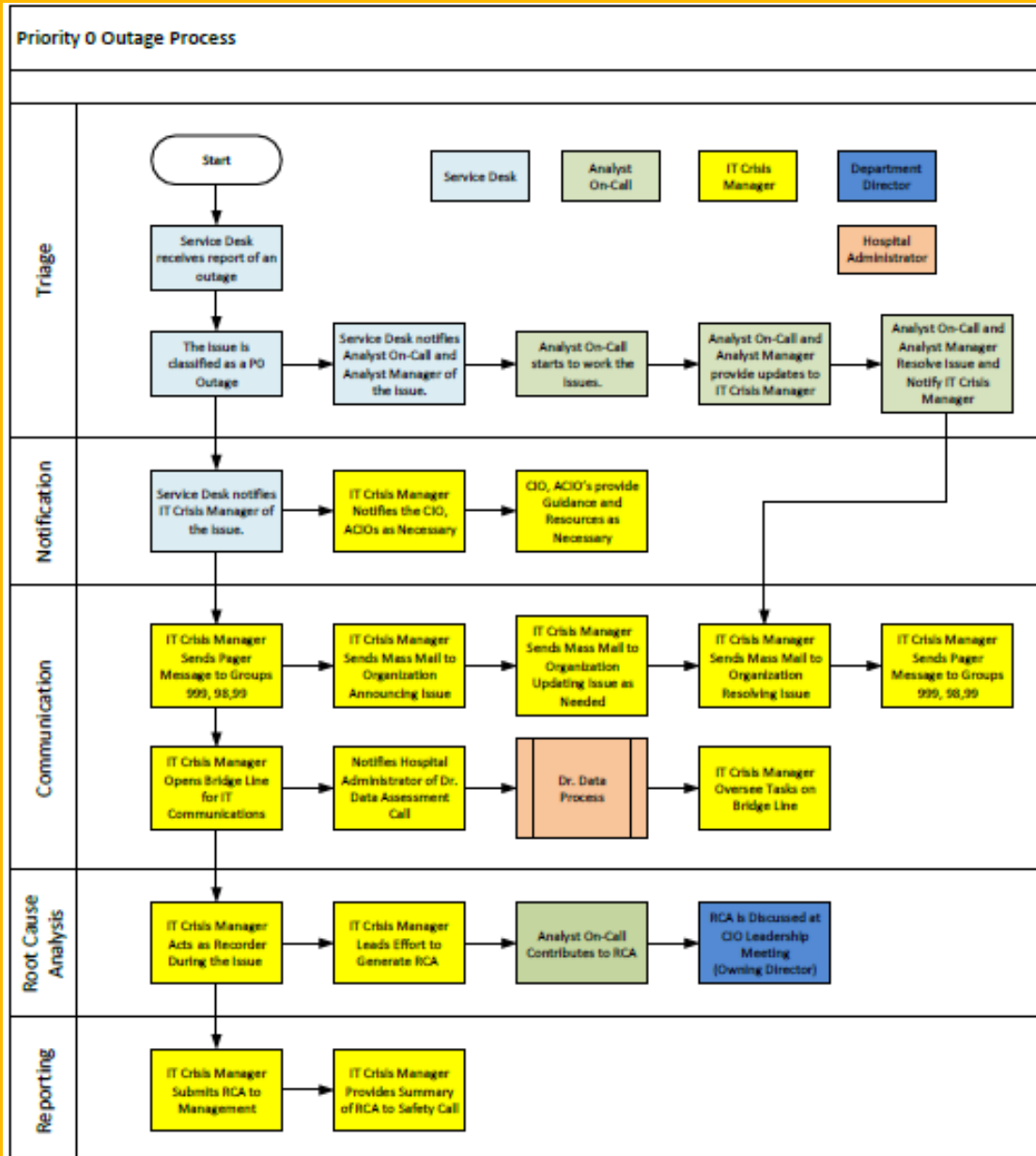
[Read More...](#)

**VCU Health**  
Brand Website





# Dr Data – Includes multiple algorithms



# Dr Data – Applications Impact Analysis

DR. DATA: Applications***			
SYSTEM	NOT IMPACTED	IMPACTED	PROCEDURES
<b>Ensemble Interface Engine</b> down Major Impact: a. ADT <sup>11</sup> interface b. Orders interfaces c. Results interface from Radiology	<ul style="list-style-type: none"> <li>• Patient Assessment and other Patient Care Documentation</li> <li>• ED Quick Registration (CIS)</li> <li>• Emergency Department</li> <li>• Lab orders</li> <li>• Pharmacy medication orders do not cross to Pyxis ADC.</li> </ul>	<ul style="list-style-type: none"> <li>• Interface to Omnicell in the ED</li> <li>• Interface to Midas used for Quality Assurance/Utilization Improvement (QA/UI)</li> <li>• Interface to Teletracking for Patient Tracking, Bed Tracking, and Transport Tracking</li> <li>• Interface for medication orders to the Pharmacy Dispensing Machines</li> <li>• Interface to Radiology PACS and Breast Imaging for orders and results</li> <li>• Interface of Materials orders to Lawson</li> <li>• CIS and IDX Downtime Procedures and Forms</li> <li>• Patient consent forms</li> <li>• Pyxis, Talyst</li> </ul>	Downtime procedures and forms for: <ul style="list-style-type: none"> <li>• ED</li> <li>• QA/UI</li> <li>• Bed Management</li> <li>• Housekeeping</li> <li>• Pharmacy Robot</li> <li>• Radiology</li> <li>• Materials Systems</li> <li>• Transportation</li> <li>• Food &amp; Nutrition</li> <li>• Manual forms and hard copy of downtime procedures and frequently used forms and information in a central location.</li> </ul>
<b>Pyxis ADC</b> (Automated Dispensing Cabinet) <ul style="list-style-type: none"> <li>• MedStation</li> <li>• Anesthesia Cart</li> </ul>	<ul style="list-style-type: none"> <li>• Access to Cerner for patient medication profile</li> </ul>	<ul style="list-style-type: none"> <li>• Ability for end users (Nursing, Respiratory, etc.) to access the machine to vend medications</li> </ul>	<ul style="list-style-type: none"> <li>• Pyxis ADC downtime procedures</li> <li>• System placed in 'Critical Override' status</li> </ul>
<b>Talyst</b> (Automated Medication Inventory System)	<ul style="list-style-type: none"> <li>• Access to Cerner for patient medication profile</li> </ul>	<ul style="list-style-type: none"> <li>• Ability for Pharmacy to dispense medications not stocked in Pyxis ADC</li> <li>• Ability of Pharmacy to restock the Pyxis ADC</li> </ul>	<ul style="list-style-type: none"> <li>• Talyst downtime procedures</li> </ul>
<b>E-Mail</b>	<ul style="list-style-type: none"> <li>• Only E-Mail communication is impacted</li> </ul>	<ul style="list-style-type: none"> <li>• E-Mail communications</li> </ul>	<ul style="list-style-type: none"> <li>• Alternate communications procedures</li> </ul>
<b>Lawson</b>	<ul style="list-style-type: none"> <li>• Patient Registration</li> <li>• Admission, Discharge, Transfer</li> <li>• Patient Scheduling</li> <li>• Patient Orders and Results</li> <li>• Patient Assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Supply order processing from Cerner, Pharmacy Pyxis, Radiology SpaceTrax, ER Omnicell and patient care area supply replenishment</li> <li>• Procurement / Receiving Processing</li> <li>• Invoice Processing</li> <li>• Access to financial information</li> </ul>	<ul style="list-style-type: none"> <li>• Downtime procedures</li> </ul>

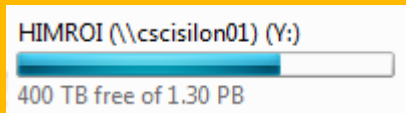
# Operation Desert Storm - 1990

- Notified by VA that they may need to offload patients on short notice to free up their beds
- VCUHS needed to create more beds for burns (chemical and flame) and more stepdown beds
- Activities needed to occur quickly and on the QT
- NI experience helped me as Unit Manager to know the right IT/dept managers:
  - To get the unit bed build process done
  - To get revenue cycle IT to set up the new accommodation codes for room and board charges
  - To get the Pharmacy analyst to update the Med Dispensing Robot and get Pyxis carts setup for the new beds
  - To get additional hardware needs met



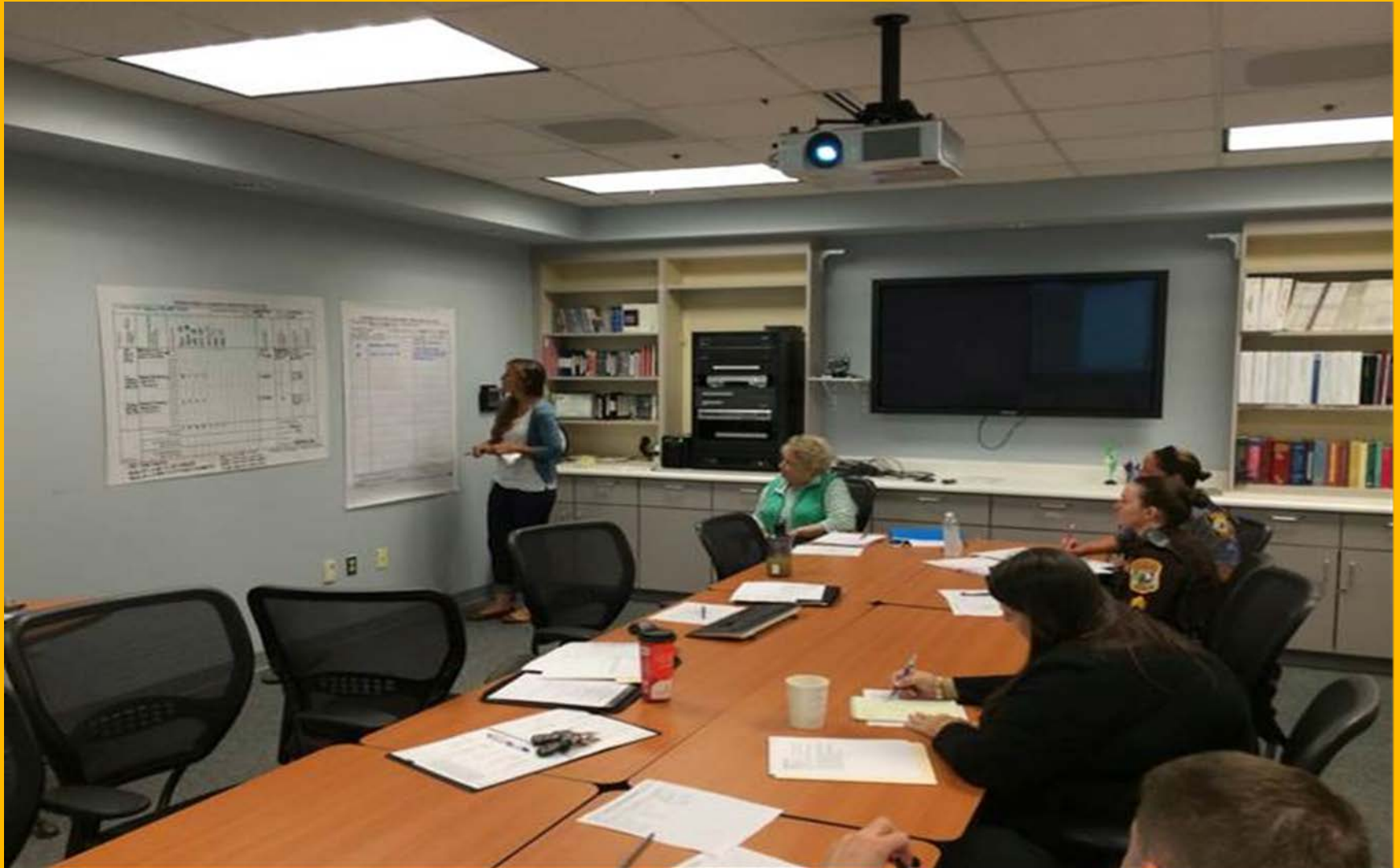
# Know your limits!

- How close are you to running out of MRNs?
- How old are your operating systems, servers, and applications?
- How full are your drives getting?





# County Health Dept: Epidemiology planning a vaccine event



# County Health Dept Immunization event: Registration, documentation, and tracking needs?



# Response - All Hands on Deck!

Definition – The immediate actions to save lives, protect property and the environment, and meet basic human needs

Lindsey 2012

Activities you may get assigned:

- Set up the command center
- Fill a HICS role in the command center
- Round to assist staff with downtime procedures
- Distribute downtime supplies
- “Other duties as assigned”:
  - RN = “Real” Nurse
  - Hunter/Gatherer of people and things
  - Runner/Distributor
  - Best unit clerk or scribe ever!





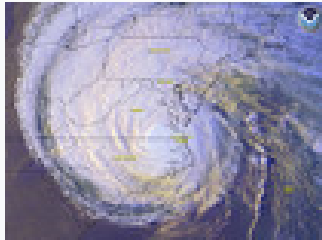
# Hurricanes = Flooding and Power Outages

## 2003 Isabel

## 2004 Gaston

### Hurricane Isabel

Category 1 hurricane (SSHWS/NWS)



Satellite picture shows Hurricane Isabel entering Virginia as Category 1 storm.

**Winds** 1-minute sustained: 75 mph (120 km/h)

Gusts: 105 mph (170 km/h)

**Pressure** 969 mbar (hPa); 28.61 inHg

**Fatalities** 10 direct, 26 indirect

**Damage** \$1.85 billion (2003 USD)

**Areas affected** Virginia



Don't think this can't happen to you. 7/10 - 7 hrs of downtime!

Local News

# Power restored to Chippenham Hospital

By: WRIC Newsroom

Posted: Jul 10, 2018 03:54 PM EDT

Updated: Jul 10, 2018 09:29 PM EDT



# Recovery – Whew, its over!

Definition – To restore essential services and repair damages caused by the event

Lindsey 2012

Activities to get involved in:

- Assist with backloading data
- Locate and return equipment
- Assist with completion and collation of After Action Review forms
- Participate in debriefing sessions/lessons learned
- Recovery and Mitigation phases often overlap, return to Mitigation slide!

## VCUHS After Action Review (AAR)

Issue (Statement of the Problem):

Discussion (Discuss Why It Is a Problem/Issue):

Change Required/Recommended (Provide a Proposed Recommendation):

Action Taken (If Problem/Issue Has Already Been Corrected, Provide Action Taken):

Submitting Unit/Department and Point of Contact Name and Telephone Number:

1. Unit/Department Submitting AAR Issue:
2. Point of Contact Name:
3. Point of Contact Telephone Number:

# VCUHS' greatest need? Analytics!

Why do we need to track and report on disaster events and the involved patients?

- For planning and budgeting
- Justification for spikes in census, LOS, charges, costs, case mix index
- Reimbursement - i.e. FEMA grants
- Population health and research – how do disaster related patients compare to non-disaster patients for short and long term things such as:
  - HACs
  - Mortality
  - Morbidity
  - Utilization of care services like 30 day readmits

Does anyone know?

# Katrina Flag - 2005

- We do have a generic Emergency Response flag in our GE/IDX registration system, built in 2004 for Hurricane Katrina for relocation billing use, but never used
- The designation is made at the encounter level
- Currently no way on the fly to have an entry specific to each individual disaster
- And Cerner downtime registration also has a field

The screenshot shows a software interface with several tabs: 'Emergency Contact', 'Additional Contacts', '\*Visit Information', 'Pt Information Pkg', and 'Insurance Summary'. The '\*Visit Information' tab is active. It contains several input fields: 'Admit Time' (08:44), 'Admit Source', 'Admit Type', 'Visit Reason', 'Injury Date', 'Injury Time', 'Admitting Physician', and 'Referring Physician'. A dropdown menu for 'Patient Flag' is open, showing a list of options: 'Administrative Review', 'Assistance Required', 'Department of Correc', 'Hurricane Displacem', 'Language Barrier', 'Natural Disaster Resp', 'Restricted', 'Security (Alias)', and 'Seeing/Hearing Impa'. The 'Natural Disaster Resp' option is highlighted with a blue background and a red circle. A red arrow points from the 'Visit Information' tab to this option.

- Currently no interface for these fields between IDX and Cerner

# Kevin's List of Opportunities for NIs...

## Healthcare Preparedness & Response

- Each hospital should have an emergency management group. The hospital may already have staff augmentation plans that an NI could be part of.
- Examples include:
  - Work with hospital's Emergency Management to support planned and unplanned event
  - Medical tent support to sporting events, e.g. Monument Ave 10k, UCI, etc.
  - Become part of the hospital's disaster response / mass casualty incident (MCI) surge plan
    - Work in Triage, Treatment or Transport (ODEMSA MCI Plan)
    - Help track patients by acuity
    - Support ad hoc patient tracking and reporting if system failure
    - Become proficient in Incident Command System(ICS)

# Kevin's List of Opportunities for NIs...

## Public Health Preparedness & Response

- Medical Reserve Corps (MRC) volunteer - The MRC is a key gateway for a Nurse Informaticist not employed by a responding agency to become involved in disaster planning and response.
- Examples of roles for NI members of the MRC include:
  - Point of dispensing (POD) planning and staffing
    - Medication dispensing
    - Surveillance and data collection
  - Community Health Assessment
    - Work on Task Forces gathering information about a community's health
  - Disease outbreak investigation
    - Work with epidemiologists to gather patient data while conducting contact investigations
- Virginia MRC Facebook page
- Volunteer with Red Cross to support disaster response



# Kevin's List of Opportunities for NIs...

## Social Services Preparedness & Response

- Social Services is the lead for emergency sheltering
- Non-medical but data driven opportunities in shelter include:
  - Emergency shelter support
  - Medical support
  - Resident registration and tracking
  - Shelter medical and disease monitoring

## General Emergency and Incident Management

- The Situation Unit provides situation status tracking boards, event and incident progression analytics, weather, mapping, and other processes and tools that provide folks on the ground and at the 30,000 foot level a common operating picture
- Serve as member of a Situation Unit (Situation Unit Leader Checklist) in Emergency Operations Center (EOC) or on an Incident Management Team (IMT) that provides overall situational awareness of an event or incident

# Get involved!

- Join your facility's Emergency Management Committee
- Know your CMS Regs
- Learn about ICS/HICS
- Volunteer with your local EM agencies

**Learning Center  
Main Hospital, First Floor Lobby**

***Centers for Medicare & Medicaid Services (CMS):  
Emergency Preparedness***

On September 8, 2016 the Federal Register posted the Final Rule Emergency Preparedness Requirements for Medicare & Medicaid Participating Providers and Suppliers. The regulation, which increases patient safety during emergencies and establishes a more coordinated response to natural and man-made disasters, went into effect on November 16, 2016. Healthcare providers and suppliers affected by this rule had to be in compliance and were required to implement all regulations by November 15, 2017 (one year after the effective date).

The purpose of this Final Rule is to establish national emergency preparedness requirements to ensure adequate planning for both natural and man-made disasters, and coordination with federal, state, tribal, regional, and local emergency preparedness systems.

CMS requires healthcare organizations to take an "all hazards" approach to emergency preparedness and defines this as: "...an integrated approach to emergency preparedness that focuses on identifying hazards and developing emergency preparedness capacities and capabilities that can address those issues, as well as a wide spectrum of emergencies or disasters. This approach includes preparedness for natural, man-made, and/or facility emergencies that may include but is not limited to, care-related emergencies; equipment and power failures; interruptions in communications, including cyber-attacks; loss of a portion or all of a facility; and interruptions in the normal supply of essentials, such as water and food. All facilities must develop an "all hazards" emergency preparedness program and plan."



*Figure 1.2: Relationship Between Strategic, Operational, and Tactical Planning*





<https://www.training.fema.gov>

Federal Emergency Management – A Brief Introduction by Bruce R Lindsey 2012



<https://www.ready.gov/business/implementation/>

IT Department of Homeland Security - IT Disaster Recovery Plan



<http://www.chesterfield.gov/cert/>

Community Emergency Response Team

# Any Questions?