

MEETING THE CHALLENGE: REPORT ON THE READINESS OF NEW MEXICO HOSPITALS IN EMERGENCY PREPAREDNESS AND RESPONSE

Anthony Cahill, Ph.D

Director, Division of Disability and Health Policy,
Center for Development and Disability

Blaine (Jess) Benson, Pharm.D.

Director, New Mexico Poison and Drug Information Center

Elaine Brightwater, CNM, MSN, WHCNP

Director of Emergency Preparedness Programs,
Center for Development and Disability

Luciana Zilberman, MA

Associate Scientist, Division of Disability and Health Policy
Center for Development and Disability

Heidi Fredine, MPH

Lead Researcher, Division of Disability and Health Policy
Center for Development and Disability

Susan Kunkel, Pharm D.

Analyst, Pharmaceutical Systems,
Administration Pharmacy

October, 2008



This report was prepared under Addendums 08UNM/03.0092 and 08UNM/03.0091 to the Master Agreement between the New Mexico Department of Health and the Regents of the University of New Mexico for work by the New Mexico Poison and Drug Information Center and the Center for Development and Disability of the University of New Mexico's Health Sciences Center.

The opinions expressed here are those of the authors, and have not been endorsed by the New Mexico Poison and Drug Information Center, the Center for Development and Disability, or the New Mexico Department of Health.

For More Information, Contact

Jess Benson
(505) 272-4261
jbenson@salud.unm.edu

Anthony Cahill
(505) 272-2990
acahill@salud.unm.edu

Elaine Brightwater
(505) 272-5815
ebrightwater@salud.unm.edu

■ Table Of Contents

Introduction.....	1
The Project Work Group.....	2
The Assessment Instruments and Process.....	4
Module One: General Vulnerability and Threat Assessment.....	8
Kaiser Health Foundation Assessment Tool.....	9
Site Visit Follow-Up Questions.....	10
Module Two: Pharmaceuticals For Hospital Staff and Family Members.....	13
Staff and Family Directories.....	14
Pharmaceutical Supply Procedures.....	14
Pharmaceutical Preparedness for Biological and Chemical Disasters.....	14
Pharmaceutical Inventory Analysis.....	15
Antibacterial Counter-Agents.....	15
Chemical Counter-Agents.....	16
Antiviral Counter-Agents.....	17
Recommendations.....	17
Module Three: Decontamination and Isolation Plans and Capabilities in the Event of a Biological, Chemical or Radiological Incident.....	18
Module Four: Personal Protective Equipment and Durable Medical Equipment.....	20
Module Five: Hospital Mortuary Planning and Services.....	25
Module Six: Planning for Targeted Populations in Response to Catastrophic Events.....	27
Appendices.....	34
A: Minutes of Work Group Meetings.....	35
B: Assessment Modules.....	47
C: Hospital Pharmacy Counter-Agent Inventories.....	100
D: Scenarios For Treatment gaps Under Four Scenarios.....	119

■ Introduction

Hospitals will play a critical role in providing health care in the event of a catastrophic event such as pandemic influenza, a chemical or radiologic attack, or a natural disaster. Plans at the federal and state levels, including New Mexico's, provide for defined roles for hospitals in the overall system of health care response. To assess the readiness of New Mexico's hospitals to meet the challenge of responding to various types of catastrophic events, the Bureau of Health Emergency Management (BHEM) of the Division of Epidemiology and Response of the New Mexico Department of Health entered into a Memorandum of Understanding (MOU) with the New Mexico Poison & Drug Information Center (NMPDIC) in the University of New Mexico's Health Sciences Center. The purpose of the MOU was to conduct a statewide assessment of participating hospitals leading to

- the development of an operational plan to assure storage and distribution of critical medications to hospital staff and their families in the event of a pandemic influenza;
- an assessment of the state of New Mexico hospitals relative to personal protective equipment and durable medical equipment in the event of a catastrophic event; and
- an assessment of the state of New Mexico hospitals relative to decontamination readiness and capability in the event of biological, chemical or radiologic event.

At the same time, the BHEM also entered into an MOU with the Division of Disability and Health Policy (DDHP) in the Health Sciences Center's Center for Development and Disability to conduct a statewide assessment of New Mexico hospitals relative to their ability to provide services to people with a wide range of physical and cognitive disabilities.

Because both MOU's involved an assessment of New Mexico hospitals, the NMPDIC and the DDHP decided to join forces and conduct a unified assessment. In the early stages of the project, the BHEM requested that the assessment be expanded to include two additional areas: an assessment of the views of hospitals on perceived major threats and an assessment of their mortuary facilities in the event of a catastrophic event.

As a result, the project was expanded beyond its original goals to include an assessment of six areas:

- General Hospital Vulnerability and Threat Analysis;
- Pharmaceuticals For Staff and Family Members;
- Decontamination and Isolation Plans and Capabilities in the Event of a Biological, Chemical or Radiological Incident;

- Personal Protective Equipment and Durable Medical Equipment;
- Hospital Mortuary Planning and Services; and
- Planning for Targeted Populations in Response to Catastrophic Events

The Project Work Group

The first task associated with completing this project was to create and facilitate a Work Group composed of subject matter experts, regional health system coordinators, DDHP and NMPDIC representatives to develop a conceptual framework of and process for the assessments, including the development of assessment instruments. In consultation with BHEM staff, the joint project team created the Work Group and convened three meetings over the grant period. Members of the Work Group were:

Jess Benson

New Mexico Poison and Drug Information Center

Elaine Brightwater

Center for Development and Disability

Anthony Cahill

Center for Development and Disability

Jerry Deen

Emergency Medical Services Region 3

Yolanda Duran

Bureau of Health Emergency Management

Mariya Farooqi

New Mexico Poison and Drug Information Center

Trish Garduno

New Mexico Hospital Association

Marjolaine Greentree

Bureau of Health Emergency Management

James Gore

Emergency Medical Services Region 3

Jerome Haskie

Emergency Medical Services Region I

Susan Kunkel

New Mexico Poison and Drug Information Center

Larry Loring
New Mexico Board of Pharmacy

John Martinez
New Mexico Department of Homeland Security and Emergency Management

Dennis Pepe
Bureau of Health Emergency Management

Jim Pettyjohn
Consultant, Bureau of Health Emergency Management

Byron Piatt
Center For Disaster Medicine

Steven Seifert
New Mexico Poison and Drug Information Center

Julia Shahvar
Albuquerque Metropolitan Medical Response System

Stuart Warren
New Mexico Department of Veteran's Services

Donnie Whitehead
Sandia National Laboratories

Tim Yackey
Bureau of Health Emergency Management

Tim Zagorski
Emergency Medical Services Region 2

The workgroup met in person three times over the contract period on October 26th and November 16th, 2007 and February 26th, 2008. In addition, project staff conducted two telephone bridge conference calls with workgroup members to refine five proposed modules that comprised the hospital vulnerability self assessment survey instrument (vulnerability assessment, pharmaceuticals, personal protective equipment and durable medical equipment, decontamination and targeted populations) on February 20th 2008 and February 21st. NMPDIC and CDD project staff presented a rough draft of the project work plan to NM DOH BHEM Face-to-Face meeting on January 31st, 2008. A refined version of the work plan was presented at the Hospital Vulnerability Assessment meeting on February 26th, 2008. Minutes of the three in-person meetings of the Work Group are included in Appendix A of this report.

The meetings of the Work Group provided valuable information on prior assessments as well as suggestions for the current assessment. For example, project staff were informed that there had been two past hospital vulnerability assessments performed in New Mexico, which resulted in a review of these documents as well as similar assessments that had been conducted in other states.

The Assessment Instruments and Process

Based on input from the Work Group, several decisions were made regarding the content of the assessment as well as the process to be used.

- It was decided to use a modular format for the assessments, with each of the six topical areas being a self-contained written assessment with room to include contact information for each section in the event more than one individual completed parts of each assessment.
- The self-assessments would be provided in two forms - a hard-copy version which would be sent to hospitals via U.S. Mail, and an on-line version which could be used by hospital staff to complete one or more portions of the six-module assessment over a secure internet connection.
- The written self-assessments would be followed by on-site follow up site visits to some or all of the hospitals. The site visits would be used to gather more in-depth information, amplify responses and clarify ambiguities.

The process of creating the assessments began in the fall of 2007. The assessments went through multiple drafts, as clarification was sought from BHEM staff on key pieces of information needed. Copies of the written assessments can be found in Appendix B of this report.

The drafts were sent via U.S. mail to all New Mexico hospitals in the spring of 2008. Over the course of the next five months, regular contact via e-mail and telephone was maintained with the hospitals to assist them in completing the assessments and encourage them to participate in the project.

Project staff encountered more difficulty than anticipated in having the hospitals complete the assessments. In the end, thirty one of thirty-six hospitals completed one or more of the six modules (see Table One). Follow-up site visits were conducted at twelve hospitals representing a mix of urban and rural areas and hospitals of different sizes (see Table Two).

**Table One
Self-Assessments Completed**

Hospital	City	Modules Completed
Alta Vista Regional Hospital	Las Vegas	1,2, 3,4,5,6(2&3 partial)
Artesia General Hospital	Artesia	1,2,3,4,5,6
Carlsbad Medical Center, LLC	Carlsbad	2,3,4,5,6 J
Cibola General Hospital	Grants	1,2,3,4,5,6
Eastern NM Medical Center	Roswell	1,2,3,4,5,6
Espanola Hospital	Espanola	
Gerald Champion Regional Medical Center	Alamogordo	1,2,3,4,5,6 c 2 missing
Gila Regional Medical Center	Silver City	1,2,3,4,5,6
Guadalupe County Hospital	Santa Rosa	1,2,X,4,5,6
Heart Hospital of New Mexico	Albuquerque	1,2, 3, 4, 5,6
Holy Cross Hospital	Taos	1,2,3,4,5,6
Kindred Hospital	Albuquerque	1,2,3,4 ex. #7, 5 ex. #1,6
Lea Regional Medical Center	Hobbs	1,2, 3,4,5,6 J
Lincoln County Medical Center	Ruidoso	1,2,3,4,5,6
Los Alamos Medical Center	Los Alamos	1, 2,3,4,5,6
Lovelace Medical Center	Albuquerque	2
Lovelace Westside Hospital	Albuquerque	
Lovelace Women's Hospital	Albuquerque	
Memorial Medical Center	Las Cruces	X,2,3,4,5,6
Mimbres Memorial Hospital	Deming	1,2,3, 4, 5,6,
Miners' Colfax Medical Center	Raton	2,3,4,5,6,

Table One, Continued

Hospital	City	Modules Completed
Mountain View Regional Medical Center	Las Cruces	1,part Mod. 2, 3, 5, 6
Nor-Lea General Hospital	Lovington	2, 3(ex. Sec. 2), 4,5,6 J
Plains Regional Medical Center	Clovis	
Presbyterian Hospital	Albuquerque	1,2,3,4,5,6
Presbyterian Kaseman Hospital	Albuquerque	1,2,3,4,5,6
Rehoboth McKinley Christian Health Care Services	Gallup	2,3,4.5.6
Roosevelt General Hospital	Portales	1,2,3,4,5,6
Roswell Regional Hospital	Roswell	1,2,3,4,5,6
San Juan Regional Medical Center	Farmington	1,2,3,4,5,6
Sierra Vista Hospital	Truth or Consequences	1,2,3,4,5,6 J
Socorro General Hospital	Socorro	
St. Vincent Regional Medical Center	Santa Fe	2,3,4,5,6
Trigg Memorial Hospital	Tucumcari	1,2,3,4,5,6 J
Union County General Hospital	Clayton	1,2,3,4,5,6
University of New Mexico Hospital	Albuquerque	1,2,3,4,5,6 (most)

Table Two
Hospitals At Which Site Visits Were Conducted

Alta Vista in Las Vegas
Holy Cross in Taos
Presbyterian Hospital and Presbyterian Kaseman
University of New Mexico Hospital
Kindred Hospital in Albuquerque
The Heart Hospital in Albuquerque
Roswell Regional Hospital
Eastern New Mexico Hospital in Roswell
Lincoln Co. Hospital in Ruidoso
Gerald Champion Hospital in Alamogordo
Memorial Hospital in Las Cruces
Mountain View Hospital in Las Cruces
Dan Trigg Hospital in Santa Rosa

■ **Module One: General Vulnerability and Threat Assessment**

Kaiser Health Foundation Assessment Tool

Two methods were used to assess what threats hospitals in the state were most concerned about. The first was the Kaiser Health Foundation tool (an Excel file—see Appendix B) which has been widely used in the nation and in New Mexico among local Emergency Managers as well as hospitals. The tool is capable of calculations of probability of various events occurring and the perceived impact they would have on human life, property and business and commerce. The focus for this Hospital Assessment was the assigned probability (moderate or high) as judged by submitting hospitals. Completing the assessment tool is frequently a collaborative process involving the hospitals and local emergency management personnel from various institutions (Fire Departments, LEPCs (Local Emergency Planning Councils), and hospital Safety Committees).

The primary value of the assessment tool is a vehicle to conduct conversations with hospitals during the site visits about the hospital's process of risk assessment and reduction. Since these ratings are essentially very subjective, their chief value to the institution is in focusing attention on their individual community and institutional risks, as well as their plans for mitigation, response and recovery. For the purposes of our assessment, they ratings gave us an overview of not only the subjective judgment of the rater, but also how the hospital saw its institution as a part of the greater community. In fact, site visits confirmed that often the HVA was a compilation of community threats, in addition to those directly threatening the hospital.

Twenty four hospitals returned the assessments. Findings from the assessment tool included the following.

- The number of “moderate” or “high” risk” rating for a given hospital was usually 10-16, although an occasional hospital rated almost every event in one of those classifications.
- Among natural events, **severe thunderstorms** (either accompanied by large hail, flooding or lightning strikes) were one of the most consistently ranked. **Drought** was a “background” reality for the state since most areas are desert, high desert, or close to such. Hospitals brought up awareness of how these conditions, in addition to **Extreme Heat or Cold** affected their community, but they were not very concerned about the impact on the hospital.
- Of more immediate impact were **Snow storms / Blizzards, Flooding, and wild fires** in terms of the availability of staff (both getting to work and getting home from work). Some hospitals had previously used special vehicles to reach staff to get them to the hospitals. Occasionally, staff would stay at the hospital either to be sure they would be a work the next day or because they were concerned about their ability to get home safely.

- Other than natural events, the major concerns often reflected the profile of New Mexico as a rural state; that is, the **lack of adjacent, redundant services in communication or transportation**, as well as **adequate staffing**.
- Major concerns for both rural and urban settings included **epidemics**, which most saw as representing the threat of pandemic flu. Their understanding of why this was probable had to do with education over time about the established probability of the threat. The seriousness of impact of an epidemic was match by the concerns over **mass casualty incidents (trauma)**. This was a threat most hospitals recounted as having happened to some extent in the past. They had some idea (or a very well defined plan in some cases) as to how they would deal with this situation. There was, however, widespread acknowledgement that a true “train wreck” (either figuratively or literally) would quickly overwhelm the resources and staff of any hospital.
- In site visits, as hospital representatives were prompted to speculate on what would be helpful to them in meeting these various threats, it was almost always the case that the person being interviewed focused on what plans the hospital had made for themselves. Beyond the occasional wish for an additional generator, those who were interviewed assumed both that the hospital would need to rely on its own resources, and that it could do so successfully.
- In general, there was a balanced spread among hospitals as to whether the higher rated threats were natural events, human caused, technologically caused, or caused by hazardous materials.

Site Visit Follow-Up Questions

A series of follow-up questions relative to general threat and hazard vulnerability were asked as part of the site visits. These questions were best asked in person to allow for a less formal, constrained evaluation. The purpose of these questions was to capture the more global evaluation of the hospital's situation by the knowledgeable representative(s).

The first question asked was *"From your position at the hospital, what worries you the most on an on-going basis?"*

Responses included the following.

- *The need for additional resources: personnel and equipment*
- *Worry about the Glorieta Pass (in winter).*
- *We are not prepared here in general. Starting at the top and throughout the staff, people don't think a disaster will happen, and preparation is not on their minds.*
- *The staff is not prepared.*

- *Nursing staff (and other staff) are so pressed by work schedules that it is very difficult to get them into training. Therefore, there is inadequate level of staff training.*
- *Lack of Hazmat training and pharmaceuticals.*
- *Staff awareness. Staff showing up to work, especially in a pandemic. “The missing 15%.”*
- *Bed capacity in an emergency; the ER is tiny. There are fewer than 30 inpatient beds. Also space for storage; the pharmacy is tiny.*
- *Not enough training and exercising, especially on MEMs and the new plans of the hospital.*
- *Need for one clear-cut place to call if there are radiological leaks.*
- *Big problem with training is number of “agency” staff.*
- *Pandemic, of course. But also that if there were a wildfire close by the hospital, they would have to evacuate.*

Respondents were next asked to rank on a “1” to “5”, with “1” being the best prepared, the five module content areas:

- Pharmaceuticals For Staff and Family Members;
- Decontamination and Isolation Plans and Capabilities in the Event of a Biological, Chemical or Radiological Incident;
- Personal Protective Equipment and Durable Medical Equipment;
- Hospital Mortuary Planning and Services; and
- Planning for Targeted Populations in Response to Catastrophic Events

There was no pattern to the rankings. Every category was ranked “1” by some hospital, and every category was ranked “5” by another hospital. These rankings allowed another discussion capturing the overall impression of the interviewed representative(s) without being focused on details.

The “take home” message in the site visits is a reinforcement that every institution is different, even though there may be basic patterns in the threats they face, When the hospital’s ability to respond to the various threats is considered by a knowledgeable person, the perceived relative weaknesses are specific to the hospital. It is also a consideration that these subjective judgments are framed by that person’s position in the

organization. On occasions when several hospital staff were present for the site visit, this influence of their positional “lens” was evident, although it is worth noting that the whole group usually enthusiastically supported the other rankings.

■ **Module Two: Pharmaceuticals For Hospital Staff
And Family Members**

This module was designed to determine whether hospitals currently have sufficient pharmaceutical inventories, policies and procedures to treat hospital staffs and their families in the event of a large-scale disaster such as pandemic influenza or a malicious act involving a biological weapon of mass destruction. Hospitals were asked whether they had a written plan for acquiring and distributing pharmaceuticals during biological and chemical events. They were also asked to share moment-in-time pharmaceutical inventory amounts for a select list of antivirals and antimicrobials. The antiviral and antimicrobial list was developed with input from Tom Torok, MD of the Bureau of Health Emergency Management.

Staff and Family Directories

Although most hospitals (90%) maintain a list of staff, very few hospitals (17%) presently compile a list of immediate family members attached to their staffs. Family data are essential for adequate pharmaceutical preparedness, since hospitals will likely need to provide prophylaxes for staff and families if they are to remain open. These data also have important implications from a public policy perspective – the State will need to give careful thought about where to draw the line when deciding how much drug coverage to provide to healthcare providers.

Only half of the hospitals surveyed (46%) had written Continuity of Operations plans. When a plan existed, it usually had provisions for the distribution of pharmaceuticals to hospital staff. Only 21% of existing Continuity of Operations plans made provisions for distributing drug to family members.

Pharmaceutical Supply Procedures

Seventy percent of hospitals have a written plan in place for ordering and restocking pharmaceuticals in the event of a non-routine event. Few (40%) of the plans contain provisions for security. Very few hospitals (5%-10%) have trained or conducted exercises in order to test their procedures for acquiring and storing critical pharmaceuticals during a simulated emergency.

Pharmaceutical Preparedness for Biological & Chemical Disasters

About three-fourths of the hospitals surveyed had treatment guidelines in place for the selection and proper dosing of medications used to treat biological and chemical exposure. Very few of the present plans address the distribution of pharmaceuticals to staff (25%) and even fewer address distribution to staff family members (7%). There would appear to be an urgent need in this area.

Only 10% of hospitals with pharmaceutical distribution plans have actually trained and exercised their plan. There appears to be no real difference in preparedness with regard to the type of event – chemical, bacterial or viral. In general, hospitals in New Mexico are not prepared to acquire, secure or distribute medications during large-

scale disasters. Most hospitals will need assistance in developing and testing pharmaceutical preparedness plans.

Pharmaceutical Inventory Analyses

Twenty-seven hospitals provided pharmaceutical inventory information. In three instances it was not clear how much drug was actually carried within the hospital. Data from these hospitals were not included in following analyses. A larger pharmacy-based survey focusing on pharmaceutical preparedness was conducted in 2003 and reported to the Department of Health in 2005. The methodology used to estimate pharmaceutical gaps and the costs associated with closing these gaps is covered in detail in this report (available upon request).

The inventories for key pharmaceuticals are shown in Appendix C. These inventories are moment-in-time representations of hospital drug supplies. During a true incident the hospital would likely ask for assistance from other neighboring hospitals and from local retail pharmacies within the region or the state. Estimates of a hospital's ability to treat employees and their families based on existing stock will likely be underestimates of the true treatment capacity within the region.

Antibacterial Counter-Agents

The Center for Disease Control recommendations for treating tularemia, plague, and anthrax are to initiate treatment doxycycline (100 mg BID) or ciprofloxacin (500 mg BID). Appendix D shows the treatment gaps (number of patients that need to be treated for which the facility has no drug), amounts of drug needed, and estimated costs associated with closing the gaps for each of the twenty-seven responding hospitals. The reports differ depending on the scenarios as described below:

- Hospitals exhaust existing oral ciprofloxacin supplies and then treat with supplemental supplies of oral ciprofloxacin
- Hospitals exhaust existing oral doxycycline supplies and then treat with supplemental supplies of oral doxycycline
- Hospitals exhaust either oral ciprofloxacin or oral doxycycline and then treat with supplemental oral ciprofloxacin
- Hospitals exhaust either oral ciprofloxacin or oral doxycycline and then treat with oral doxycycline

Data from the four scenarios shown in Appendix D are summarized in Table Three below. The figures shown in Table Three are based on the following assumptions:

- An average New Mexico family size of 3.26 (2008 US Census Estimate)
- 40% AWP for drug
- No drug available from neighboring pharmacies (retail/hospital)
- 2004 hospital employee figures as provided by the New Mexico Hospital Association
- Participating hospital gaps are an accurate reflection of non-participating hospitals
- 90% of hospital employees and their families would be treated prophylactically for anthrax, tularemia and plague
- 100% of hospital employees and their families would be treated with antivirals

**Table Three
Summary Of Costs**

<i>Treatment</i>	<i>Actual Patients Needing Drug</i>	<i>Actual Dosage Units Needed</i>	<i>Extrapolated Patients Needing Drug</i>	<i>Extrapolated Dosage Units Needed</i>	<i>Anticipated Cost</i>
Doxycycline 100 mg BID	34,521	207,124	69,747	418,480	\$192,501
Ciprofloxacin 500 mg BID	34,521	207,124	69,747	418,480	\$958,320
Oseltamivir 75 mg BID, 5 day courses	40,206	40,206	81,233		\$12,631,690

The least expensive option for treating staffs and families would be to exhaust existing supplies of doxycycline and ciprofloxacin and then supplement from a pre-positioned cache of doxycycline.

Chemical Counter-Agents

The 2008 survey concentrated on the availability of Mark 1 kits. Inventories of Mark 1 kits have been pre-positioned in 10 CHEMPACK sites located within population centers of New Mexico. Oddly, six of seven responding hospitals that serve as CHEM-

PACK sites did not include their Mark 1 inventories in their pharmaceutical survey results. This discrepancy could be an indication of poor communication regarding pharmaceutical preparedness within the hospital. It is also possible that hospitals misinterpreted pharmaceutical inventories to only include drugs that the hospital purchased and had control over.

Antiviral Counter-Agents

The most common antiviral appearing within pharmacy inventories was amantadine. Our interviews with infectious disease experts (Susan Kellie, MD; UNM Infectious Disease) indicates that the ideal defense against pandemic influenza would be a vaccine. Adamantanes such as amantadine would likely not be useful because of resistance. Neuramidase inhibitors such as oseltamivir are likely to provide better initial protection than adamantanes. Unfortunately, there are only 195 courses of therapy available in all of the responding hospitals. If the State were to provide oseltamivir to hospital staff and their families (81,233 patients), the cost would be about \$12.6 million, assuming that the oseltamivir was available for \$155.50 per course of therapy.

It is unlikely that the State of New Mexico will have the resources required to cover hospital staffs and their families with the antiviral treatment showing the greatest therapeutic advantage during a pandemic influenza outbreak.

Recommendations

- Almost all hospitals need assistance with the development of pharmaceutical preparedness plans. The NM Department of Health could assist by disseminating model plans. These example plans show include sections covering acquisition of pharmaceuticals from non-routine sources (e.g. neighboring retail pharmacies), security, storage, and distribution processes to be used for hospital staff and their families.
- The State need to provide realistic training and exercise opportunities for hospitals. Such opportunities will allow hospitals to test their pharmaceutical preparedness policies and procedures.
- The State needs to encourage hospitals to develop cooperative agreements with neighboring hospitals and retail pharmacies within their regions in order to facilitate rapid movement of drug during disasters.
- The State needs to pre-position large caches of doxycycline or ciprofloxacin at a minimum of three appropriately spaced geographic site (northern, central, and southern New Mexico).

- **Module 3: Decontamination and Isolation Plans and Capabilities in the Event of a Biological, Chemical or Radiological Incident**

Findings

- The range of preparation of the 24 hospitals that responded to this module appeared to be somewhat dependent on the level of both technologies required for some procedures, as well as the possible skill of health care workers. For instance, only six of the 24 stated they did not include in their Emergency Plan the ability for decontamination of patients / staff during a catastrophic biologic, chemical, or radiological event. In contrast, there were relatively few (three) that could mount a mobile decontamination effort. This lack of mobile facilities was, in most cases, balanced by a functional partnership with Fire Departments or another emergency resource in the community.
- A very consistent finding was the relative lack of recent training or exercising in comparison with the number of facilities who stated they had decontamination of various threats as a part of their emergency plans. Although in two instances, training and exercises had been updated in 2008, most named 2006 as the year in which their decontamination plans had been trained for and exercises. While many of the plans for biological or chemical event decontamination had at least had training and exercise, at some point (the earliest named being 2005) the training and exercise records for radiological events was approximately 20%.
- The lowest levels written plan associated with training and exercises were in the questions regarding plans for referring patients for more specialized care in the categories of biological, chemical, and radiologic event. While site visit interviews balanced the surveys by supplying information about the customary referral patterns to other hospitals (in south New Mexico hospitals even have Texas hospitals as the primary referral destinations) these arrangements were only rarely written into the hospital's emergency plans.
- In this survey there was a clear impression that many hospitals, perhaps as many as 60%, were not accustomed to reducing their practices to written protocols (guidelines, practices).
- A specific example of possible disconnect between practice and written plans was that of the approximately 80% of hospitals without written guidelines as to how to assist decontamination of the populations with functional deficits (disabled, pregnant women, young children). Site visits did, in fact, confirm that there was a paucity of such guidelines. The most common explanations for this lack of guidance for targeted populations was that it was only infrequently needed. Also, hospitals frequently stated they just did not have the information or the resources.

■ **Module 4: Personal Protective Equipment and Durable Medical Equipment**

The “raw data” of individual hospital’s operating inventories of personal protective equipment (PPE) and durable medical equipment (including brands and models used) was forwarded to Dr. Tom Torok in the Bureau of Health Emergency Management in “real time” as the information was collected from the responding hospitals. The findings of the most pertinent questions are summarized in the following tables:

Table Four
Summary Of PPE Inventories and Procedures

	# of hospitals with disposable or filtering face piece respirators	# of hospitals with reusable or elastomeric respirators	# of hospitals with PAPRs	# of hospitals that stockpile respirators for use in a pandemic influenza	# of hospitals that categorized workplaces and specific tasks into risk zones	# of hospitals that have a fit-testing program for respirators	# of hospitals with written plan for restocking basic supplies (face-masks, gloves, etc.)	# of hospitals with security plan to protect supplies
# of facilities	27	7	20	8	10	23	18	2
TOTAL	27	27	27	27	24	23	27	21

Table Four shows that 100 percent of New Mexico hospitals that responded to the assessment regularly keep a **supply of disposable or filtering face piece respirators (N-95 or better)**. Only 26 percent of facilities regularly keep supply of reusable or elastomeric respirators on a regular basis. On the other hand, **20 facilities regularly keep powered air purifying respirators (PAPRs) in stock on a regular basis.**

When asked if their facilities stockpiled respirators for use in a pandemic influenza, only 8 responded they did. Moreover, when asked about Risk Assessment and Reduction, only 8 hospitals categorize workplaces and specific work tasks into risk zones according to the likelihood of employees’ occupational exposure to pandemic influenza. Some hospitals interviewed in site visits remarked that cartridges and batteries for PAPRs may be expiring, and funding for those supplies may be problematic.

On the other hand, **all surveyed hospitals reported to have a program to fit-test employees for respirators.** Practices vary regarding which departments are included in the fit testing. In general hospitals include any department which has regular contact with inpatients. Some hospitals had moved to include housekeeping although those employees are not directly involved in patient care, they might well be the most mobile source of inpatient contamination

In addition, 18 hospitals have a **written plan for restocking basic supplies** such as those listed in the table below, if a non-routine event occurs that unexpectedly depletes their current stocks quickly. Of particular note almost all hospitals are challenged to provide appropriate levels of security if they would be required to physically transport

additional supplies from a central node back to their hospital in the event of a major disaster. This was confirmed by site visit interviews.

Some of those interviewed talked about the usual collegial arrangements they enjoyed with local contingents of the State Police, the National Guard, and the Sheriff’s Department, they recognized that those arrangements needed to be confirmed at best or re-thought if the usual law enforcement entities were assigned to other duties during a large-scale operation. As of the time of this assessment, staffing levels, skill sets (armed capacity if required) or training are not in place for a demanding role in securing transport of supplies. (We see this reality in other issues of transport, such as pharmaceuticals as well).

Table Five
Number of Hospitals That Could Operate At 100% Of Capacity For Various Time Periods For Specified Supplies

	7 or fewer days	8-14 days	15-21 days	22-28 days	29 or more days
Facemasks	11	8	3	0	3
Gloves	10	7	6	1	1
Eye Protection	13	7	4	0	1
Gown/Splash Protection	11	8	4	0	2
Syringes and Needles	11	6	7	0	1
Respiratory Supplies	12	6	6	0	1
IV Fluids	15	7	1	0	1
Dressing and Wound Care Supplies	11	8	5	0	2

Table Five shows the number of surveyed hospitals that could operate at 100 percent capacity with their current levels for given periods of time (without re-supply) of those supplies listed. As it can be observed, over 40 percent of hospitals that responded to the assessment could operate at 100 percent capacity without re-supplying any of those basic supplies during 7 or fewer days. On the other hand, only 10 percent of surveyed facilities in New Mexico reported being able to keep operating at 100 percent capacity with their current levels of basic supplies for 29 or more days.

Information on **ventilators throughout the state** is presented in Table Six below.

**Table Six
Ventilators Currently On Hand In New Mexico Hospitals**

Number of New Mexico hospitals with ventilators currently on hand <i>[Note: numbers do not include high-frequency ventilators used exclusively for premature infants]</i>	Routinely Used Only In Operating Room	In-Hospital Transport	Other
Adult only			
None	9	9	8
1-5 ventilators	7	10	8
6-10 ventilators	3	0	3
> 10 ventilators	2	0	1
Adult that can be used as pediatric not counted above			
None	16	15	12
1-5 ventilators	1	2	6
6-10 ventilators	0	0	0
> 10 ventilators	2	1	1
Pediatric only not counted in neither of the above categories			
None	16	13	9
1-5 ventilators	2	4	8
6-10 ventilators	1	0	0
> 10 ventilators	0	0	1

Please note that the numbers listed in the data columns are numbers of hospitals in the applicable range, not ventilators. The raw data on individual hospitals was supplied to Dr. Tom Torok of the Bureau of health Emergency Management in real time as the information was received.

Site visits confirmed that hospitals balance budget issues, such as replacement or additional ventilators based on current usage. Although some forward thinking is definitely exercised in which kind of ventilators should be planned for purchasing (choosing those that can be operated by less skilled personnel in a large scale emergency, for instance) and saving the parts from decommissioned ventilators for future repairs, there is no evidence of “stockpiling” ventilators that are not required for current estimated use.

There were some inquires from the hospitals about possible reserve supplies from the state; they are interested in sources for emergency ventilators (in some cases, specifically pediatric) and portable isolation units for patient rooms and transporting to other areas of facilities. In general, there was a request for information on secondary suppliers and alternate PPE and supplies.

Additional requests for training or information sources included “respirator P4 testing, general training on the use of respirators, mass decontamination, isolation, and

hazmat operations. Importantly, there was more than one request for alternative standards of care related to PPE to be addressed by the Department of Health Bureau of Emergency Management. Also there was a request for guidance for “who would be responsible for lawsuits resulting from alternative treatment.”

There were those respondents who took the opportunity of this module to say that they had a need for more training in pandemic flu, and one rural hospital who summed it up by saying they needed training and information on “all areas in which we are lacking.”

■ **Module 5: Hospital Mortuary Planning and Services**

Findings

Only a minority (8 out of 25 responding hospitals) stated that they did not have a fatality management plan. Some existing plans were qualified as “works in progress,” and generally this category competed with Module 6 (Targeted Populations) as the least developed in all hospitals. We found no hospitals that performed their own autopsies, so protocols and equipment for such were non-existent.

- Of the seven who did not claim to have a fatality management plan, several indicated that they did or would (in a disaster) rely on local mortuaries to supply services and even equipment to purchase (such as body bags). One was even kind enough to list all the local mortuaries with their phone numbers. Of those with “no plans” they did indicate that they could use existing PPE supplies, and some listed supplies they would like provided, such as body bags, transparent containers, or even N95 respirators.
- Of those who did say that they had a fatality management plan (16) essentially **no hospital noted any training or exercise on the plan.** Frequently repeated was: “we have no morgue here.” Even with the supply items involved in fatality management, there was frequently the comment “OMI does this.” The assumption that OMI would deal with the surge in bodies following a major disaster was widespread. This “verbal agreement” with OMI or local mortuaries was the overwhelming plan for actually taking care of a surge of bodies.
- **Generally, the range of bodies the hospitals felt they could handle was in the range of 2-3.** On a site visit in the conference room of one of the hospitals they said that their plan would be to use the same conference room in which we were meeting as a storage place for bodies. They assumed they wouldn’t be having conferences at a time such as that.
- While it might be anticipated that there would be a definite contrast between the smaller, more rural hospitals and the larger institutions in their preparedness around fatality management, this was not actually seen in the information available. The larger hospitals surveyed also planned (but did not have written agreements outlining) that OMI would take care of their mortuary needs. Neither of the large hospitals (University of New Mexico Hospital or Presbyterian—Main in Albuquerque) had “mortuaries as such.”
- Large and small, urban and rural hospitals mentioned obtaining refrigerated trucks and/or tents to store bodies. In two cases on site visiting it was possible it confirm that there had been actual conversations with the entities involved (trucking or tents companies). In the cities of Albuquerque and Las Cruces there are Metropolitan Medical Response System (MMRS) units. It would seem important to coordinate within these communities on the fatality management issue. (See recommendations)

■ **Module Six: Planning for Targeted Populations in Response to Catastrophic Events**

The last of the six assessment modules was focused on perceived readiness to serve people with a wide range of physical and cognitive disabilities in the event of catastrophic events and the extent to which these individuals were included in the hospital's emergency planning.

Recent social models of disability view disability not as some failure or “problem” with an individual, but as the interaction between a particular individual’s capabilities and the characteristics of the physical, social and cultural environments with which he or she interacts.¹ Such a distinction places increased emphasis on the need to examine “access” as a broad concept, which includes but goes beyond a single focus on physical barriers.

In the area of health care, numerous studies have documented a wide range of physical, communicational and attitudinal barriers faced by people with physical and cognitive disabilities in accessing health care services.² Prior research has found that people with disabilities utilize health care services more frequently than people without disabilities³ and report dissatisfaction with health care more often than people without a disability.⁴

Numerous studies have documented the difficulties faced by people with disabilities in accessing health care services.

¹ Nagi, S. Z. 1969. *Disability and Rehabilitation*. Columbus: Ohio State University Press; Nagi, S. Z. 1970. *Congruency in medical and self-assessment of disability*. *Industrial Medicine* 38(3):27-36; Nagi, S. Z. 1975. *Disability Concepts and Prevalence*. Presented at the First Mary Switzer Memorial Seminar, Cleveland, Ohio; Nagi, S. Z. 1976. *An epidemiology of disability among adults in the United States*. *Health and society*. *Milbank Mem Fund Q* 54:439-467; Nagi, S. Z., and R. I. Haller. 1982. *Limitations in Function: Indicators and Measures*. Columbus: Mershon Center, Ohio State University.

² Hawkinson, Z.C., Frates, J. Mandated managed care for blind and disabled Medicaid beneficiaries in a county-organized health system: implementation challenges and access issues. *American Journal of Managed Care* 2000; 6; Veltman, A., Stewart, D.E., Tardiff, G.S., Branigan, M. Perceptions of primary healthcare services among people with physical disabilities. Part 1: access issues. *Medscape General Medicine* 3(2), 2001; Iezzoni, L.I., O'Day, B.L., Kileen, M., Harker, H. Communicating about health care: observations from persons who are deaf or hard of hearing. *Annals of Internal Medicine*, 2004; 140(5); Steinberg, A.G., Wiggins, E.A., Barmada, C.H., Sullivan, V.J. Deaf women: experiences and perceptions of healthcare system access. *Journal of Women's Health*. 2002; 11(8); Hines, J. Communication problems of hearing impaired patients. *Nursing Standard*. 2000; 14(19); Choi, K., Wynn, M.E., Providing services to Asian Americans with developmental disabilities and their families: mainstream service providers' perspective. *Community Mental Health Journal* 2000; 36(6); Welner, S. Screening issues in gynecologic malignancies for women with disabilities: critical considerations. *Journal of Women's Health*, 1998; 7(3); Witte, T.N., Kuzel, A.J. Elderly deaf patients' health care experiences. *The Journal of American Board of Family Practice* 2000; 13(1); Thomas, D.C. Primary care for people with disabilities. *Mount Sinai Journal of Medicine*, 1998; 66(3); Mele, N., Archer, J., Burton, D.P. access to breast cancer screening services for women with disabilities. *JOGNN*, 2005; 34(4).

³ Hanson, K., Neuman, T., Voris, M. Understanding the health-care needs and experiences of people with disabilities: findings from a 2003 survey. [Web Page] <http://www.kff.org/medicare/6106.cfm> The Kaiser Family Foundation. Accessed 6/12/06

The Centers for Disease Control and Prevention (CDC) reports that only 48% of people with disabilities have access to local health facilities and wellness programs.⁵ Numerous studies show that people with disabilities are less likely to receive preventative health services and health promotion efforts than people without disabilities. Reasons for this disparity may be explained by healthcare providers' self-reported difficulty in treating patients with disabilities and negative attitudes towards people with disabilities.⁶ Furthermore, evidence shows that physicians' perceptions and assessments of disability are often significantly different from the perceptions of those with disabilities themselves.⁷

Twenty Nine hospitals returned the module on targeted populations. Table Seven contains information on hospitals' planning and readiness for people with disabilities. (In some cases the totals for a given item do not equal the number of modules returned due to a lack of response on an individual question).

The information in Table Seven presents a mixed picture of the ability of hospitals to provide the "disability infrastructure" necessary to effectively serve people with disabilities, whether there is an on-going large scale emergency or not. As can be seen, the majority of hospitals do have provisions to utilize American Sign language interpreters (although it is unclear whether these individuals would be available during an emergency); TTY systems; provisions for guide dogs to remain with patients who have them; and provisions for personal care attendants to remain with patients.

However, only seven of the twenty nine hospitals have FM or loop systems in place, which could be used in the event sign language interpreters are not available during an emergency. No hospitals reported having documents available in Braille or screen-reading applications such as "Dragon Naturally Speaking" for patients who are blind, and only seven reported having large-print materials available.

⁴ lezzoni,L.I., Davis, R.B., Soukup, J., O'Day, B. Quality dimensions that most concern people with physical and sensory disabilities. *Arch Intern Med.* 2003; 163; Lezzoni, L.I., Davis, R.B., Soukup, J., O'Day, B. Satisfaction with quality and access to health care among people with disabling conditions. *International Journal for Quality in Health Care*, 2002; 14(5)

⁵ Center For Disease Control and Prevention. Disability and health in 2005: promoting the health and well-being of people with disabilities. [Web Page]
http://www.cdc.gov/ncbddd/factsheets/Disability_Health_Ataglance.pdf Accessed 6/18/06

⁶ Kroll, T., Beatty, P., Bingham, S. Primary care satisfaction among adults with physical disabilities: the role of patient provider communication. *Managed Care Quarterly*, 2003; 11(1); Muir, E.H., Ogden, J. Consultations involving people with congenital disabilities: factors that help or hinder giving care. *Family Practice*, 2001; 18(4)

⁷ Rothwell, P.M., McDowell, Z., Wong, C.K., Dorman, P.J. Doctors and patients don't agree: cross sectional study of patients' and doctors' perceptions and assessments of disability in multiple sclerosis. *BMJ*, 1997; 314:1580

Table Seven
Capability of New Mexico Hospitals To Provide Specified Services
To Targeted Populations

Item	Yes	No
1. American Sign Language capacity?	20	9
2. TTY system in place?	16	13
3. Loop or FM systems for hard of hearing/ deaf?	7	21
4. Provisions for guide dogs to remain with blind patients in the hospital?	19	10
5. Key documents in Braille?	0	29
6. Key documents in large print?	7	22
7. Computers with screen-reading applications for the blind?	0	29
8. Provisions for having personal care attendants stay with patients?	15	12
9. Provisions for providing personal care attendants if they do not accompany the patient to the hospital?	7	17

On the positive side, hospitals would clearly welcome additional information and training on a wide range of topics related to serving people with disabilities. Table Eight contains information on the perceived need for information and training on a wide range of topics related to targeted populations. As can be seen, no topic was considered unimportant by a majority of the hospitals.

The topic which hospitals rated most frequently as a "high priority" or "very high priority" for training and information was incorporating accessibility guidelines in such documents such as the Americans With Disabilities Act (ADA). Numerous excellent documents containing information on how to incorporate accessibility guidelines into health care and other institutional settings exist, including a 2007 handbook published by the United States Department of Justice.

The next two top-rated topics on which hospitals would like training and information resources were "providing services to those with cognitive disabilities (e.g. Down's Syndrome or mental retardation)" and "providing services to people with mobility limitations."

Table Eight
Priorities For Information And Training Resources On Disability-Related Topics
In New Mexico Hospitals

Topic	Very low Priority	Low Priority	High Priority	Very High Priority
Providing services to people with service animals	4	10	10	3
Providing services to people with mobility limitations	0	6	16	4
Providing services to those with cognitive disabilities (e.g. Down's Syndrome or mental retardation)	1	6	17	4
Providing services to blind / visually impaired people	3	6	15	3
Providing services to deaf / hard of hearing people	2	7	12	3
Providing services to those with multiple chemical sensitivities	2	9	10	5
Providing services to people with autism	1	8	12	5
Providing services to people who are mentally ill	2	6	11	4
How to incorporate accessibility guidelines (e.g., ADA) into your Emergency Management Plan	0	5	14	8

Findings and Recommendations

- Impressions from both the written data and the interviews at the hospitals confirmed that the targeted population portion of Emergency Preparation was considered by the hospitals themselves to be one of the least developed. Lack of funding for staff to concentrate on resources for populations with functional challenges was definitely an issue for the hospitals. In site visits those who were interviewed expressed a need for help in this area, and they clearly saw it as important.
- Both information, as well as training, on how to incorporate the “targeted populations” into a hospital’s Emergency Plan is needed throughout the state, regardless of the urban/rural mix. One large, urban hospital had no positive answers to any of the assessment questions about inclusion of targeted populations into the policies of the hospital.
- Since several hospitals on site visits remarked that they thought there were very low populations of these “targeted populations” in their areas, there may be some lack of awareness of actual numbers, and therefore, some potential for populations being underserved. As registries are developed it may assist the hospitals in a true estimate of the need.

- Where there were community colleges or schools for the blind or deaf, these schools were serving as major sources of expertise and public service to the hospitals.

The following were seen as directions for improvements that could bring the hospitals toward a more inclusive, prepared status in regard to targeted populations.

- Both information, as well as training, on how to incorporate the “targeted populations” into a hospital’s Emergency Plan is needed throughout the state, regardless of the urban/rural mix. One large, urban hospital had no positive answers to any of the assessment questions about inclusion of targeted populations into the policies of the hospital.
- Specific attention needs to be paid in an initiative to alert hospitals to their responsibilities under the Americans With Disabilities Act.
- Develop and make available a centralized resource compendium comprised of educational materials about access and disability. Health care providers could provide improved services to people with disabilities if they had ready access to existing resources and materials, including posters for health care facility waiting rooms and offices, provider training resources with attached CEU’s/ CME’s, pamphlets, brochures, letters, tool-kits or on-line resources designed to increase access to health care for people with disabilities. These and other types of materials exist, but are not readily available to providers. These materials should be identified, assessed for their appropriateness and gathered into a centralized resource system that can be accessed by health care providers.
- Develop Access to Healthcare for People with Disabilities *Tip Sheets*. *Tip Sheets* were first developed by a consortium led by the University of New Mexico’s Center for Development and Disability to educate emergency responders about the needs of people with a variety of disabilities in a public emergency or natural disaster. A *Tip Sheet* is much like a field guide that provides simple-to-follow tips on how to appropriately serve persons with specific disabilities in an emergency. Over 80,000 *Tip Sheets* have been distributed nationally to emergency responders throughout the United States.

Several primary care providers present at project briefings recommended that a similar *Tip Sheet* be developed to provide practical information on how to deal with barriers encountered by people with disabilities when accessing healthcare. *Tips for Providers on Accessible Healthcare* will offer information to providers about how to ensure appropriate access to healthcare for patients with disabilities. The guide will provide healthcare providers with practical (and inexpensive) tips on how to make their encounters with people with disabilities and their healthcare facilities, more accessible. A brief accompanying presentation will go with the *Tip Sheets* to allow providers to discuss the *Tips* and ask questions about its use.

- Convene a meeting with New Mexico policy makers to 1) review current tax exemptions aimed at eliminating barriers to access at healthcare facilities, and b) establish measures to promote wide-spread use of current tax-based incentives by healthcare facilities in New Mexico. Feedback from the site visits revealed that existing state policy provides tax incentives to healthcare facilities to make modifications to improve access. It was suggested that there be an emphasis on promotion of policy-level and financial incentives to ensure barriers to access be eliminated or reduced. A meeting with state policy makers would be the first step in raising awareness about these policies.