Get Ready Stay Ready

Disaster Planning for California Hospitals

Nashville Under Water

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Pam Hoffner serves as the director of emergency preparedness and response at Vanderbilt University Medical Center in Nashville, Tennessee, where she is administratively responsible for emergency management to include preparedness, education, regulatory compliance, mitigation, response and recovery at the medical center. Pam holds a Bachelor's Degree in Nursing from University of Maryland and a Master's Degree in Nursing from Vanderbilt University. She is an adjunct instructor in nursing at the Vanderbilt School of Nursing where she lectures and assists with emergency management curriculum development. In May 2010, Pam led the response and recovery efforts as Nashville and most of the surrounding areas in Tennessee experienced massive flooding.

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Rachel Majors has been with the Metro Public Health Department’s Emergency Preparedness Program since June 2008. She served as the regional hospital coordinator for emergency preparedness until February 2012, when she was appointed director of emergency preparedness. Rachel earned her Bachelor of Science Degree from Middle Tennessee State University in 2004. In 2007, she completed her Master of Business Administration with a focus in Hospital Administration degree from Lipscomb University. In 2009, Rachel became a licensed emergency medical technician – intravenous therapy. She has been heavily involved in several emergencies in Middle Tennessee, including the 2008 Hurricane Gustav evacuation, the H1N1 Flu Outbreak, the May 2010 Flood and the 2012 Fungal Meningitis Outbreak. In 2013, Rachel directed the biggest medical dispensing exercise in Tennessee’s history.
Objectives

• Describe the many challenges faced when a 1,000-year flood devastated the city of Nashville and Vanderbilt University Medical Center
• Learn about how Vanderbilt’s emergency planning, training and exercises aided in the response and recovery from this devastating flood
• Discuss strategies to support staff and enhance recovery after a natural disaster
• Describe lessons learned from a catastrophic flood event

Nashville Under Water

• On Saturday, May 1, 2010 an unprecedented amount of rain fell across middle and western Tennessee over 36 hours, devastating 52 of Tennessee’s 95 counties
• 31% of the state of Tennessee was designated a major disaster area
Rainfall and Chance of Occurrence

- 48 hour total precipitation

- 48 hour chance of occurrence
Neighboring States

- There were 4 flood-related fatalities in Arkansas
- Many parts of Mississippi and Kentucky were damaged or destroyed by floodwaters as well

Nashville Under Water

- Cities, towns and roadways were flooded
- Homes and bridges were destroyed
- Thousands were left homeless or without power
Nashville Under Water (cont.)

• Many historic buildings, including the Grand Ole Opry, were damaged or destroyed
• There were 24 deaths in the state of Tennessee
• Some of these deaths occurred while victims were trapped in their cars and even in their homes

Nashville Under Water (cont.)

• Portions of major interstates were under water
• Country music performers lost their instruments and tour equipment
Tennessee Flood Statistics

• Estimated $2 billion in damages to private property
• 2,773 Nashville businesses impacted with 14,499 workers
• 6,200 job losses

Tennessee Flood Statistics (cont.)

• In the first 30 days of flood relief, 60,240 people registered with FEMA for individual assistance for nearly $128 million in federal aid
• One of the costliest natural disasters in U.S. history
VUMC Demographics

- Total number of licensed beds: 1,039
- Total number of clinic outpatient days: 1,824,597
- Total ED visits: 118,731
- 19,600 Employees
- 3,445 medical school and nursing school students and trainees
VUMC Demographics (cont.)

- Comprehensive cancer center for adults and children
- Comprehensive Children’s Hospital
- Level I Trauma Center
- Level 4 Neonatal ICU
- Dedicated Burn Center

VUMC Demographics (cont.)

- LifeFlight: integrated air and ground emergency patient transport system
- Tennessee Poison Center
- Largest and most comprehensive transplant program in the Southeast
- Scientific and Medical Research: $616 M
- Charity Care: $770 M
Morning and Afternoon May 1, 2010

- Severe weather all across Tennessee
- Flash flood watches and warnings
- Tornado watches and warnings

Evening of May 1, 2010

- Partial activation of EOC 1830–2030
- Metro EOC Activation at 1937
- First shelter opened at David Lipscomb University
- Metro Nashville OEM Hotline activated
May 2, 2010

- At 0735, received notification of flooding in Pod B of the Adult ED requiring evacuation to Pod A; water also coming down the Critical Care Tower elevator shaft
- Emergency Response Team meeting via conference call at 0750
- Decision made to activate EOC

Morning Commute
Incident Objectives

- Safety
- Control flooding
- Assess staffing
- Maintain hospital operations
- Recovery

Incident Objectives (cont.)

- Timely risk communications
- Children’s Hospital — elective surgery decision
- Activate Staff Accommodations Plan
- Damage assessment
Priority #1
Vanderbilt Children’s Hospital Flooding

- Elevation of flood water reached 18” above the finished floor within 1½” of basement pumping stations, chillers and basement air handlers
- 24,000 gallons/min
- Call to Regional Hospital Coordinator and OEM to request pumper truck

Damage Assessment

- Basement of The Vanderbilt Clinic
- Children’s Hospital basement and sub-basement
- Vanderbilt Medical Group (VMG) Neurodiagnostics Clinic
Damage Assessment (cont.)

- VMG Radiation Oncology Clinic
- First floor of the Eye Institute

![Image of damage assessment]

Damage Assessment (cont.)

- Nutrition Services
- VMG Pulmonary Clinic
- Adult ED

![Image of damage assessment]
Damage Assessment (cont.)

- Children’s Hospital Sterile Processing Department
- Parking garages
- Several roof leaks

Incident Objectives May 3, 2010

- Damage assessment
- Recovery operations
- Staffing
- Timely risk communications
- Human Resources
- Employee Assistance
Incident Objectives May 3, 2010 (cont.)

• Development of VU/VUMC Flood Recovery website
• Water conservation
• Linen conservation

Vanderbilt Flood Website
Challenges

- Relocation of impacted clinic services
- Children’s Hospital basement and Central Sterile Department had open fissures in the floor
- Potential for medical gas shortage
- FedEx not running
- Potential for supply issues

Recovery

- VUMC Hardship Fund for employees
- Flood clean-up
- Patient tracking
- Financial reconciliation
Incident Objectives May 4, 2010

- Monitor water situation
- Flood clean-up and recovery
- Assess need to continue EOC Activation

Challenges

- Continued potential for water shortage
- Secondary data center in downtown Nashville on generator power
- Staffing problems
- Plagued Tube Station and Red Phone issues
Recovery

- Orange Alert for Internal and External Flooding downgraded to Yellow Alert Standby at 1300 and closed EOC at 1600
- Linen Conservation Plan approved and activated
- Secondary data center up
- Daily briefings
- Continue flood clean-up

Incident Objectives May 5, 2010

Daily Briefing:
- Establish employee relief team
- Conduct a workforce needs assessment
- Continue linen conservation
- Monitor water status
- Continue daily risk communications
- Flood website maintenance
Workforce Needs Assessment

- 6,944 employees completed the survey
- Impacted by the flood: 1,369
- Need for temporary housing: 74
- Home/Apt. uninhabitable but salvageable: 324
- Home totally destroyed: 72
- Car destroyed in flood: 112

Flood Resource Center for Employees

- Incident Command Structure
- Mission
- Follow-up from Employee Flood Damage survey
- Outreach to employees
- Robust Flood Website met with FEMA
- Onsite FEMA sessions for employees: May 13
Flood Resource Center for Employees (cont.)

- Continued daily communications
- Community Resource Guide
- FEMA Cliff Notes™ for managers
- Counseling services

Flood Resource Center for Employees (cont.)

- Flood Relief Programs
- Discounts on housing
- Temporary housing in VU dorms
- Assistance from fellow employees
Flood Relief Benefit

- Goal of assisting those most severely affected
- One-time, non-precedent setting benefit to affected employees of up to two weeks of paid time off commensurate with their normal work schedule
- Compensated time off could be used to account for any time during the week of May 1 through May 8, 2010 and time off going forward until October 31, 2010

Flood Relief Benefit (cont.)

- Eligibility: full-time, part-time and term employees
- Complete the Vanderbilt Flood Assessment Survey and a Verification Form
- Submit requests to department chair, supervisor or manager
- Time off subject to the scheduling needs of the department and may be taken in increments
- Disaster pay benefit code (DPB)
Return to Normal Operations

- Medical center debriefing
- Event documentation and Corrective Action Report
- Financial impact Report

Return to Normal Operations (cont.)

- Citywide Disaster Medical Committee Debriefing
- Metro Nashville After Action Report
Corrective Action Report

- Installation of an emergency cooling tower feed from Vanderbilt Children’s Hospital Spring
- Purchase of Enterprise-wide Emergency Notification System
- Purchase of sand bags and additional sump pumps as a flood mitigation measure
- Storm Flood Plan

Corrective Action Report (cont.)

- Training for Managers
- Add Poison Control and Systems Support Leader positions to EOP
- Engage outside engineering firm to perform an assessment of site topography and utility infrastructure
VUMC Stories of Recovery

ONE DEPARTMENT’S EXPERIENCE:
Radiation Oncology VUMC’s hardest hit area

BY DAGNY STUBB

Flood Sweat and Tears

VUMC Financial Impact

- Flood event exceeded $12M, including $3M in lost revenue

Source: House Organ June 2010
Flood Sweat and Tears

Records were quickly spread out for drying to minimize damage.

Fans were deployed all over the flooded basement areas to help quick drying.

All of the electronic cables between the control rooms and the linear accelerators lie in protective concrete troughs under the floors, troughs now filled with dark water.
Regional Response

- Each of the ten hospitals in Metro Davidson County experienced varying operational and logistical issues

Increased ER Visits

- Injuries
- Fear of contamination
- Ambulances not running in some areas
- Nowhere else to go
Additional Issues

• Structural damage
• Decreased water pressure
• Communication with front-line first responders and city officials
• Weekend event: hospital administrators not in office, some out of town

What We Ran Into
How We Winged It!

• The Rumor Mill
• Hospitals not considered “first responders”
• Contamination/tetanus fears
• Improving communications
What We Ran Into
How We Winged It! (cont.)

• Offsite power outages
• Take care of your employees!
• Dusting off those old emergency plans

What We Ran Into
How We Winged It! (cont.)

• Medical assistance shelters
• Severe operational issues
• Responder fatigue
Recovery

- In one of Tennessee’s darkest hours, the overwhelming majority of our residents found resilience, selflessness and community spirit that proved to be an immense comfort to their stricken neighbors

Fundraisers

- “Nashville Rise: A Benefit for Flood Recovery”
- “Garth Brooks Flood Relief Concerts”
- “Dolly Helps Nashville”
## Recovery Continues

- Tide Loads of Hope
- Hands On Nashville
- "We Are Home" rebuilding assistance program
- DHS Emergency Assistance Program for TN Flood Victims
- Church Communities
- Interfaith Mission Trips
- Middle Tennessee Long Term Recovery Committee
- IRS Casualty Loss Tax Deduction
- "Fifty Forward" nonprofit Middle Tennessee Agency to assist the 50+ age group in Flood Recovery
- US College Mission Trips

## Milestones

- At VUMC, flood-damaged clinics were fully operational in three weeks
- Grand Ole Opry reopened in September 2010
- Opryland Resort and Hotel reopened in November 2010
- Schermerhorn Symphony Hall reopened in December 2010
- First anniversary ceremony on May 2 at the Schermerhorn Symphony Hall
Grand Ole Opry

May 2010

September 2010

Opryland Hotel

May 2010

November 2010
Schmerhorn Symphony Hall

May 2010

December 2010

Downtown Nashville

May 2010

May 2014
May 1st - May 3rd
2010

Thank you

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