Storm victims waiting at the airfield

Medical Assistance

Introduction to the Health Impacts of Hurricane Katrina

In both Mississippi and Louisiana, the onset of Hurricane Katrina found significant populations of acutely ill patients in hospitals and patients in nursing homes who were not evacuated.[1] In the case of acutely ill hospital patients, most hospitals decided that the medical risk of moving these patients outweighed the benefit, and chose to shelter-in-place. Unfortunately, the majority of the hospitals were not adequately equipped to carry out this function in the face of a storm the magnitude of Katrina.[2] Some nursing homes made similar decisions based on difficulties they encountered in previous evacuations or for other reasons. All told, some 235 deaths occurred in 28 of Louisiana's hospitals and nursing homes.[3] Special-needs patients transported themselves or were evacuated to the Superdome and to other shelters.[4] Although an estimated 450 special-needs patients were evacuated from the Superdome prior to landfall and transferred to a state-supported shelter in Baton Rouge, many more remained in the city.[5]

So on the eve of Katrina's landfall, federal, state, and local medical emergency managers found themselves confronted with the need to evacuate and care for thousands of medically compromised individuals – a circumstance forewarned in the Hurricane Pam exercise a year before Katrina.[6] Even more telling is the fact that these officials were apparently well aware of the situation that they would face. For example, a U.S. Department of Health and Human Services (HHS) e-mail describes information communicated on a FEMA-arranged conference call on Sunday night, August 28, just hours before landfall. The e-mail stated that 40 to 50 patients at the Superdome special-needs shelter were critical-care medical patients and that there were approximately 2,500 hospital patients still in New Orleans. The e-mail goes on to say, "Advanced planning was never completed on how the patients left in the hospitals will be evacuated after the event," and later noted, "it is assumed that many of the hospital generators will lose power given the expected height of the water."[7]

Similar circumstances were reported in Mississippi. A report from HHS Region IV emergency representatives in Atlanta, also on Sunday evening, reported that in Mississippi there were "no hospital evacuations other than 8 critical patients from VA [Veterans Affairs]" and "out of 29 Skilled Nursing Facilities only 2 reported evacuations."[8]

After the storm, federal, state, and local officials, and health-care workers in Mississippi and Louisiana faced extraordinary demands for health services, including evacuation of thousands of hospital and nursing-home patients. In addition, the health-care response system was taxed to its limits dealing with care of survivors and tens of thousands of people who had fled from the coastal regions and required medical care for pre-existing illnesses and chronic diseases, as well as preventing the spread of disease among these evacuees, many of whom were now living in crowded shelters.[9]

All of this had to be done in areas where major portions of the health-care system had been damaged or destroyed. All but three hospitals in the New Orleans area were incapacitated[10] and essentially all hospitals in the Mississippi Gulf Coast area sustained some level of physical damage and operational disruption (from loss of power, evacuation of staff, disruption of their supply systems, etc.). Charity Hospital in New Orleans, rendered inoperable by flood water, was one of only two major trauma centers in the entire state.[11]

Medical Assistance: Louisiana

As Hurricane Katrina approached Louisiana, hospitals and nursing homes had to decide which of their thousands of patients and residents could be safely evacuated, and to where. Once Katrina struck, hospitals and nursing homes had to care for those left behind, as well as new arrivals – all while dealing with flooding, power outages, supply shortages, security problems, and other issues.

Medical Evacuations

Temporary triage and medical-care facilities, developed as part of the Hurricane Pam exercise, provided triage for tens of thousands of evacuees and victims. The plan called for search-and-rescue teams to drop people at Search-and-Rescue Bases of Operations (SARBOOs) near the flooded areas, where paramedics would perform initial triage. Rescuees would then be transported to Temporary Medical-and-Operations Staging Areas (TMOSAs), larger areas with temporary medical facilities, for care and triage. Using this system, the state successfully triaged approximately 60,000 people.[12] With a capacity of 800 beds to provide medical care, the TMOSA at the Pete Maravich Center on the Louisiana State University (LSU) campus in Baton Rouge was the largest temporary emergency facility ever built, according to Dr. Jimmy Guidry, the Medical Director for the Louisiana Department of Health and Hospitals (DHH).[13] However, while the SARBOO/TMOSA structure was critical to handling the large volume of people needing attention, the plan did not work exactly as intended. For example, the New Orleans airport became a major triage center, especially for critically ill patients evacuated from hospitals, even though it was not part of the state plan. And as stated by Dr. Guidry, the state also lacked adequate transportation resources to evacuate all of the victims:

> Most of the hospitals did not have helipads, so they either had to go to the Superdome helipad or to another hospital's helipad. The helicopters that we did have were not willing to make a flight beyond picking them up there and bringing them to the airport, because they had to go back and pick up some more folks. So they weren't going to take them to anywhere [else] in the state by helicopter if they could avoid it because that would be loss of time. So most of the helicopter pick ups were from a helipad next to a hospital, to the airport or to the Causeway, depending on the critical [condition] of the patient. From the airport and from the Causeway, then it was buses or planes. [14]

Many victims did eventually arrive at the TMOSAs, although this created a significant transportation problem because of the large number of evacuees in New Orleans. Eventually buses were organized to carry out this function, as further described by Dr. Guidry, the buses were used

> when we started evacuating the large numbers at Causeway and the large numbers at the Superdome. Those buses would then bring the patients by the TMOSA and at the TMOSA, then we would triage them to see whether they could continue on the trip that the buses was taking them to, either a general shelter in Louisiana or a general shelter outside of Louisiana.[15]

Some of the difficulties experienced in moving victims into the state's medical-triage system were compounded by the fact that the evacuation of hospitals was simply not addressed in Hurricane Pam, despite the presumption that New Orleans would flood and that the hospitals would become inoperable. In fact, the Hurricane Pam exercise assumed that some 2,000 patients would be sheltered in place in area hospitals that would cease to operate as functional medical facilities due to flooding – a prediction that came strikingly close to reality during Katrina.[16] Little action was taken to address this daunting scenario prior to Katrina.

As explained by Dr. James Aiken, Medical Director for Emergency Preparedness for the Medical Center of Louisiana in New Orleans (a.k.a. Charity and University Hospitals):

> Well, to start with my own hospital, it [Pam] did not change our planning at all. I don't think it changed anyone else's planning that I am aware of … The focus of the health care planning that I participated in [during the exercise] had to do with not what happens within what we call the affected areas [that] have flooding but what happened on dry land. And most of the activities that happened in the health care breakout sessions had to do with standing up the temporary medical support sites.
>
> [M]any of my colleagues registered our concerns that we were literally writing off any serious planning above and beyond what we had then, which was to tell the hospitals they were going to have to be self-sufficient for three to five and now seven days. …
>
> So the Hurricane Pam, again, exercises and planning efforts, as far as I know, never addressed the issue of pre-threat evacuation or actually serious detailed planning for the affected area. [17]

Notwithstanding the failure of emergency planners during the Hurricane Pam exercise to address the need to evacuate hospitals, the hospitals were required to have emergency and evacuation plans. For example, DHH regulations required hospitals to have such plans, and for those plans to be made available to regional emergency officials upon request.[18] Nonetheless, these requirements proved woefully inadequate. As Dr. Guidry explained:

> It is not a requirement for licensure [for hospitals] to have generators at a certain level, at a certain place. It is not a requirement for licensure that [the hospital] show proof that your plan is operational.
>
> It was not a requirement prior to this event [Hurricane Katrina] that they would turn in plans defining what their evacuations plans [are].
>
> When I had discussions with a number of these hospitals in this area over the years, the questions was, "How are you going to evacuate?" And their response was always, "We do not plan to evacuate. Our evacuation plan will be to get those people out that can travel, elective surgeries. But we will remain here with the people that are not able to get out and the people that are going to need our care so that we can be here after the event."
>
> I can tell you that next hurricane season, there are going to be a lot more people leaving and the plan is going to change drastically. Those that do stay will be the hospitals that have the capability of hardening their structures and putting their generators higher because it does not make sense to stay in a bowl, if you will.[19]

In the end, hospitals in southeastern Louisiana were simply reluctant to follow their plans and evacuate the critically ill because of the danger, expense, and uncertainty of the hurricane path itself. As LSU's Dr. Aiken put it:

> Hurricanes have a remarkable capability of changing directions quickly. And so when you say, "In the line of the path of a storm," you know, for us, that path actually gets realized after the fact. So when you talk about evacuating patients from the number of hospitals that now exist, and we have to expand this conversation beyond New Orleans, because, quite frankly, a lot of the destination

> hospitals that some of the areas use would be the same ones that we [LSU] would want to use. …
>
> How do you decide which hospitals should evacuate and where should they go? I mean, do we evacuate the entire coastline? …
>
> And again, remember 24 hours [prior to landfall of the hurricane], we do not want anybody on the road. So the risk benefit [issue arises], and also remember every single patient who is critically ill requires almost their own means of transportation, whether it's an ambulance or helicopter. We certainly could put a couple in. But for our critical care patients, school buses [are] not usually the answer.[20]

In addition, evacuation would have required New Orleans area hospitals to confront the difficult problem of finding other hospitals that could take their patients. As Dr. Guidry explained, in Louisiana under normal situations, sick or emergency patients with pressing needs are sent to the New Orleans region, which hosts a large number of medical facilities, the state's "medical Mecca." However, Katrina reversed that burden, causing 25 hospitals in the area to try to find places for their patients outside of New Orleans, and "the rest of the state can't absorb it."[21]

However successful it had been in prior hurricanes, the strategy of hospitals to stay open for critically ill patients and storm victims proved untenable in Katrina. After a few days, most hospitals that had stayed open were running out of fuel for their backup generators, making it impossible to operate effectively or, in some cases, at all, due to flooding. In desperation, they appealed to DHH to help them evacuate. Dr. Guidry found that helicopters and other transportation assets were tied up in search-and-rescue efforts:

> And so their plan was stock up, be prepared to stay in place a few days. Most hurricanes, three days, five days out, you're done with it and be ready to take care of people after. The calls started coming in saying we're about to lose power, we're going to have to bag [manually ventilate] patients. We got to get them out of here. We got to get them out of here. We got to get them out of here. And I was asking for the resources to move them. Search and rescue is going to have to move them. I got to have the helicopters, I got to have the planes to move them out. … So it then becomes where do I send them, how do I get them there, how do I get them out of there. So the Hospital Association is coming to me in tears, the folks there are in tears trying to help their folks and I'm beating my head to try to get the help. And you've got the search and rescue that's trying to get people out of water and rooftops and out of hospitals. And that's all the competing needs for the limited assets.[22]

First responders attempting to answer hospital-evacuation calls faced chaotic conditions, particularly in the early days after landfall. Security concerns, including rumors of snipers, thwarted rescue efforts.[23] Communications were poor, making it difficult to coordinate with ambulances and helicopters. Flooded streets thwarted attempts to drive through New Orleans. Dr. Fred Cerise, Secretary of DHH, who participated in evacuation missions in New Orleans, described the challenge of attempting to take seven patients by truck from Charity Hospital to the Superdome special-needs shelter:

> And we picked up seven people, some that needed dialysis, to take back to the Superdome. By this time it was dark; it was late, probably midnight. And there were people … outside of the Superdome that were sleeping all around the outer concourse. And so the truck had to – made its way up the external ramp to get

> to the helipad. And the guard was trying to clear the path, and by this time it's … late, late Wednesday night. … It's very tense in the Superdome by this point. People are belligerent, not wanting to get – they're getting woken up to move. …
>
> I'm in the back of the truck and I hear this loud, "Move it, move, move, move." And I look back and there's like 30 Guardsmen running at the crowd with their rifles drawn. I – my initial thought was they were just trying to scatter the crowd, which they did. But then they turned into the Superdome and I saw a medic team come running against traffic at me, and this is when they had a Guardsman that was shot in the Superdome. These guys were going in to get their guy out that had gotten shot.[24]

Evacuating special-needs patients from the Superdome presented its own set of challenges, partly because they were next to the general-population shelter. As noted elsewhere, evacuation of the general public didn't get under way until late Wednesday, due to the delayed arrival of buses. Meanwhile, state officials had begun evacuating special-needs patients from the site by helicopter and boat. Seeing the special-needs evacuation proceeding, some members of the general public "figured out that if they were sick they might get out earlier. And so they started having chest pains and they started getting sick so they could get out earlier."[25] Officials were also concerned that the general population, angry at having to stay behind, would become violent. [26]

Flooding around the Superdome also interfered with medical evacuations. Officials had staged ambulances before landfall on the upper and outer concourses, expecting to use them for evacuation once the storm passed. Unfortunately, rising water on Monday evening prevented their use.[27] Thereafter, patients who could tolerate the ride were transported in high-water trucks to ambulances at other locations; others had to wait for helicopters.[28] Patients were loaded in ambulances, boats, high-water vehicles, aircraft, and even 18-wheeler trucks.[29] Many patients required continuous, individual medical care while in transit.[30] The logistics were nearly overwhelming, as described by Dr. Cerise:

> It's not a simple ordeal. Put them on manual bagging for people off the ventilator; put them on a spine board. The interior of the hospital was dark, and so they would carry them down 12 flights of stairs on the external stairwell over their heads on a spine board making tight turns to get these people down onto the boat.
>
> Got them to boat and we took them over to the hospital. I can tell you we had a policeman on the boat, because I remember the people throwing stuff at us from the Interstate, Claiborne overpass. And there was a shouting match that went on with the police and the guys that were throwing boxes and stuff down at the boats.[31]

Overall, Aiken described the process of evacuating patients as "one of the issues that I feel less than satisfied, most unsatisfied about. I think it sort of overwhelmed us, and I think we had a fingers-crossed attitude."[32]

Aiken also felt that the State Emergency Operations Center (EOC) did not always appreciate the urgency of his requests for assistance. While acknowledging that his demands were competing with those of other responders, he believed he would have fared better if EOC officials involved in handling requests had been at the scene of the crisis:

> I don't know if it was because the right decision maker wasn't at the desk at the time, like with ESF-8 or whatever. But there was always this, "I will see what I

> can do." And then they would come back and say, "I think we need – we got the information, but I got a feeling we better start looking at other options."
>
> If we could just work out a system. Either bring in distant EOC personnel down to the scene, whether it's FEMA or whoever else the lead agents are, and work side by side. Conditions are horrible, but they are not impossible. That to me could be the optimal eyes and ears. But if you don't have that, I felt like I was negotiating a lot. And I know I had competing of interest, and I understood that.[33]

Nursing Home Evacuations

Nursing homes in the metropolitan New Orleans area had their own Emergency Operations Plans (EOPs) that incorporated evacuations. In addition, Louisiana law required nursing homes to maintain EOPs and provide them to their parish emergency managers to "review and approve" the plans.[34] In reality, the Committee staff found that few parishes followed through on this guidance. One parish emergency manager from the metropolitan area thought he only had to review the plan.[35] The emergency manager for the City of New Orleans felt that the law did not provide parish emergency managers with the means to enforce the regulations.[36]

The Committee also found that there was no process to vet the plans for consistency and practicability. For example, many nursing homes rely on ambulance services to evacuate their populations. During a crisis, however, ambulance services may be in use by other nursing homes or hospitals. Furthermore, nursing homes and hospitals are not required to evacuate.[37] The facility's plan could simply be to weather the storm – even if the nursing home is in a flood-prone area. In short, nursing homes are only required to have their emergency plans *on the books*, which is a far cry from ensuring that they will actually work during a time of crisis.

The results were predictable. As Katrina approached, nursing homes found themselves without evacuation resources. In some cases, they turned to hospitals to take their patients, even though hospitals couldn't guarantee patient safety. Aiken described the situation after nursing-home officials discovered that their memoranda of understanding (MOUs) with government agencies or other entities for transportation or other resources had been overtaken by events:

> We get a panic call 24 to 36 hours out. They have exhausted their MOUs. They have been told "No" on their level, we don't have what we said we would have for you in terms of buses or ambulances or even helicopters. And they call us …
>
> We are not saying no. We are saying, "We may go under water. Our patients may die. You putting them with us [has] not increased their likeliness or likelihood to survive necessarily."
>
> We do everything we can to assist them in getting out. If somebody does show up, we take them in, which is what we do. Again, it's a very awkward. It's very frustrating and, quite frankly, very scary, and I will even say a deadly situation.[38]

Medical Supply and Preparations

Medical institutions also struggled in obtaining adequate supplies, such as fuel. Dr. Aiken described Charity Hospital generators as "running on fumes for the first day or two."[39] For many hospitals, lack of fuel became the decisive factor, forcing them to shut down and evacuate. As there was no statutory or regulatory requirement that generators be located above levels exposed to flooding,[40] many generators flooded. Hospitals lost power abruptly, making rapid evacuation essential. The LSU computer system was also heavily damaged, seriously impairing access to patient records.[41]

On the other hand, pre-stocked food and medical supplies at Charity Hospital were adequate to carry the facility through until the National Guard could re-supply.[42] Dr. Kevin Stephens, Director of the New Orleans Department of Health, who oversaw medical care for special-needs patients at the Superdome, also said that he had "no problems with supplies," although medical oxygen ran low at one point.[43]

DHH managed to keep supplies flowing, but only through extraordinary measures. On Sunday, August 28, DHH put the Centers for Disease Control (CDC) on notice that it might need supplies from the Strategic National Stockpile, which CDC would deliver within 12 hours of the request. However, when DHH did make the request shortly after Katrina passed, CDC did not come through promptly, and Guidry was forced to obtain needed supplies elsewhere: "I personally signed for an order of five million dollars' worth of medical equipment from a private vendor because I didn't know where else to go, who was ready to deliver to me when I needed it. And so I did not have the funding for that, but I signed for it and got the Governor's backing to make that happen."[44]

Support from Federal Medical Teams

Apart from supplies, the state depended heavily on a steady flow of outside medical personnel, including Federal Emergency Management Agency (FEMA) Disaster Medical Assistance Teams (DMATs), which are nominally 35-member self-contained emergency medical teams, to stay on top of health-care needs.[45] DHH opened seven special-needs shelters around the state[46], and every one of them wanted to have a DMAT with its medical personnel and supplies to assist them.[47] According to Dr. Guidry, "we couldn't get enough teams here quick enough to meet those demands, so we went for quite some time before we got enough teams to meet the demand."[48] A team of U.S. Public Health Service (USPHS) officers also arrived in Louisiana on Tuesday night, August 30, and USPHS helped staff the state's triage facility at LSU for the duration of the event.[49]

State and local health officials described two occasions when DMATs redeployed from the special-needs facility at the Superdome, leaving an increased burden for medical professionals still on site. According to these officials, the first instance occurred either late on Monday or Tuesday, shortly after the special-needs operations were relocated from the inner concourse of the Superdome to the neighboring basketball arena. At that point, state and local health officials stated that two DMAT teams assigned to the facility left, apparently concerned about their equipment getting wet.[50] It should be noted, however, that according to the National Disaster Medical Systems (NDMS) Management Support Team Commander on site, Ronald Martin, the teams did leave the arena floor, but that he redeployed the DMAT teams to avoid the rising water. He stated that he moved one team to the mezzanine area and one team out of the Superdome to the adjacent elevated highway. Martin explained that he was concerned about keeping all of his assets within the Superdome if further flooding were to occur[51]. At least one local official was concerned about this change, and it did have the practical effect of reducing available resources inside the Superdome. According to Dr. Stephens, those teams were needed to help relieve his medical staff in their third straight day of caring for special needs patients and facing burnout.[52]

The second occasion occurred on Thursday when all of the DMAT teams at the Superdome (as well as city health department and Emergency Medical Services (EMS) personnel) pulled out due to security concerns.[53] General Gary Jones of the Louisiana National Guard, and Incident Commander at the Superdome**,** claimed that he was surprised by their abrupt departure, leaving behind at least 500 critical-care patients with no provisions for the transition:

> Dr. Lupin came up to me and he said, "Sir" – and he was pretty irate – he said, "You know, how do you expect me to deal with all of these critical care patients here?" And I said, "What are you talking about?" … And he said, "All the pa-

> tients over there on that ramp." And I said, "Why are you dealing with them?" … He said, "FEMA left." He said, "They left"; and he said, "They didn't leave any supplies, I don't have charts, I don't know what's wrong with these people, I don't know – they got IVs in their arms, I don't even know really what's supposed to happen, what the plan is or anything else."[54]

General Jones said he made no secret of his displeasure to FEMA officials:

> [The FEMA team leader] came back and she said we're back, and this is so-and-so, and he's going to be the lead guy. And I said, "Are you going to stay this time?" And they said, "Oh, yeah, we're going to stay." And I said, "Well, good, because I would hate to have to shoot somebody." And they laughed and they said, "You're joking." And I said, "Think so?" You know, and I – and I was joking. Obviously, I mean, I wasn't going to shoot anybody. But I kind of voiced my displeasure with the fact that they had left me unsupported.[55]

Hundreds of special-needs patients were cared for at the Superdome and eventually evacuated. In the end, 19 nursing homes evacuated pre-landfall, and leaving 34 to do so after the hurricane.[56] Moreover, a total of 12,000 patients and caregivers were evacuated from hospitals before and after Katrina with 25 hospitals evacuating in the first five days post-landfall.[57]

Many of these patients endured terrible suffering. Of the 400 patients at Charity Hospital, nine died, including some directly as a result of the prolonged evacuation process.[58] Dr. Stephens described rushing special-needs cases out of the Superdome before they started "to decompensate" [lose their vital functions]. He said, "I knew that I had to get people from the Dome to somewhere else … another day or two, [and] these fragile elderly people were going to start dropping out on me [dying]."[59] Similarly, Dr. Cerise, Secretary of DHH, said that many special-needs patients in the Superdome were elderly people who couldn't take care of themselves, and that it was clear some had not received necessary attention when they were moved from the Superdome to the neighboring arena.[60]

The severity of these patients' problems was made even more clear as this investigation developed more information on pre-storm planning and emergency coordination during the response. Some of the more troubling information came from the Executive Director of the Louisiana Nursing Home Association (LNHA), Joseph Donchess, who has been with the LNHA for nearly 20 years. Although the LNHA had an established seat at the state EOC, and was initially allowed access to E-Team, the state's electronic emergency request tracking system, these practices were interrupted during the response to Katrina. Donchess said:

> It's my personal opinion that nursing homes and hospitals are just too low of a priority and I'm very disappointed in that because here you're talking about the most frail population there is and they're relying on two non-profit associations to pretty much get this work done and it was never intended for us to be that kind of life saver organizations. … And that's what we had to act as during this last storm.[61]

> For the first two days, LNHA was on its own to improvise and find ways to rescue the elderly in nursing homes. We helped members and nonmembers alike. At first, LNHA could submit E-Team missions, but by the fourth day our E-Team missions were denied because we were not a governmental agency.[62]

Once the LNHA was denied access to the E-Team system, Donchess and other LNHA personnel sought Dr. Guidry and DHH's authorization for LNHA's needs. However, this practice also proved ineffective, as Dr. Guidry "had 100 different things" he had to do him-

self, so it was still very difficult for the LNHA to get its requests approved for the benefit of the many nursing home residents counting on assistance. [63]

Another troubling aspect of the state's emergency-preparedness structure was a gaping hole in the state's planning and coordination as it related to hospitals and nursing homes under the State's Emergency Operations Plan (EOP). Under the State's EOP, Emergency Support Function 8 (ESF-8, Public Health and Medical Services), responsibilities were divided between two state agencies. DHH was responsible for public health, sanitation, medical, and health assistance to special-needs shelter operations, mental health, and crisis counseling. The LSU Health Sciences Center, which runs the state's public hospital system, was responsible for providing and coordinating hospital care and shelter for nursing-home and home-health patients with acute care requirements, as well as casualties of emergencies and disasters. LSU also had the lead role in coordinating hospital planning and actions with private hospitals and other facilities.[64]

Unfortunately, the emergency-preparedness and response system laid out in the Louisiana EOP did not reflect reality for nursing homes and hospitals in Louisiana. LSU did not, and was not equipped to provide and coordinate hospital care and shelter for nursing-home, special-needs, or home-health patients as called for in the plan. Nor did LSU coordinate the overall planning and actions of private hospitals during emergencies as it was required to do.[65] To the extent any agency met these responsibilities, it was DHH, which did so through a program to prepare hospitals to respond to bioterrorist attacks. This program was funded through the U.S. Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services (HHS), and was not intended to deal with issues such as hurricane preparations.[66]

However, some aspects of the HRSA program did come into play. For example, under the HRSA program, DHH had previously worked with hospitals to establish a hospital emergency network to track available hospital beds and communicate information among hospitals which was used during Katrina.[67] However, while the HRSA program did provide some level of preparedness among the hospital community, this safety net for the charges and responsibilities that were supposed to have been shouldered by LSU under the state plan did not fully replace the work that LSU was supposed to do either before or during the response to Katrina.

The investigation sought to determine why this aspect of the state emergency plan was not followed. For one, LSU simply did not accept its responsibilities under the State's EOP, though it appears to have been understood that these responsibilities existed. As explained by Aiken:

> Oh, I understand the confusion because we are not doing it the way – exactly the way – the Emergency Operations Plan. … The way it realistically and the way it has operated, not only during Hurricane Katrina but for some of the other instances where hurricanes have come very close to us over the last couple of years, that LSU actually does not coordinate the overall hospital response. They tend to focus – and, obviously, since I don't sit there, I can't say exactly what they do minute to minute. … But I have a feeling that people … who sat in that chair [at the state EOC and have] been assigned that responsibility, they tend to focus on LSU hospitals and the HRSA, the people who have been employed through the HRSA grant and have traditionally been present to help coordinate the overall network, which certainly includes us, but also includes all the private hospitals. What you see in the plan is not what actually happens. It's certainly a job deserving of many more people than the plan calls for. And, again, these are all comments that I made public during the revision

> process earlier this year. In my opinion, the plan is not realistic. It should be more reflective of how we really do it, and I certainly hope that changes.[68]

LSU's responsibilities under the State's 2005 EOP were not new. Prior iterations, specifically the 2001 plan, made LSU's responsibilities for planning and coordinating hospital care and shelter for nursing-home and home-health patients even more explicit.[69]

As a result of LSU's failure, there was inadequate attention to emergency planning for important components of the health-care system in Louisiana. Dr. Aiken said he was not aware of any planning by LSU or other involved agencies at the state level for nursing-home and home-health patients under the State's EOP:

> I don't know of any substantial act of involvement that LSU has on nursing-home and home-health patients, truly across the board on an emergency basis, planning, preparation, or the actual response itself. Nursing homes in this state have always been a huge concern for us. … We over the years through the local emergency-preparedness committees, through every level of emergency planning that I have been involved with, we have always been concerned over their involvement, what they do during storms, that kind of thing. And I am not aware of any instance where LSU has had a – again, on Baton Rouge, on a State Office of Emergency Preparedness or Emergency Operation Center level – has had any real impact or influence on [them].[70]

Dr. Aiken also noted that he was "99 percent sure" that his boss, Don Smithburg, Chief Executive Officer of LSU Health Care Services Division (HCSD) and Executive Vice President for the LSU system, "didn't spend much time in providing or coordinating care for nursing home or home health placement, except for those patients that may have arrived at our hospital, which they did, the night before at Charity."[71] Smithburg admitted to LSU's shortcomings, stating that the individual charged with the overall planning and coordination for emergency preparedness and management for the Charity and University Hospitals, the Chief Operating Officer "was weak and not engaged and not communicative with the rest of our staff in that responsibility."[72] (Smithburg terminated this employee in February 2005.)[73] Furthermore, when asked by Committee staff if LSU had the resources or manpower to meet its charges under the State's EOP, regardless of whether the Chief Operating Officer for the system was competent in his/her position or not, Smithburg said, "There's no way."[74]

Dr. Aiken spoke of his concerns about the flaws in the state EOP to superiors in the LSU HCSD, to Colonel Jadwin W. "Jay" Mayeaux, Louisiana's Deputy Director of Homeland Security, and to the State Medical Officer, Dr. Guidry.[75] But the responsibilities stayed with LSU.[76]

Despite this notable vacuum in the State's EOP, Dr. Aiken was reasonably certain that the HRSA network acted as a surrogate for LSU in meeting the hospital-related responsibilities under ESF-8.[77] However, the Committee's investigation revealed that this safety net did not work as well as some would have hoped. Erin Downey, the HRSA Program's Director of Emergency Preparedness at the time, on contract with the DHH, was at the State EOC in Baton Rouge for the Katrina response, and had a different view:

> So you had emergency preparedness people calling and asking for resources, expressing their concerns, calling the command center or … they would call their coordinator, and then their coordinator would call … When requests were coming in to us, … our marching orders were to put everything in E-Team, okay, because what that was, was a way of facilitating that or standardizing all of the requests, funneling them through one main decision point, and

> that was the total breakdown. Now, I would love to say something different about that, but that was a total breakdown.[78]

Medical Assistance: Mississippi

Hurricane Katrina devastated the medical infrastructure of south Mississippi, destroying or severely damaging 14 of the 16 hospitals in the region's six counties.[79] Three hospitals were damaged so severely that they were forced to close, including the only acute-care hospital in Hancock County.[80] One hospital, Select Specialty Hospital in Gulfport, was destroyed in the storm.[81]

The storm also damaged or destroyed other medical facilities in the southernmost six counties. More than a third of primary-care clinics were closed or destroyed.[82] In addition, the damage done to the local physical infrastructure has resulted in longer response time for ambulances and a greater reliance on airlifting patients for care.[83] Seventy-three nursing homes were affected, including 16 in the southernmost six counties; two were destroyed.[84]

As the lead state agency under the Mississippi Comprehensive Emergency Management Plan's ESF-8 for health and medical services, the Mississippi Department of Health (MDH) played the lead state role in response to this catastrophe. Under that plan, MDH is charged with providing state assistance to local governments in response to public-health and medical-care needs following a disaster.[85] While the MDH does not provide primary care, once the Governor declares an emergency, all health and medical considerations fall within the purview of MDH.[86]

Dr. Brian Amy, Mississippi's State Health Officer and the top health official in the state, explained that although MDH was prepared and had recently increased its capacity to respond, it did not have the capacity to deal with disasters of Katrina's magnitude.[87] MDH activated its EOC at the MDH central office in Jackson on August 27, two days before landfall. The department pre-positioned response personnel, such as public-health nurses in special-needs shelters throughout South Mississippi and emergency-response coordinators in coastal county EOCs. It also worked with representatives from FEMA's National Disaster Medical System and HHS that arrived before landfall to request that additional federal help be readied, including DMATs, medical personnel capable of providing medical care following disaster.[88] These teams were eventually positioned at every affected hospital, treating 15,500 patients (out of 17,649 reported injuries), in the first days after landfall.[89]

MDH also supports pre-landfall evacuation. In these efforts, MDH assists in evacuating nursing-home, special-needs, and sometimes hospital patients.[90] These facilities are generally evacuated well prior to the general evacuation so that ambulances do not have to fight traffic congestion.[91] MDH also has a "decompression plan," to assist in discharging patients who can safely leave the hospital early.[92]

MDH regulates nursing homes in Mississippi. Jim Craig, MDH's incident commander during Katrina, reported that nursing homes asked to evacuate prior to Katrina did so.[93]

This hasn't always been the case. According to Governor Haley Barbour, one nursing home resisted evacuation prior to Hurricane Ivan. In response, Governor Barbour had the director of the state-run, low-income Medicaid program call them:

> We had to make one of the nursing homes evacuate, and that's where Medicaid comes in because that is who pays them. And if they get sort of uncertain of

Flooded reception area, Hancock Medical Center, Mississippi
Provided to Committee

whether they need to evacuate, I get the Director of Medicaid to call them, and they get a better attitude.[94]

Ultimately, MDH responded to Katrina with over 1,400 personnel.[95] Immediately following landfall, MDH began to assess and support local medical facilities. In addition, MDH's state epidemiologist led a team to the coast to assess damage to hospitals. The largest immediate problem was a severe fuel shortage. With power out in the area, many health-care facilities were forced to rely on generators. As a result, MDH officials began procuring and delivering fuel. The other major post-landfall challenge was maintaining security at health-care facilities, as they generally had power, drawing local residents displaced by the storm.[96]

In addition to federal help, Mississippi received considerable help from other states under the Emergency Management Assistance Compact (EMAC). Dr. Amy has stated that Mississippi "owe[s] a special debt of gratitude to our friends from other state public health agencies, particularly Florida, Kentucky, Indiana, Illinois, and North Carolina." He singled out for special praise the Florida Department of Health, which dispatched more than 300 personnel to Mississippi, and Kentucky, which sent more than 100 personnel.[97]

One of the most significant resources deployed to Mississippi under EMAC was Carolina-1.[98] Carolina-1 is a portable hospital unit that includes a surgical suite, x-rays, a laboratory, a pharmacy, and 100 beds.[99] According to Craig, when Mississippi first contacted Carolina-1, it was bound for Louisiana. Due to legal-liability issues it re-deployed to Mississippi.[100] Ultimately, Carolina-1 deployed to the Bay St. Louis area in Hancock County, where it became the central health-care provider in the county, replacing the Hancock County Medical Center devastated by Katrina.[101]

Mississippi also became the first state to receive, stage, store, and distribute the Strategic National Stockpile (SNS) Push Pack. Within 12 hours of Dr. Amy's official request, the CDC delivered eight truckloads of SNS medical supplies for Mississippi medical facilities. Supplies continued to flow into Mississippi for two weeks until Mississippi's facilities were able to reestablish their regular supply channels.[102]

Federal Health Response

Use of the National Disaster Medical System

The National Disaster Medical System (NDMS) is the nation's primary federal response capability to meet medical needs in times of disaster when state and local systems are overwhelmed. Part of FEMA's Response Division, the NDMS has two basic components.[103] The first is a collection of special medical and response teams that are on call to provide medical care during national emergencies.[104] The second component is a partnership of FEMA, the Veterans Affairs (VA), the Defense Department (DOD) and HHS that maintains a network

of hospitals and coordination centers throughout the United States to transport and care for large numbers of patients in an emergency.[105] This network was originally established to provide medical care within the United States for military casualties, but was used essentially for the first time on a large scale during Katrina to evacuate medical patients from New Orleans.[106]

NDMS teams comprise some 9,000 volunteers.[107] These volunteers organize, train, and deploy as part of geographically dispersed teams supported by local sponsors. When they deploy, the team members become temporary federal employees, which provides them a salary, reimbursement for expenses, and liability coverage.[108] The basic unit of the NDMS is the DMAT. NDMS also contains specialty teams which can deliver logistical support, mortuary, veterinary, burn- and crush-injury care, and other services. Ideally, a DMAT consists of 35 health professionals who are deployable within six hours with a well maintained supply and equipment cache, and have the capability to treat 250 casualties and sustain themselves over a 72-hour period.[109] A full DMAT typically has three to four physicians and a mix of nurses, pharmacists, paramedics, and physician assistants. Hurricane Katrina led to activation of 98 percent of the NDMS teams.[110]

Notwithstanding this extensive deployment, the NDMS teams were hampered by numerous problems. Beall described DMAT medical supply cache shortfalls as a common condition

> At last year's conference in Orlando, I asked every team there, if you have your complete federal cache, raise your hand. Not one team raised their hand because we've never been able to finish out buying the cache. … We had ordered all the stuff to finish these teams 100 percent, and as I had been advised, the million dollars had been pulled back for some reason. Some people talk about [a "tax"] or whatever DHS may have applied [to FEMA's budget]. I cannot testify that was the reason, but know that that order was cut by $1 million, and that these teams did not have 100 percent cache when we deployed them for Katrina, so we went into a response with a shortfall.[111]

FEMA was also limited in its ability to make all of the teams fully operational and to expand the number of NDMS teams due to lack of resources.[112] Of the 52 DMATs, only 25 are considered fully operational.[113]

NDMS also lacked sufficient administrative resources to sustain NDMS operations, let alone improve them. NDMS was transferred from HHS in 2003 pursuant to the Homeland Security Act,[114] but some administrative-support positions did not transfer from HHS. Other support positions were moved out of NDMS to FEMA's own logistics section.[115] To compound the situation, when activated, NDMS routinely sends its administrators to be part of field operations. Beall said, "At the initial launch of Katrina, I was really the only operations person in NDMS left in the section, and the other people that were there were operational specialists, which I had to send to the field … I never went home. I slept on the floor in my office."[116]

NDMS Team Deployment Problems

As described more fully in Chapter 12, on Thursday, August 25, four days prior to Katrina's landfall, FEMA Response Division Chief Ed Buikema activated the NDMS system and began to mobilize and pre-position its medical and mortuary teams. Although FEMA understood that states were relying on these resources to help them cope with the expected aftermath of the storm, FEMA had delays in mobilizing, deploying and staging its teams. For example, although the NDMS regional representative for Louisiana told NDMS leadership on Saturday, August 27, that Louisiana would need nine DMATs to staff its medical triage centers, these teams were not available before landfall.[117] FEMA also selected team staging areas that were hundreds of miles away from the coastal areas where they ultimately

expected to be deployed and efforts by Louisiana to get FEMA to bring them closer were apparently unsuccessful.[118]

Some delays in deployment were the result of the logistics and travel system that FEMA uses for NDMS. For example, a DMAT from San Diego was mobilized on Sunday, August 28, the day before landfall. (The team would ultimately be deployed to the New Orleans Airport to assist in the medical evacuation there.) By the time NDMS headquarters approved the team roster late on Sunday night, there were no flights remaining to transport the team. The team's after-action report said, "We could have been to Houston [one of the NDMS staging areas] half a day earlier, and to Baton Rouge a day earlier" if there had been a more efficient travel-approval process.[119] NDMS also relies on team supply trucks to transport medical supplies. In this case, the San Diego team's medical-supply trucks were to drive all the way from San Diego to Louisiana.[120] Finally, because team drivers are also "essential key team members," the San Diego team found itself short "six more team members, when we became engaged at the airport."[121]

Inadequate DMAT Team Support

By all accounts, NDMS teams delivered excellent care given the constraints of the environment in which they were working and living.[122] NDMS team members worked tirelessly and heroically in difficult and sometimes desperate conditions. Three NDMS DMATs were also deployed on August 30 to the New Orleans airport to support the medical evacuation effort being established there.[123] The DMATs provided care to more than 4,000 patients in what would become one of the largest contemporary mass-casualty triage and evacuations in the United States.[124] For the first two-and-a-half days, the three DMATs provided care to patients without relief in what one NDMS doctor called the "hospital from Hell."[125]

The NDMS teams could not operate without rest. It is unclear why more medical teams did not arrive at the airport until Friday, September 2, when the NDMS log indicates the presence of two additional DMATs, MA-2 and FL-3.[126] Their help was still desperately needed, but additional medical support should have deployed sooner. As described by the commander of a logistical support team sponsored by the U.S. Forest Service – an Incident Management Team (IMT) – that arrived at the airport on September 1, the situation demanded more medical and support assets, and sooner:

> Upon arrival at the Louis Armstrong New Orleans International Airport on September 1, the scene the IMT encountered could best be described as surreal. DMAT's had hundreds of patients scattered about the main terminal and ticketing area. Over 300 of these were confined to stretchers. Most were elderly and infirmed, but many had encountered injuries due to the accidents related to the hurricane. Medical personnel were stretched to the breaking point.[127]

The shortage of personnel also meant it was more difficult to provide adequate triage. The NDMS teams operated from the perspective that the best care was simply to put patients on planes and get them out of the facility. DOD and private-sector planes were used to transport patients to hospitals wherever possible.[128] When asked how patients were tracked, Captain Art French, one of the NDMS doctors who tried to manage the DMATs at the airport, replied, "We wrote down their names, where they were going, and with whom on a piece of paper. Those pieces of paper I hope are still there."[129] In between was an "expectant area" where failing patients were provided comfort care. In the end, 26 patients died at the airport, mostly in this area. Capt. French said that despite conditions at the airport the care of these patients was fully adequate and that these patients would have probably died in any medical setting.[130]

Although DMATs are supposed to deploy with management support from Management Support Teams (MSTs), no organized MST deployed to the airport.[131] Instead, an ad-hoc MST was created from NDMS personnel on-site. In fact, neither of the two men who would eventually co-direct the NDMS medical operations of the New Orleans Airport was formally assigned that duty.[132] They had traveled on their own to the airport to help out when their other assignments were canceled. When they arrived Wednesday, they were confronted with three medical teams, CA-4, TX-4, and WA-1, without any management support, facing growing numbers of patients, and increasingly difficult conditions, so they assumed leadership roles.[133] This ad-hoc management team did its best to manage the situation, but had no ability to communicate even with NDMS leadership in Baton Rouge.[134] When asked why he thought an MST was not deployed to the airport given the difficulty and complexity of the mission, Capt. French observed that there were no MST staff left to send.[135]

Medical evacuation
U.S. Air Force photo

The lack of experienced MST members led to other problems. At one point, Beall e-mailed that his field operators were not supporting the DMATs sufficiently: "I need a plan put together on how the teams will be supported. Many of the leaders in the field are not well versed on NDMS field ops."[136] The response: "Then they shouldn't be leaders, nor should they be in the field without supervision."[137] One team complained, "We all know what disasters are, we would not be here if we did not want to help. But when the situation is compounded by mismanagement it makes our jobs much more difficult to do. We have asked for items and heard nothing as to the status of the request."[138]

Many teams had difficulty communicating. The DMATs at the Superdome had satellite phones, but had difficulty utilizing them because they were initially not programmed properly and the truck-mounted units would not work inside the building.[139] The NDMS MST commander on-scene deployed with only his personal cell phone.[140] Management was aware of the problem, but seemed unable to resolve it. On September 1, Beall complained, "Communication has been the worst I have seen."[141] Eight days after Katrina's landfall, he was still desperately trying to obtain communications capability. He e-mailed, "Where are the sat[ellite] phones for the NDMS teams? Teams do not have communications."[142]

Beall attributes some of these problems to the way in which DHS absorbed NDMS from HHS. The NDMS logistics personnel were transferred to the FEMA logistics branch rather than remaining with their agency. Beall remarked, "So all the logistic shortfalls and all the

things that we're starting to see in the after action, it's because the person working the logistics side of the house did not have any background in NDMS. … we need a lot of supplies, and what I don't need is somebody to tell me, `Why do you need this, why are you asking for that?' I don't need someone to slow up that request, and that's what you'll see"[14]

NDMS Patient Movement

On the night of Tuesday, August 30, federal emergency managers authorized the medical evacuation of hospital and other acute-care patients from New Orleans.[144] This was the first time a full-scale operation using the NDMS patient-movement capability had ever been initiated.[145] The plan called for DMATs to establish a triage center at the New Orleans airport and to utilize assigned Air Force aircraft to move the patients to hospitals around the country.[146] As described above and in the after-action reports of the agencies that participated, more than 4,000 patients were evacuated through the airport although less than half (approximately 1,800) were actually placed on Air Force aircraft.[147] The remainder were placed on National Guard and private aircraft. The distinction is important because only those patients who were placed on the Air Force aircraft were logged into the NDMS patient movement-tracking system. The tracking system was not accessible for all patients and as a result, there was no systematic way of knowing what had become of everyone.[148]

As noted above, medical teams on site were overwhelmed by the volume of patients. There was essentially no overall command structure governing the medical evacuation, especially during the first three or four critical days.[149] Operations at the airport were also plagued by a lack of effective management of the airport complex and the simultaneous civilian evacuation, a shortage of security, and a lack of logistical support. Although a U.S. Forest Service-sponsored Incident Management Team arrived at the airport on Thursday, September 1, and began to provide badly needed logistical support to the NDMS teams and other federal personnel, their deployment to the airport was essentially accidental.[150] While the evacuation was a success in that it succeeded in moving thousands of patients, and the NDMS network operated largely as intended, it clearly did not work as well as it should have.

Medical Surge

HHS is the coordinating federal agency for federal public-health and medical-assistance activities under the National Response Plan (NRP) (ESF-8, Public Health and Medical Services).[151] Within HHS, the Office of Public Health and Emergency Preparedness (OPHEP) leads the Department's preparedness and response activities and is tasked with coordinating activities within HHS and with other federal agencies. During Hurricane Katrina, one of OPHEP's primary responsibilities was to meet medical-surge needs, which involved increasing capacity to provide medical care by providing more healthcare personnel, more health-care facilities, and more health-care supplies across the affected region.

Personnel

HHS drew from four primary sources to meet emergency health-personnel needs. First, the U.S. Public Health Service (USPHS) is the principal personnel surge resource for HHS. There were approximately 6,000 officers in the USPHS under the command of the U.S. Surgeon General in 800 locations around the country at the time of Hurricane Katrina.[152] In the immediate aftermath of Katrina, from August 30–September 16, HHS deployed 2,132 USPHS officers. Second, the Medical Reserve Corps (MRC), comprising 62,000 local volunteer healthcare workers in state-sponsored teams across the country, deployed approximately 6,900 volunteers during Katrina.[153] The third source of federal health personnel was a federal volunteer database created in the immediate aftermath of Katrina that had approximately 34,000 volunteers. Of this total, only 1,400 eventually deployed.[154] The fourth source was turning to other federal agencies such as the Department of Defense (DOD) or Veterans Affairs for assistance.

U.S. Public Health Service

Under the Public Health Service Act, the Secretary of HHS has broad authority to mobilize and direct the USPHS in times of a public health emergency. USPHS officers work in many parts of the federal government around the country.[155] They include physicians, nurses, pharmacists, engineers, environmental health officers, dentists, mental-health providers, scientists, therapists, epidemiologists, and other public-health professionals.[156] They are a uniformed service, and can be directed to leave their normal jobs to deploy under the direction of the Secretary of HHS in an emergency.

As described more fully in Chapter 12, the HHS Office of Force Readiness and Deployment (OFRD), which is responsible for overseeing USPHS officers deployed in an emergency, began identifying personnel for deployment (known as "rostering") well before landfall, starting August 25. HHS's original goal was to create a 100-person team to deploy to the area prior to landfall.[157] However, only 37 officers arrived – in Jackson, Mississippi, mere hours before landfall, late Sunday night. They were far from their original destination of the Superdome in New Orleans.

Once in Jackson, the team had limited capability. USPHS officers are not issued medical equipment or supplies nor are there pre-arranged teams or equipment caches.[158] These officers did not have any capacity to provide care by themselves without additional logistical support, especially to support special-needs patients such as individuals with heart conditions, diabetes, or oxygen requirements. The team remained in Jackson, Mississippi, until Tuesday due to high winds, lack of electricity, and lack of communications.[159] When they were finally able to leave, they traveled to Baton Rouge to staff the state-run medical triage center at the athletic center of LSU.[160]

There are several reasons why HHS, with 6,000 USPHS officers theoretically available, could not send a complete team to the affected parts prior to landfall. Each time a USPHS team is needed, it is formed ad-hoc: officers are not assigned to pre-existing teams, so teams must be assembled from lists of available officers matching both needed skills and the numbers of officers. They must then fly in from multiple locations using commercial transport. Because the 100 team members originally identified to deploy were spread across the country, there was no practical way to move them into New Orleans at the last moment.[161]

In addition to these early efforts, on Monday, August 29, rostering continued in an effort to identify USPHS officers to deploy to the New Orleans area.[162] According to Rear Admiral John Babb, the USPHS officer who heads OFRD, teams were identified for deployment by Tuesday, August 30, but mission assignments were not made.[163] For instance, many of the officers were slated to staff mobile field hospitals, known as Federal Medical Shelters or FMSs. During the course of that week, Admiral Babb fulfilled staffing requests for ten 250-bed FMS units,[164] but the units were not ready. Consequently, there was initially no place to send the teams.[165] Furthermore, once placed on a team roster, USPHS officers were then sent to a travel contractor to arrange commercial travel.[166] However, the travel contractors did not deploy the teams as OFRD had them structured due to commercial flight limitations and disruptions.[167] Admiral Babb said deployment of the USPHS teams "would have been much more successful had we had geographically connected teams so that we could have deployed people from a given location instead of from all over the place."[168] The reliance on an outside travel contractor without the capacity to deploy and rotate approximately 3,000 personnel from around the country did not result in a uniform and predictable deployment process and adversely impacted HHS's response.

As a result of these factors, and despite its efforts to begin to roster personnel before landfall, no significant USPHS deployments, other than the initial team of 37, occurred until the end of the first week following Katrina.[169]

USPHS deployment difficulties also relate to a number of organizational factors. USPHS teams do not have their own medical and support supplies, pharmaceuticals, food, housing, and other logistical capabilities that allow them to be self-sustaining.[170] Admiral Babb specifically cited a lack of medical and supply resources as contributing to deployment delays.[171] USPHS also relies upon commercial travel services. Robert Lavender, Deputy Director of Information Technology and Communications within OPHEP, cited problems with closed airports, ground-transportation problems, and lack of hotels and other housing options as impeding deployment.[172] In essence, HHS personnel depend on the local economy, infrastructure, and commercial transportation for deployment and ongoing support – a requirement that could not be easily met in the wake of a catastrophic hurricane or likely in other emergency situations. Deployment logistics were further strained by the fact that USPHS officers were rotated out of the field every two weeks, significantly adding to the logistical workload.[173]

USPHS deployments were also compromised by the daily professional commitments of USPHS officers.[174] Many USPHS officers were also federal employees playing essential roles in their agencies, such as the Indian Health Service and the Bureau of Prisons, making them unavailable for deployment. USPHS officers were also supposed to notify the Medical Affairs Branch in the USPHS about any changes in their deployment availability.[175] However, status updates did not systematically occur. [176] Numerous e-mails were sent to OFRD from USPHS officers stating that they could not leave their agencies because of employment obligations or other reasons such as illnesses or pregnancies.[177] In other cases, USPHS personnel were members of other emergency teams, such as the NDMS teams managed by FEMA. If they had already deployed as part of those teams, they were no longer available to deploy as part of USPHS.[178]

Hurricane Katrina was not the first time these problems with USPHS deployment have been identified. An after-action report published by the CNA Corporation, a non-profit research firm, following Hurricanes Frances and Ivan, documented many of the same issues.[179] A key criticism in the CNA report was that USPHS rotational rosters were not "ready-go" personnel assets, which means they did not have supplies and equipment to provide clinical services.[180] Again, this continued to be a problem for deployments pre-landfall and afterwards for Hurricane Katrina. CNA also cited limited travel and logistics support for officers as problematic.[181] Travel-logistics problems continued into Hurricane Katrina, as OPHEP relied again on an outside contractor with insufficient capacity to effectively deploy a significant number of people. OFRD also had no mechanism in place for tracking the movement and placement of USPHS personnel in the field at the time of Hurricanes Frances and Ivan,[182] and again did not have the capacity to do so during Katrina. As a result, Admiral Babb stated that OFRD "didn't have visibility necessarily about where people were. Were they still at home? Were they in flight status? Were they there and gainfully employed?"[183] Problems with the USPHS team identification and notification process were not resolved for the 2005 hurricane season despite the difficulties during the Frances and Ivan deployments. The prior year's difficulties were compounded, because Katrina required significantly more personnel than Frances and Ivan.[184]

It is clear that the USPHS, in its current form, cannot respond to public-health and medical emergencies quickly. When the local economy, and physical and health infrastructure are compromised, the USPHS deployment process is crippled because they require supplies, facilities, and transportation to be individually arranged for each USPHS officer and/or team. All of these issues raise questions as to what the USPHS's emergency-deployment capabilities truly are, what should be expected of it, and what its future role should be.

If USPHS is truly going to be a first responder for medical emergencies, significant changes must be made. As Assistant Secretary Stewart Simonson said, "I think it's clear that one of

the things we need is a quick-response force within the Public Health Service and the ability to move people pre-identified into emergencies in a much faster way than we can now."[185]

Credentialing and the Medical Volunteers

Any significant medical or public health response will require that health-care personnel move across localities and states to assist in meeting personnel surge needs, as illustrated by Hurricane Katrina. The Public Health Service and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188) mandated a national credentialing system for all health professionals to ensure that health-personnel surge needs are quickly and efficiently met.[186] In response, HRSA[187] created the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) to provide a credentialing system to move health professionals within and across states in the event of an emergency. Each state individually joins the ESAR-VHP system in order to provide advance registration of their volunteer health professionals. At the time of Hurricane Katrina, only 12 states were part of the credentialing system. [188] Credentialing criteria for health-care workers were not standardized across states. [189] And even for those 12 states, HHS had no oversight of the states' credentialing systems in order to determine which volunteers might be available or whether volunteers were registered in multiple systems.[190]

In the immediate aftermath of Katrina, HHS began receiving numerous calls from health professionals wanting to volunteer their time and services to the affected region. In response, HHS created an entirely new federal volunteer-signup website.[191] For lack of a national credentialing system, HHS decided to rely on a private contractor to individually verify the credentials of the 34,000 individuals who volunteered in the weeks after Katrina.[192]

The volunteering and deploying process was time- and resource-consuming at best. After registering on the website, volunteers were contacted by the private contractor to verify their credentials. Volunteers were sent to the HHS Human Resources Office to be hired as temporary employees, then to OPHEP for deployment. Credentialing became a significant bottleneck in the process, and there seemed to be no consistent plan as the weeks went on.[193] Numerous documents indicate credentialing delays by the private contractor, who was hired and started work only after landfall.[194] Because different organizations were handling credentialing, hiring, and deployment, HHS had limited information on volunteers in the system and where they were being deployed.[195] The volunteers also posed a host of difficulties for the HHS logistics department because volunteers were not familiar with travel regulations, procedures, and reimbursement protocols, among other issues.[196] Creating this massive federal volunteer effort during the crisis took a significant amount of effort and resources at the federal and the local level and impaired HHS's ability to function as efficiently as possible.

Once created, the new volunteer system experienced many problems. Numerous documents indicate constant additions and changes to the website,[197] underscoring the unplanned nature of this project in the midst of a significant national catastrophe. This was also singularly a federal effort. Staff to the Secretary of HHS made clear in an e-mail to those administering the database that there was a lack of coordination with states around volunteer recruitment.[198] States felt that the HHS volunteer-recruitment effort conflicted with their own efforts to recruit and organize volunteers, who they would dispatch themselves, and the HRSA-sponsored credentialing programs they had been encouraged to establish.[199] It also failed to directly include state emergency-management agencies which were trying to fill requests for medical assistance from the Gulf Coast to ensure the efforts were coordinated and not duplicative.[200]

Eventually, approximately 1,400 out of 34,000 volunteers in HHS's volunteer system actually deployed, or only 3.5 percent of those that signed up on the volunteer website. The costs of HHS's constructing and maintaining this database, and of contracting with a private credentialing entity, are not known. In the end, it was unable to efficiently process volunteers.

The federal volunteer-deployment effort was a haphazard attempt to respond to undoubtedly well-intentioned people offering help in the immediate aftermath of Katrina. While it is human nature to want to volunteer and assist in the face of a major disaster, the significant effort made to attempt to accommodate individual volunteers may not have been the best use of resources.[201]

To date, HHS has failed to meet its statutory mandate to create a national credentialing system to allow health professionals to work across localities and states to meet healthcare personnel surge needs. Had a national credentialing system been in place for Katrina, volunteer health professionals would likely have been utilized more quickly and effectively, obviating the need to create an entirely new federal volunteer database and deployment effort in the midst of a national crisis.

Facilities

Katrina devastated much of the medical infrastructure in Louisiana and Mississippi, leaving some 2,500 hospital patients in New Orleans alone in need of relocation. Thousands of elderly nursing-home and assisted-living patients, and others with chronic medical conditions, such as heart disease, diabetes, and mental illness, required medical care. However, surviving local capacity to meet their needs was limited. Anticipating these medical needs, HHS launched a major effort to deploy mobile hospitals units even though the concept was still in development and HHS's capability was very limited.

Federal Medical Shelters (FMS)

OPHEP's Office of Mass Casualty Planning had started to develop a Federal Medical Shelter (FMS) capability to establish field hospitals for a mass-casualty event. HHS hoped to expand its response capability and avoid relying on DOD medical units, which historically can take some time to deploy.[202] The FMSs would act as all-hazards medical facilities with the capacity to treat patients with basic medical needs. An FMS unit would include hospital cots and medical supplies. Healthcare personnel would also be needed to staff the unit. However, at the time of Hurricane Katrina, the FMSs were still under development and not ready for field units to be established.[203] Assistant Secretary Simonson said, "They were not an operational asset, really. They were still at a concept asset."[204] Assistant Secretary Simonson nonetheless ordered HHS to supply and staff mobile units.[205]

Supply Procurement for FMS

The Strategic National Stockpile (SNS) at the Centers for Disease Control and Prevention played a key role in acquiring supplies to staff the mobile FMS units. Assistant Secretary Simonson tasked the stockpile program with procuring a total of 10,000 hospital beds' worth of equipment and supplies for the FMSs and asked HHS staff "to lean forward and be very aggressive" in making the acquisitions.[206] He sent an e-mail on Wednesday, August 31, to his staff and to the CDC Director that HHS needed "to get the first 2,500 beds for the Federal medical shelters staged by midnight on Friday. … I must tell you there is no margin for error. I implore you – please go all out on this."[207] The entire FMS program was only at the conceptual stage: HHS had two of their own FMS units they were developing with a capacity of approximately 500 beds, with a "fairly modest pharmaceutical cache," and with approximately three days' worth of material support for non-acute patients for their mobile units.[208]

Procuring the FMS units was the "first foray into a broader all-hazards support function"[209] for the stockpile program and it placed an enormous burden on it. So significant was the impact, that on Saturday, September 3, less than a week into the event, Assistant Secretary Simonson himself e-mailed the director of the office overseeing the SNS and the Acting Director of the SNS, and asked them to place less effort on FMS acquisition and refocus their efforts on medical resupply for Mississippi.[210] At the time, Mississippi was experiencing

great difficulty in getting needed medical supplies, and as explained below, required HHS to ship them a 50-ton emergency Push Pack to tide the state over until other supplies could reach them.

FMS Location

Deployment of the FMS units was further hampered by a lack of coordination with states on where or how the mobile units should be placed to maximize their utility; negotiations initially only occurred with DOD in advance of any state requests for the facilities.[211] An e-mail stated, "HHS is completing the delivery of the 1st Wave – 2,500 beds etc. Now working the 2nd Wave of 2,500 and early working of the 3rd Wave of 5,000 (total 10K beds). However, this has – for the most part – [been] accomplished without feedback from the States."[212] To its credit, OPHEP attempted to anticipate health needs and worked with HHS partners to develop estimates of personnel required to operate FMSs, but they did not have adequate intelligence from states, FEMA, or their own personnel to generate concrete estimates of the need for the 10,000 beds or the locations at which to deploy them. As late as September 2, days after procurement for additional beds had been aggressively undertaken by the SNS,[213] OPHEP was still trying to develop relationships with the DOD medical facilities at which they hoped to place the units[214] and some locations proved impractical. At Eglin Air Force Base in Florida and Ft. Polk, Louisiana, FMSs were deployed but never used, requiring these units to be redeployed. In short, initial placement decisions were not made in consultation with state emergency managers or with adequate situational awareness of medical needs, so resources had to be redirected and reprioritized.[215]

Blu-Med and USNS *Comfort*

HHS spent a considerable effort acquiring the use of two Blu-Med hospital surge units – mobile medical facilities – one from Nevada and one from North Carolina. These are commercially available medical units manufactured by Blu-Med Response Systems in Kirkland, Washington. Like the FMS units, they were a means to increase medical-facility surge capacity. Deployment of these units became the subject of protracted negotiations among sponsors, host states, and emergency managers.

In the end, the Nevada unit was the subject of conflict about need between NDMS and HHS. NDMS argued it was not needed, while HHS wanted it deployed. By the time the Nevada unit was to finally arrive at the New Orleans airport, NDMS concluded that there was no need for it, saying, that "Stu Simonson did not want to turn off Blu-Med, saying that PHS staff would staff it if needed."[216] Confirming NDMS's assessment, the Blu-Med hospital unit shipped from Nevada to the New Orleans airport was never used there. It was shipped several days later to Gulfport, Mississippi[217], but took an extended period of time to set up.[218] The Carolina unit was shipped directly to Mississippi, where it was used extensively,[219] suggesting that the deployment of the units was a mixed success.

The hospital ship USNS *Comfort* was another asset made available to meet medical surge needs after Katrina. It is a DOD asset with a significant hospital-bed capacity and its own personnel and supplies. However, it is not quickly deployable. On September 2, Assistant Secretary Simonson sent a letter to Assistant Secretary of Defense for Homeland Security Paul McHale requesting that the *Comfort* be deployed with personnel and supplies to treat 1,000 patients;[220] however, it did not arrive at its location in Pascagoula, MS, until Friday, September 9. By that time, an e-mail within the Secretary's office reported, "Nobody could think of a mission for [the *Comfort*]. State Health Department was clear that they had nothing at this time."[221] The *Comfort* was eventually redeployed to Louisiana. The FMS and Blu-Med units and the *Comfort* took a significant amount of time to deploy and, in some cases, became available only after the greatest need for medical care had passed.

Medical Supply Capacity

One of the major challenges in preparing for and responding to medical emergencies is acquiring and delivering medical supplies, including pharmaceuticals, to address a broad range of health conditions and threats. During Katrina, medical supplies were needed for a range of situations: (1) hospitals and other health care facilities cut off from their normal sources of supply by the storm, (2) large evacuee populations, (3) medical responders, including medical teams from HHS and other agencies, and (4) unique medical problems caused by the storm, such as the need for tetanus vaccines. Despite its role as the coordinator of ESF-8, HHS has limited medical assets.[222] During the event, HHS relied primarily on the CDC, as an HHS operating division, to provide medical supplies, equipment, and pharmaceuticals through their SNS division.

Supplying HHS Personnel and HHS Assets

USPHS officers are not normally issued basic supplies or equipment. Consequently, during Katrina HHS had to procure supplies to equip its personnel. For instance, the OPHEP logistics official reported purchasing 1,200 "primary medical bags."[223] Budgetary considerations were the primary reasons why purchases such as these were not made previously, though concerns about shelf life of products and logistics considerations were also factors.[224]

Strategic National Stockpile

HHS maintains a stockpile of medicine and medical supplies for use in public health emergencies through its SNS program. These materials are supplied from both regional government warehouses and from vendor-managed inventories (VMI), which are private medical-supply companies that fill orders as needed during emergencies. However, the primary assets in the SNS are "Push Packs." These pre-packaged units contain about 50 tons of pharmaceutical and medical supplies, and are intended to arrive anywhere in the United States within 12 hours of a deployment decision. States are expected to formally request supplies from the SNS and are periodically evaluated by CDC on their ability to accept and distribute supplies from the stockpile. Once a state's request is approved by HHS, SNS dispatches the Push Pack with a security escort and a special assistance team to help state and local health agencies receive and distribute the supplies. If an emergency requires additional or different medical supplies, the SNS turns to their private vendors, who are expected to ship supplies to arrive within 24 to 36 hours of a request.[225]

Supply Requests

Normal procedures for deploying SNS supplies were overtaken by events from the outset. On Sunday, August 28, the day before landfall, Assistant Secretary Simonson directed SNS to dispatch a select set of medical supplies to the Superdome.[226] Although these supplies were shipped on Sunday, they did not reach Louisiana until Monday, when they were turned over to the state.[227] While the vast majority of medical supplies provided by HHS came from vendors, the State of Mississippi formally requested deployment of a Push Pack because no other supply requests were being filled quickly.[228] Although a Push Pack can be delivered quickly, it is not the first choice when general medical supplies and pharmaceuticals to treat chronic conditions are requested, because its contents are tailored to terrorist attacks and other medical countermeasures. When Mississippi's Push Pack arrived, HHS had to separate general medical supplies and pharmaceuticals out of the 50-ton shipment.[229] A Push Pack request from Louisiana was apparently discussed, but there was no formal request for deployment.[230]

Mississippi's letter requesting a Push Pack was sent to HHS on Thursday, September 1.[231] However, there was uncertainty and tension between HHS headquarters and CDC as to who was responsible for authorizing its release.[232] OPHEP noted that it had no direct control over assets provided by the SNS.[233] An SNS official stated, "I think, probably this is one of the areas where we've not really practiced around the optimal way to go through com-

mand and control around a protracted natural disaster. ... I think that there could be value in formalizing some of the processes around release of the stockpile."[234] The movement of requests and approvals through multiple channels created confusion at senior OPHEP and CDC levels, though there is no evidence that this confusion delayed deployment.

Medical Supply Problems

The SNS was never designed to serve as sustained operation delivering medical supplies directly to health-care providers. Informal reports from USPHS officers deployed to the LSU triage center stated that the medical-supply packages sent by SNS did not arrive labeled and lacked basic items, such as bandages and alcohol.[235] Generally, SNS supplies were tailored for use by an acute-care facility for people with life-threatening injuries or illnesses. However, many of the patients passing through the triage center suffered from long-term, chronic diseases such as diabetes. As a result, the triage center ran out of key pharmaceuticals needed for chronic care within one day of initiating operations.[236] There was no organized method for resupply and USPHS officers reported calling multiple sources – the HHS Secretary's Operations Center (SOC), the SNS, and private vendors – to try to meet resupply needs.[237]

The USPHS officers reported that most of the medical problems encountered were acute exacerbation of chronic diseases, such as hypertension, diabetes, congestive heart failure, and psychiatric conditions,[238] which usually require daily medications. They also reported numerous patients in need of kidney dialysis and of oxygen, both of which were in short supply.[239] However, the SNS has historically focused on bioterrorist attacks and not routine health problems, even in large evacuations such as that which occurred in Katrina.[240] Thus, they did not anticipate and were not prepared to meet the medical needs of a general population that had been displaced by a disaster, despite the key preparedness role HHS plays under the NRP.

As one HHS headquarters official stated, "I don't believe the Stockpile is as comprehensive as everyone believes it is."[241] Katrina highlighted the need for broader medical preparation and planning that includes chronic-disease groups,[244] as states and localities turned to the federal government to fill gaps in its medical-supply chains. The SNS was also not designed to be an on-going medical supply operation. [242] However, the CDC acknowledges that there must be a national capacity to tailor medical-supply delivery for different types of disasters when normal chains of delivery are disrupted.[243] Katrina has highlighted the need to ensure a national capacity to move supplies and pharmaceuticals to areas in need when local health infrastructure is compromised.

Conclusions

According to HHS, between August 30 and September 16, the SNS acquired or distributed some $38 million worth of medical supplies, including 14 FMS units accounting for some 3,500 patient beds, 440,000 doses of various vaccines valued at $9 million, and hundreds of thousands of doses of antibiotics and maintenance medications for chronic diseases such as diabetes, heart disease, high blood pressure, and other conditions.[245] HHS adapted the SNS system, which was not designed or prepared to provide basic medical supplies and pharmaceuticals, to become a *de facto* medical-supply chain for a devastated region. However, the ad-hoc system created in the wake of Katrina is not geared to handle a broad range of emergency health needs, especially ones related to the day-to-day health problems of the U.S. population. One HHS official summarized it best when he stated, "From a medical supply standpoint, we were ill prepared. We didn't have and we don't have today, the assets, the medical assets, to support this kind of an incident."[246]

Emergency Support Function 8: Coordination Issues

The NRP designates the HHS as the coordinator and primary response agency for ESF-8, Public Health and Medical Services. ESF-8 provides both public-health and medical-care support

ranging from deployment of medical-care personnel, to the provision of medical equipment and supplies, to patient evacuation.[247] In this role, HHS theoretically becomes the lead agency for federal medical response in a federally declared emergency, working with and coordinating the deployment of assets from other federal agencies.[248] Within HHS, this function is carried out primarily by the Assistant Secretary for Public Health Emergency Preparedness.[249]

Conflicts with FEMA and NDMS

During Katrina, HHS had mixed success in carrying out its role as the lead agency for ESF-8. Some agencies, notably DOD, appear to have accepted HHS as the ESF-8 lead. Others, notably FEMA, did not. Although an effort was made to establish a unified incident command for ESF-8 at the agency-headquarters level to resolve conflicts and improve coordination, this did not occur until September 5, a week after landfall.[250] It is unclear whether establishing such a structure would have substantially aided the initial response efforts or fully resolved ESF-8 coordination issues, but it is clear that there were interagency-coordination problems during the event. These occurred principally between HHS and FEMA, and ranged from a failure to share basic operational information, to more complex tasks such as making asset-deployment decisions.

NDMS teams were staged and deployed with minimal, if any, coordination with HHS. When asked about coordination between FEMA and HHS in the deployment and pre-staging of NDMS teams and his efforts to get a DMAT to the Superdome before landfall, Assistant Secretary Simonson explained that even though he was able to convince the acting head of FEMA's Response Division, Ed Buikema, to send a DMAT to the Superdome, this was the exception, not the rule:

> Now I should say, contrary to what has been reported in other places, the NDMS was not overly concerned with our views on where particular assets should go. And so it's not clear to me that we have – we had then much say in where they would go. I think the Superdome situation revealed to Ed [Buikema] how weak the pre-deployment was and I think it was very difficult for them to resist that it was a logical deployment at that point. But that was between me and Ed. That wasn't part of a structure.[251]

Another example of this deployment issue is documented in an e-mail exchange between Simonson and Beall, the NDMS chief, on Saturday, September 3. At the time, efforts were still under way to evacuate the Superdome and the Convention Center. The medical teams handling the medical evacuation at the airport were being overwhelmed. Beall and Simonson exchanged a series of e-mails about replacing DMATs providing medical care at evacuation centers in Texas.[252] Beall later reported that there were five NDMS teams in Texas.[253] This exchange raises questions such as why these capable NDMS teams were staffing evacuee centers when there was a critical need for them in New Orleans, and how these deployment decisions were made.

ESF-8 also included oversight of mortuary affairs and deployment of the NDMS Disaster Mortuary Operational Response Teams (DMORT).[254] Operational insight by ESF-8 was no better in deployment of these teams. When asked about HHS's participation in a plan for addressing the large number of expected fatalities in the Gulf, the Deputy Assistant Secretary at HHS charged with this responsibility said:

> It didn't come for approval. FEMA runs its own operations so they didn't ask if we approve or not. But, as I said, we had a liaison. We had a DMORT person working upstairs. So he, he writes this up and shares it with us and it served as an, it served as an important thing for us to work with. This is, this was not developed with our input.[255]

These examples raise basic questions not only about whether the right medical assets were being deployed to the right locations during the response, but also, more fundamentally, about who was in charge of those decisions. It clearly was not HHS, the lead for ESF-8 in the NRP. HHS/NDMS coordination problems are unfortunately not a new issue and were identified as a problem in responding to the 2004 hurricanes.[256] The causes were not addressed then and obviously remain.

HHS Coordination Resources

The reasons for these ESF-8 coordination problems are perhaps best articulated by an analysis prepared by one HHS OPHEP staff member at the height of the crisis on September 3. This analysis locates the problem in a lack of situational awareness by HHS and a lack of direct cooperation from NDMS: "Given NDMS's: superior situational awareness; no mandate to share their Intel [intelligence]; and clear and forceful decision to NOT allow us to be a part of their operational planning, OPHEP lacks the ability to properly lead ESF#8."[257] Implicit in the analysis is that HHS lacks sufficient emergency-response and coordination assets in the field.

Whether the ESF-8 command-and-control problems can be attributed solely to the factors identified in the HHS analysis, there does appear to be an inadequate level of HHS emergency planning and coordination capability both in the field and headquarters. As the staff analysis points out, HHS has only recently established 10 regional emergency coordinators – one for each federal region.[258] The Region VI coordinator who was responsible for covering Louisiana did not assume that position until April 2005, and so was not familiar with the situation in Louisiana.[259] In addition, she was responsible for a large, five-state area covering Arkansas, New Mexico, Oklahoma, and Texas, as well as Louisiana.[260] At the time Katrina made landfall, the Region VI coordinator had not yet visited Louisiana, nor had she met or communicated with Louisiana's ESF-8 officials.[261]

This lack of awareness of Louisiana's hurricane or health preparations was further exacerbated by the fact that no one from OPHEP participated in the Hurricane Pam exercise – which shaped much of the state's medical-response plan used for Katrina – or follow-up medical workshops, including one held the week before Katrina. As a result, the Region VI coordinator had to often depend on the NDMS regional staff for information and insight into the crisis in Louisiana as it unfolded.[262] In addition, virtually all of the HHS regional emergency coordinators were deployed to Mississippi and Louisiana response operations.[263] This left a gap in their own regions in the event of another crisis, or even, in this event, when Katrina evacuees began to flow to other regions and required health and medical coordination services.

Lack of Emergency Preparedness Program and Response Integration

Although HHS has several medical-emergency preparedness programs to help state and local public-health officials and health-care facilities prepare for emergencies, these programs are not carried out by OPHEP. HRSA[264] carries out a bioterrorism hospital-preparedness program and a medical-volunteer credentialing program. CDC carries out a public-health bioterrorism cooperative-grant program and a program to deliver emergency medical supplies from the SNS. Although OPHEP has general oversight of these programs within HHS,[265] as do the emergency coordinators at the regional level, they do not administer these programs. HRSA and CDC personnel administer the programs and have the primary interactions with state and local health officials.[266]

Although these HHS preparedness programs are primarily focused on the threat of bioterrorism, several of them did provide demonstrable "all-hazards" benefits which were utilized during Katrina (The exception is the HRSA credentialing program). For example, the HRSA hospital-preparedness program was used to procure satellite phones for hospitals in Mississippi, which allowed the state to establish and maintain communications throughout

the hospital system during Katrina despite the loss of most other communications alternatives.[267] In Louisiana, the HRSA hospital program was used to establish a statewide hospital network before Katrina that was used to track available hospital beds during the event and provide information about the status and emergency needs of the hospital system.[268] The CDC stockpile program was used extensively both to provide medical supplies through vendor managed inventories and through the deployment of a Push Pack in Mississippi. These programs and the relationships that are established between HHS and state and local personnel are not integrated into OPHEP emergency-preparedness and response efforts.

A similar situation occurred between health-care delivery facilities – both hospitals and community clinics – and the HHS operating divisions that provide reimbursement and financial support to those facilities and maintain close day-to-day relationships. During Katrina, HRSA became a conduit for status reports and requests for emergency assistance from community-health clinics to HHS emergency-operations center, and the administrator of HRSA provided facility-specific needs from HRSA funded programs, primarily health centers and rural hospitals.[269] The Centers for Medicare and Medicaid Services played a similar role for hospitals.[270]

It is clear that HHS and its operating divisions provided significant medical-preparedness capabilities before the event and response capabilities during it. However, as witnesses and interview subjects repeatedly said during this investigation, joint planning, exercises, and relationships among emergency responders are essential to effective, coordinated operations in a crisis. OPHEP, as the lead HHS organization for emergency preparedness and response, had very limited interaction with state and local officials. It also had limited ability to ensure that the Department's own agencies were truly providing effective preparedness programs and emergency-response capability.

SERT Deployment

Although HHS deployed emergency response coordinators to staff the Louisiana and Mississippi EOCs prior to landfall, HHS did not send the Secretary's Emergency Response Team (SERT) to those states until several days into the event.[271] These teams are supposed to be the Secretary's direct, on-scene representative and the local command-and-control organization for health resources. The Louisiana SERT team leader, Admiral Craig Vanderwagen, USPHS, did not arrive in Baton Rouge until Friday afternoon, September 2. The Mississippi SERT team leader, Admiral Brenda Holman, USPHS, did not arrive in Jackson until Sunday afternoon, September 4. It then took additional time for them to fully constitute their SERT teams. As explained in an e-mail from the deputy commander for the Mississippi SERT, on Monday, September 5, a week after landfall, "We are a little behind with this response. … Members of the MST [management support team] and added SERT members are arriving slowly."[272]

The impact on response effectiveness of HHS's not having additional "boots on the ground" more quickly is hard to evaluate. However, there is evidence that a greater HHS presence was needed earlier. For example, HHS began to acquire and deploy mobile field-hospital-type facilities to the region early in the event. HHS identified several military bases to host these facilities, including Eglin Air Force Base in Florida and Fort Polk in Louisiana. Although this deployment plan allowed HHS to begin bringing significant amounts of medical supplies into the region, the Louisiana SERT team quickly recommended abandoning the Fort Polk operation and redistributing its supplies to other locations in Louisiana.[273] Similar adjustments had to be made in Florida, where they were never used, and Mississippi, inviting the question whether quicker, better deployment decisions could have been made with the benefit of a greater SERT presence earlier in the event.

Another example where greater SERT presence appears to have been needed was in the difficult, chaotic, first-of-a-kind evacuation of patients from the New Orleans airport, where

there was little command and control, and insufficient medical personnel, supplies, communications, and security.[274] Despite the importance of this mission and the extraordinarily difficult circumstances, it appears there was little if any HHS presence. As reported by a NDMS representative at the airport to the NDMS Director, Beall, as operations were winding down on Sunday, September 4: "Just a heads-up. There has not been any HHS/ESF-8 representation at the airport operation site during any portion of this evolution."[275]

Advance Deployment and Procurement

Early in the event, HHS enlisted DOD's help to deploy resources in advance of state assistance requests. HHS began to request DOD assistance in staffing mobile medical facilities shortly after landfall on Monday, August 29.[276] Although no formal state request had been made for these resources, HHS took the initiative to acquire and deploy some 2,250 beds initially, in anticipation of large numbers of patients. In the absence of an actual mission assignment, HHS formalized the request in a letter from Assistant Secretary Simonson to Paul McHale, Assistant Secretary of Defense for Homeland Security, on August 31.[277] The letter justified the request as follows: "In light of the grave situation in the southern coastal regions, and consistent with the National Response Plan's Catastrophic Incident Annex, Secretary Leavitt has directed the deployment of multiple Federal Medical Shelters. I am therefore writing to request assistance from the Department of Defense (DOD), as outlined below in completing this deployment in a timely fashion."[278] DOD accepted the request even though the Catastrophic Incident Annex had not yet been formally invoked, and promptly tasked its field elements to respond that day.[279] Later the same week, Simonson made an additional written request to McHale, again invoking the Catastrophic Incident Annex, for deployment of the hospital ship USNS *Comfort* and outlining expected future requests.[280] Again, DOD accepted the request and the *Comfort* embarked from Baltimore the same day.[281]

While not unique to ESF-8, the procedure for deploying and requesting federal assets in advance of state requests is unclear. Although the Catastrophic Incident Annex was invoked here to enable the federal government to "lean forward" and to begin to deploy significant medical assets in anticipation of Mississippi's and Louisiana's needs, this Annex was not formally in effect at the time, nor is it clear how such decisions should be made in the future. In the cases cited here, circumstances required these decisions to be made at a senior political level in the absence of a formal process, as Assistant Secretary Simonson explained:

> What I should have written was in the spirit of the Catastrophic Incident [Annex]. … But there was substantive agreement on these procedural legalistic issues that we were trying to work with. What I was trying to do was to get out on the ice so that if we were needed I wouldn't have to start from a standing stop. I wanted to be there. I wanted to be out there so that we could advance in two places where we were needed with as little lead time as possible. And so no, there were no ARFs or MAs or anything else issued. This was coming right from us. And thank God much of this wasn't needed, as it turned out. But in the end I think it was the right thing to do. What authority? The authority is a general one. We have fairly general authority under the Public Service Health Act to assist the states.[282]

HHS also relied upon its own limited funds to begin advance procurements of FMS units and take other actions in advance of formal mission assignments. For example, it used some $5 million in surplus funds available in its Public Health and Social Service Emergency Fund appropriation to begin these purchases. As Assistant Secretary Simonson explained, "There's no money in the Public Health Service's emergency fund, other than the monies that are being channeled through the CDC and to HRSA for their grant programs. It's not like there's a big contingency fund there."[283] He also explained that although Section 319 of

the Public Health Service Act provides for the creation of a special emergency fund, "There's just nothing in the fund and I don't think there ever has been."[284] HHS also deferred other purchases for the SNS, such as a planned purchase of antibiotics, to free additional funds to buy medical supplies for Katrina.[285] It is not clear that this approach to incurring costs in the absence of a formal Stafford Act request from a state provides HHS with sufficient capability to "lean forward" in catastrophic public health emergency.

Mortuary Responsibilities

Although it is clear that ESF-8 is responsible for victim identification and mortuary functions, a serious problem developed during Katrina in collecting and transporting deceased victims. The usual capabilities of local coroners and first responders were limited or nonexistent in affected parts of Louisiana. Although FEMA initially accepted responsibility for collecting bodies of victims and tried to hire a contractor to recover bodies, FEMA was unsuccessful in negotiating a contract. NDMS DMORT teams were pressed into service to perform this function[286] and federal-level resolution of the problem became the responsibility of ESF-8, although this responsibility had not previously been assigned to ESF-8, or any other ESF. This made an already difficult task more so. As the Deputy Assistant Secretary with responsibility for this function at OPHEP explained,

> [Given] the number of bodies and the complexity that came with the hurricane, there wasn't any coordinated way to go ahead and figure how we're going to do the recovery. And … that's not an ESF 8 function, that is recovering bodies is not a health and medical thing. Processing them in terms of identifying them through the pathologic and mortuary affairs part, that is in ESF-8. So one of the gaps that existed is . . . what kind of national coordination policy do we have for recovery of remains?[287]

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1 The remaining patient population in southeast Louisiana was estimated at between 2,000 and 2,500 at the time of landfall, and more than 625 in Mississippi. New Orleans planned to shelter some 400 special- needs patients at the Superdome, but there has been no precise number established for the special-needs population in New Orleans expected or treated. U.S. Department of Health and Human Services (HHS), Secretary's Operations Center, Flash Report #4 – Hurricane Katrina, Aug. 29, 2005, 8:30 a.m. ET. Provided to Committee; filed as Bates no. OPHEP 28247; HHS, Secretary's Operations Center, Flash Report #5 – Hurricane Katrina, Aug. 29, 2005, 3 p.m. ET. Provided to Committee; filed as Bates no. OPHEP 28249; Mississippi Emergency Management Agency (MEMA), Hurricane Katrina Situation Report #19, Aug. 30, 2005, 6:30 p.m. ET, p. 8. Provided to Committee; filed as Bates no. MEMA-0010984.

2 Hospitals in the New Orleans area, for example, had not relocated their emergency generators and electric switch gear above flood level. In the case of the LSU hospitals in New Orleans, Charity and University, the hospital system had been unable to obtain funding from the legislature to accomplish this goal. Committee staff interview of James Aiken, M.D., Medical Director, Office of Emergency Preparedness, Medical Center of Louisiana in New Orleans, conducted on Jan. 11, 2006, transcript pp. 73-75; Committee staff interview of Don Smithburg, Executive Vice President and Chief Executive Officer, Health Care Services Division, Louisiana State University, conducted on Feb. 7, 2006, transcript pp. 15-17.

3 The Attorney General of Louisiana, Charles Foti, is investigating these deaths. Criminal charges have already been brought in the case of one nursing home and eight cases, involving five nursing homes and three hospitals are active and open at this time. Kris Wartelle, e-mail to David Berick, Senate Committee staff member, Mar. 21, 2006, 3:02 p.m.

4 Committee staff interview of Avis Gray, Regional Administrator, Region I, Office of Public Health, Louisiana Department of Health and Hospitals, conducted on Dec. 8, 2005, transcript pp. 99-100, 108-109.

5 Gray interview, Dec. 8, 2005, pp. 179-180. *See also*: HHS, Secretary's Operations Center, Flash Report #6 – Hurricane Katrina, Aug. 30, 2005, 3 a.m. ET. Provided to Committee; filed as Bates no. OPHEP 28252.

6 *Southeast Louisiana Catastrophic Hurricane Plan*, prepared by IEM, Inc. for LOHSEP and FEMA, Sept. 2005, pp. 99-111 [hereinafter *Southeast Louisiana Catastrophic Hurricane Plan*, Sept. 2005]. Section 14.0 "Temporary Medical Care," includes the following planning assumption "All 40 medical treatment facilities in the impacted area are affected by the high-water levels, loss of electricity, loss of communications, and storm-force winds, rendering them isolated and useless. At best, they will shelter-in-place whatever patients they were not able to discharge prior to landfall. In addition, refugees (non-injured or ill individuals) will come to those treatment facilities for sheltering. All patients, staff, family members, and

refugees will require evacuation from nonfunctional facilities. These treatment facilities may require restoration of power, as well as medical, water, and food re-supply, until evacuation is complete." The planners also estimated that there would be more than 2,000 hospital and a minimum of 900 special needs patients needing evacuation after landfall along with hospital and nursing home staff. *See also*: *Southeast Louisiana Catastrophic Hurricane Plan*, Sept. 2005, Appendix A.

7 Philip Navin, e-mail to EOC Report, Aug. 29, 2005, 6:58 a.m. Provided to Committee; filed as Bates nos. CDC 747 through 749.

8 EOC Report, e-mail to Donald Benken and others, Aug. 28, 2005, 1 p.m. Provided to Committee; filed as Bates nos. CDC 725 through 726.

9 The low incidence of infectious-disease outbreaks among survivor and evacuee populations appears to be the result of successful public health surveillance of shelters and public-health intervention. During August 29-October 30, 2005 a total of 81 reports were investigated by Louisiana infectious-disease epidemiologists. MMWR Morbidity and Mortality Weekly Report, *Surveillance in Hurricane Evacuation Centers – Louisiana, September – October 2005*, Jan. 20, 2006, Vol. 55, No. 2, pp. 31-35.

10 Suzan Dunaway, e-mail to Monica Giovachino, Sept. 3, 2005, 12:45 p.m. Provided to Committee; filed as Bates no. OPHEP 932.

11 Committee staff interview of Erin Downey, Louisiana Hospital Association, Director of Emergency Preparedness (Liaison to Health and Resources and Services Administration), conducted on Jan. 20, 2006, transcript pp. 43-44.

12 Committee staff interview of Jimmy Guidry, M.D., Medical Director and State Health Officer, Louisiana Department of Health and Hospitals, conducted on Dec. 20, 2005, transcript p. 116.

13 Testimony of Jimmy Guidry, M.D., Medical Director and State Health Officer, Louisiana Department of Health and Hospitals, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Challenges in a Catastrophe: Evacuating New Orleans in Advance of Hurricane Katrina*, Jan. 31, 2006.

14 Dr. Guidry interview, Dec. 20, 2005, pp. 42-45.

15 Dr. Guidry interview, Dec. 20, 2005, pp. 44-45.

16 *Southeast Louisiana Catastrophic Hurricane Plan*, Sept. 2005, pp. 99-111.

17 Dr. Aiken interview, Jan. 11, 2006, pp. 66-68. *See also*: Keith Holtermann, e-mail to Robert Blitzer and others, Aug. 29, 2005, 1:38 a.m. Provided to Committee; filed as Bates nos. CDC 747 through 749 ("Advanced planning was never completed on how the patients left in the hospitals will be evacuated after the event. The use of boats to support the other ESFs has been fairly comprehensive, and ESF #8 has yet to be completed.").

18 La. Admin. Code 48:1, Chapter 93, § 9335 (Nov. 2003). Moreover, the regulations state that "as a minimum," the plan shall include the following: Emergency procedures for evacuation of the hospital; Comprehensive measures for receiving and managing care for a large influx of emergency patients; Comprehensive plans for receiving patients who are being relocated from another facility due to a disaster; and the system or procedure to ensure that medical charts accompany patients in the event of a patient evacuation and that supplies, equipment, records and medications would be transported as part of an evacuation. Furthermore, and as noted by the Feb. 16, 2006, U.S. Senate Committee on Health, Education, Labor and Pensions, *Chairman's Report on Elder Evacuations During the 2005 Gulf Coast Hurricane Disasters*, issued by Senator Michael B. Enzi, p. 2, the Centers for Medicare and Medicaid Services mandate that nursing homes and hospitals maintain EOPs as a prerequisite to receiving Medicare and Medicaid payments. The Joint Commission on Accreditation of Healthcare Organizations has a similar requirement as a prerequisite to accreditation. U.S. Senate, Committee on Health, Education, Labor and Pensions, *Chairman's Report on Elder Evacuations During the 2005 Gulf Coast Hurricane Disasters*, Feb. 16, 2006.

19 Dr. Guidry, Senate Committee hearing, Jan. 31, 2006.

20 Dr. Aiken interview, Jan. 11, 2006, pp. 62-63.

21 Dr. Guidry interview, Dec. 20, 2005, p. 87.

22 Dr. Guidry interview, Dec. 20, 2005, pp. 86-87.

23 Dr. Aiken interview, Jan. 11, 2006, pp. 91-92; Dr. Guidry interview, Dec. 20, 2005, p. 71.

24 Committee staff interview of Sec. Fred Cerise, M.D., Louisiana Department of Health and Hospitals, conducted on Dec. 2, 2005, transcript pp. 164-166. Ironically, on Sunday evening, before it was known that the hospitals would flood, some special-needs patients who were too ill to be treated at the Superdome had been moved to one of the hospitals. *See also:* Committee staff interview of Col. Pat Prechter, State Chief Nurse, Louisiana Army National Guard and Deputy Commander, Louisiana Medical Command, conducted on Jan. 6, 2006, transcript pp. 41-42.

25 Dr. Guidry interview, Dec. 20, 2005, p. 68.

26 Dr. Guidry interview, Dec. 20, 2005, pp. 70-71 ("And so you had those large numbers of people in the Dome without power, without sewerage, waiting for buses, waiting for transportation. And you had the special-needs patients getting flown out by helicopter or taken out by boat. And our intent was to get the sick out first. And that's real difficult to do when there's 20,000 people right next door. And there was a lot of discussion and I hear this from my boss as well who was there, that they were afraid that the people were going to get violent. That time was taking too long, that they were all in each others' faces and they were afraid that violence was going to break out and everybody was afraid for their life.").

27 Dr. Cerise interview, Dec. 2, 2005, pp. 229-230.

28 Dr. Cerise interview, Dec. 2, 2005, pp. 212, 230-231.

29 Dr. Aiken interview, Jan. 11, 2006, pp. 100-101.

30 Dr. Aiken interview, Jan. 11, 2006, pp. 90-91, 94.

31 Dr. Cerise interview, Dec. 2, 2005, pp. 156-157.

32 Dr. Aiken interview, Jan. 11, 2006, pp. 134.

33 Dr. Aiken interview, Jan. 11, 2006, pp 143.

34 La. Admin. Code 48:1, Chapter 97, § 9729 (January 1998). The law also states that each plan "shall be activated at least annually, either in response to an emergency or in a planned drill," and that "the nursing home's performance during the activation of the plan shall be evaluated and documented." Moreover, "[a]s a minimum," the written plans must describe: the evacuation of residents to a safe place, either within the nursing home or to another location; the delivery of essential care and services to nursing home residents; the provisions for the management of staff, including distribution and assignment of responsibilities and functions; a plan for coordinating transportation services required for evacuating residents to another location; and assurance that the resident's family or sponsor is notified if the resident is evacuated to another location.

35 Walter Maestri, emergency manager for Jefferson Parish, said "Nursing homes are required by state law and by licensing statutes to have in place an emergency operations plan. … The enforcement is in the hands of the State of Louisiana and the parishes through the emergency management office. Each nursing home that functions in Jefferson Parish is mandated by State law to send to me once a year a copy of their emergency plan. We peruse that plan, we have no requirement, the State does not require us to approve or disapprove the plan. But we must peruse it and affirm to the State that there is a plan." Committee staff interview of Walter Maestri, Ph.D., Director, Jefferson Parish Office of Emergency Management, conducted on Oct. 27, 2005, transcript p. 218.

36 Joseph Mathews, emergency manager for Orleans Parish said, "Hospitals, nursing homes, special care – yeah, they should have an adequate plan. It's required by the State that they have an adequate plan. [I review e]ach one of them individually, page by page – I look at it and basically [inaudible]. They are supposed to submit a plan to my office, yes. … An adequate plan includes a plan of evacuating and moving those persons. … Basically they're governed by the State, and all I can do at my office is ask that they comply. As far as any punitive measures or anything like that, I don't have the authority to do anything. I can – the best I can do is report it to the State, send them correspondence [inaudible] it's basically up to the State." Committee staff interview of Joseph Matthews, Director, New Orleans Office of Emergency Preparedness, LA, conducted on Nov. 23, 2005, transcript pp. 130-131, 133.

37 Dr. Guidry interview, Dec. 20, 2005, pp. 107-108; Dr. Aiken interview, Jan. 11, 2006, pp. 49-51.

38 Dr. Aiken interview, Jan. 11, 2006, pp. 49-52.

39 Dr. Aiken interview, Jan. 11, 2006, pp. 85, 118. It should be noted, however, that while Dr. Aiken did say that Charity Hospital generators were "running on fumes for the first day or so," he also noted that "[a]nd then I think maybe Wednesday or Thursday, we had more [generator fuel] than we needed."

40 Dr. Guidry, Senate Committee hearing, Jan. 31, 2005. In a special session after Katrina, the Louisiana legislature enacted legislation calling for a re-examination of hospital building codes. *Source*: 2005 La. Acts 41 (1st Extraordinary Session).

41 Dr. Aiken interview, Jan. 11, 2006, pp. 127-128.

42 Dr. Aiken interview, Jan. 11, 2006, p. 118.

43 Committee staff interview of Kevin Stephens, M.D., Director, New Orleans Health Department, LA, conducted on Nov. 19, 2005, transcript pp. 65-66.

44 Dr. Guidry interview, Dec. 20, 2005, pp. 32-33, 105.

45 Committee staff interview of Roseanne Pratts, Director, Emergency Preparedness, Louisiana Department of Health and Hospitals, conducted on Jan. 31, 2006, transcript p. 18.

46 Dr. Guidry, Senate Committee hearing, Jan. 31, 2006.

47 Dr. Guidry interview, Dec. 20, 2005, p.65.

48 Dr. Guidry interview, Dec. 20, 2005, p. 65.

49 U.S. Public Health Service, PHS Katrina Response: Baton Rouge Deployment Alpha Team, briefing slides, Oct. 16, 2005. Provided to Committee.

50 Dr. Stephens interview, Nov. 10, 2005, pp. 25-26; Dr. Guidry interview, Dec. 20, 2005, pp. 58-59, 61-63; Pratts interview, Jan. 31, 2006, pp. 18-19; Col. Prechter interview, Jan. 6, 2006, p. 55.

51 Committee staff interview of Ronald Martin, Deputy Commander, Management Support Team, National Disaster Medical System, FEMA, conducted on Jan. 13, 2006, transcript pp. 53, 63-68.

52 Dr. Stephens interview, Nov. 10, 2005, pp. 25-26.

53 Col. Prechter interview, Jan. 6, 2006, pp. 100, 102, 109, 115.

54 Committee staff interview of Brig. Gen. Gary Jones, Louisiana National Guard, conducted on Dec. 7, 2005, transcript p. 180; Col. Prechter interview, Jan. 6, 2006, p. 115.

55 Jones interview, Dec. 7, 2005, p. 189.

56 Dr. Guidry interview, Dec. 20, 2005, p. 75. However, it should be noted that Joseph Donchess, Executive Director of the Louisiana Nursing Home Association, stated that 21 nursing homes were evacuated pre-storm and 36 were evacuated post-storm, amounting to a total of about 5,500 to 6,000 nursing home residents evacuated pre- and post-storm. Testimony of Joseph Donchess, Executive Director, Louisiana Nursing Home Service Corporation, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Challenges in a Catastrophe: Evacuating New Orleans in Advance of Hurricane Katrina*, Jan. 31, 2006.

57 Dr. Guidry, Senate Committee hearing, Jan. 31, 2006.

58 Dr. Aiken interview, Jan. 11, 2006, pp. 106-107.

59 Dr. Stephens interview, Nov. 10, 2005, pp. 26-27.

60 Dr. Cerise interview, Dec. 2, 2005, p. 177.

61 Committee staff interview of Joseph Donchess, Executive Director, Louisiana Nursing Home Service Corporation, conducted on Jan. 9, 2006, transcript p. 128.

62 Donchess, Senate Committee hearing, Jan. 31, 2006.

63 Donchess, Senate Committee hearing, Jan. 31, 2006.

64 Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP), *Emergency Operations Plan*, Apr. 2005, p. ESF–8–1 (emphasis added). Provided to Committee.

65 Dr. Aiken interview, Jan. 11, 2006, pp. 20-21, 32-33, 34; Smithburg interview, Feb. 7, 2006, pp. 55, 60-61.

66 Downey interview, Jan. 20, 2006, pp. 17-21.

67 Downey interview, Jan. 20, 2006, pp. 50-54.

68 Dr. Aiken interview, Jan. 11, 2007, pp. 20-21 (emphasis added).

69 Under the 2001 EOP, LSU was responsible for the following: "The [CEO] of the [LSU] Health Sciences Center (HSC) Health Care Services Division (HCSD) shall be primarily responsible for participating in state, regional and parish planning to coordinate the provision of hospital care and shelter for nursing home and home health care patients with acute care requirements, and casualties of emergencies and disasters. The LSU-HSC-HCSD will have the lead role among state agencies in such planning." *Source:* LOHSEP, *Emergency Operations Plan*, March 2001, pp. M–1 through M–2. Furthermore, as explained by James Aiken, M.D., Medical Director for Emergency Preparedness for the Medical Center of Louisiana in New Orleans (a.k.a. Charity and University Hospitals), these sorts of responsibilities were held by LSU dating back to 1992. *Source:* Dr. Aiken interview, Jan. 11, 2006, pp. 18-21.

70 Dr. Aiken interview, Jan. 11, 2006, pp. 32-33 (emphasis added).

71 Dr. Aiken interview, Jan. 11, 2006, p. 34.

72 Smithberg interview, Feb. 7, 2006, p. 55.

73 Smithberg interview, Feb. 7, 2006, p. 55.

74 Smithberg interview, Feb. 7, 2006, pp. 60-61.

75 Dr. Aiken interview, Jan. 11, 2006, pp. 24-25.

76 Dr. Aiken interview, Jan. 11, 2006, p. 28.

77 Dr. Aiken interview, Jan. 11, 2006 pp. 21-22.

78 Downey Interview, Jan. 20, 2006, pp. 67-68, 69.

79 The six counties are Hancock, Harrison, Jackson, Pearl River, Stone, and George. Committee staff interview of Jim Craig, Director, Office of Health Protection, Mississippi Department of Health, conducted on Jan. 25, 2006, transcript p. 28.

80 The three hospitals were Hancock Medical Center in Bay St. Louis, Gulf Coast Medical Center in Gulfport, and L.O. Crosby in Picayune. U.S. Department of Health and Human Services and the Mississippi Department of Health, *Hurricane Katrina: Medical Support/Demobilization/Transition Plan for the State of Mississippi*, Jan. 2006, p. 3 [hereinafter *Mississippi Medical Support/Demobilization/Transition Plan*].

81 *Mississippi Medical Support/Demobilization/Transition Plan*, p. 3.

82 *Mississippi Medical Support/Demobilization/Transition Plan*, p. 3.

83 *Mississippi Medical Support/Demobilization/Transition Plan*, p. 7.

84 *Mississippi Medical Support/Demobilization/Transition Plan*, p. 3.

85 The plan provides that MDH is responsible for "the overall public health response, the triage, treatment and transportation of victims of a disaster, immediate support to hospitals and nursing homes, the provision of emergency mental health crisis counseling for individuals and the community, and the re-establishment of all health, medical and social service systems." MEMA, *Mississippi Emergency Operations Plan, Volume II: Mississippi Comprehensive Emergency Management Plan (CEMP)*, May 14, 1999, pp. ESF 8–1 through ESF 8–16. Provided to Committee.

86 Craig interview, Jan. 25, 2006, pp. 11-12.

87 Written Statement of Brian Amy, M.D., State Health Office, Mississippi Department of Health, for the U.S. House, Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, hearing on *Hurricane Katrina: Preparedness and Response by the State of Mississippi*, Dec. 7, 2005, p. 3.

88 Written Statement of Dr. Amy, House Select Committee hearing, Dec. 7, 2005, pp. 9-10.

89 Written Statement of Dr. Amy, House Select Committee hearing, Dec. 7, 2005, p. 6.

90 Craig interview, Jan. 25, 2006, pp. 12-13.

91 Craig interview, Jan. 25, 2006, p. 36.

92 Craig interview, Jan. 25, 2006, pp. 12-13.

93 There is a potentially contrary report from HHS Region IV on the evening of August 28, 2005 stating that not all, in fact only two of 29 skilled-nursing facilities reported evacuations. EOC Report, e-mail to Donald Benken and others, Aug. 28, 2005, 10:04 p.m. Provided to Committee, filed as Bates no. CDC 725; Craig interview, Jan. 25, 2006, pp. 37-38.

94 Testimony of Gov. Haley Barbour, Mississippi, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Hurricane Katrina: The Role of the Governors in Managing the Catastrophe*, Feb. 2, 2006.

95 Craig interview, Jan. 25, 2006, p. 8.

96 Written Statement of Dr. Amy, House Select Committee hearing, Dec. 7, 2005, pp. 10-11.

97 Written Statement of Dr. Amy, House Select Committee hearing, Dec. 7, 2005, p. 15.

98 Craig interview, Jan. 25, 2006, pp. 28-29. In his testimony before the House Committee investigating Katrina, Dr. Amy recalled Carolina-1 being deployed by HHS. Written Statement of Dr. Amy, House Select Committee hearing, Dec. 7, 2005, p. 6.

99 Craig interview, Jan. 25, 2006, p. 24.

100 Craig interview, Jan. 25, 2006, pp. 30-31.

101 Craig interview, Jan. 25, 2006, pp. 28-29.

102 Written Statement of Dr. Amy, House Select Committee hearing, Dec. 7, 2005, pp. 16-17.

103 The National Disaster Medical System (NDMS) was formerly within the Department of Health and Human Services (HHS), Office of Emergency Preparedness (OEP). The Homeland Security Act transferred NDMS to DHS in 2003. "Homeland Security Act of 2002." (P.L. 107-296), 6 U.S.C. § 201.

104 U.S. Department of Homeland Security, National Disaster Medical System. http://www.oep-ndms.dhhs.gov/index.html. Accessed on Mar. 6, 2006.

105 U.S. Department of Veterans Affairs, National Disaster Medical System. http://www1.va.gov/EMSHG/page.cfm?pg=45. Accessed on Apr. 21, 2006.

106 U.S. Department of Veterans Affairs, "National Disaster Medical System (NDMS), Patient Movement After Action Review Meeting, December 12-13, 2005." http://www1.va.gov/emshg/page.cfm?pg=111. Accessed on Apr.21, 2006 [hereinafter NDMS Patient Movement AAR, Dec. 2005].

107 FEMA, *Current NDMS Overview*, Jan. 6, 2006. Provided to Committee.

108 FEMA, *Current NDMS Overview*, Jan. 6, 2006. Provided to Committee.

109 FEMA, *Current NDMS Overview*, Jan. 6, 2006. Provided to Committee.

110 Deployments included 40 DMAT's, 16 strike teams, 8 DMORTs, 4 VMATs and 3 MSTs. In the Louisiana and Mississippi this meant 1,265 and 667 personnel, respectively, for a total of 1,932 NDMS team members. FEMA, Hurricane Katrina NDMS Resource Status Report, Sept. 5, 2005, 11 p.m. Provided to Committee.

111 Committee staff interview of Jack Beall, Chief, National Disaster Medical System, FEMA, conducted on Jan. 10, 2006, transcript p. 11.

112 Committee staff interview of Capt. Art French, M.D., U.S. Public Health Service, Deputy Chief Medical Officer, Disaster Medical Assistance Team PHS-1, National Disaster Medical System, FEMA, conducted on Mar. 2, 2006, transcript p. 98.

113 National Disaster Medical System, Team Ratings 12-20-05.xls, Jan. 6, 2006. Provided to Committee.

114 "Homeland Security Act of 2002," (P.L. 107-296), 6 U.S.C. §§ 313, 503.

115 "I know there were 144 positions that were in OEP. I've been given that number, and I was led to believe, when were transferred to FEMA, that HHS kept 40 of these positions – I think that's a number – and then the rest, I think it was 17 moved into logistics. Those personnel would have come out of that operations division." Beall interview, Jan. 10, 2006, p. 16.

116 Beall interview, Jan. 10, 2006, p. 7.

117 Mick Cote, e-mail to Jack Beall, Aug. 27, 2005, 3:24 p.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0004489.

118 William Lokey, e-mail to Jack Beall, Aug. 28, 2005, 1:13 p.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0003831.

119 FEMA, NDMS After-Action Report, Disaster Medical Assistance Team San Diego CA-4, Mission: Hurricane Ka-

trina, Dec. 29, 2005. Provided to Committee.

120 Additional delays resulted when one truck had a mechanical problem an hour outside of San Diego resulting in an additional seven to eight hour delay. The cause of the mechanical failure was a part that had been the subject of a manufacturer's recall, but had not yet been repaired because of instructions from FEMA to delay the repair. FEMA, NDMS After-Action Report, Disaster Medical Assistance Team San Diego CA-4, Mission: Hurricane Katrina, Dec. 29, 2005. Provided to Committee.

121 FEMA, NDMS After-Action Report, Disaster Medical Assistance Team San Diego CA-4, Mission: Hurricane Katrina, Dec. 29, 2005. Provided to Committee.

122 Craig Interview, Jan. 25, 2006, pp. 24-26.

123 FEMA, Hurricane Katrina NDMS Resource Status Report, Aug. 30, 2005, 10 p.m. Provided to Committee.

124 Capt. Art French, M.D., After-Action Presentation, "New Orleans Airport Evacuation: The MST Perspective on the Hospital from Hell," briefing slides, Feb. 2006.

125 Capt. Art French, M.D., After-Action Presentation, "New Orleans Airport Evacuation: The MST Perspective on the Hospital from Hell," briefing slides, Feb. 2006.

126 FEMA, Hurricane Katrina NDMS Resource Status Report, Sept. 2, 2005. Provided to Committee.

127 George Custer, After Action Report – FEMA Hurricane Katrina, Southern Area Incident Management Team, p. 1. Provided to Committee.

128 Capt. French interview, Mar. 2, 2006, pp. 14, 17-18, 25-26, 36.

129 Capt. French interview, Mar. 2, 2006, p. 55.

130 Capt. French interview, Mar. 2, 2006, pp. 22-26.

131 Capt. Art French, M.D., After-Action Presentation, "New Orleans Airport Evacuation: The MST Perspective on the Hospital from Hell," briefing slides, Feb. 2006; Capt. French interview, Mar. 2, 2006, pp. 10, 15

132 Capt. French interview, Mar. 2, 2006, pp. 6-11.

133 Capt. French interview, Mar. 2, 2006, pp. 10, 16.

134 Capt. French interview, Mar. 2, 2006, p. 16.

135 Capt. French interview, Mar. 2, 2006, p. 15.

136 Jack Beall, e-mail to EC William Piggot, Sept. 1, 2005, 4:11 p.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0002099.

137 William Piggot, e-mail to Jack Beall, Sept. 1, 2005, 4:51 p.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0002099.

138 Chris Turner, e-mail to Jack Beall, Sept. 2, 2005, 8:48 a.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0001737.

139 Martin interview, Jan. 13, 2006, pp. 54-58, 146-148.

140 Martin interview, Jan. 13, 2006, p. 32.

141 Jack Beall, e-mail to Thomas Bowman, Sept. 1, 2005, 7:27 a.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0002216.

142 Jack Beall, e-mail to Chris Turner, Sept. 6, 2005, 10:21 p.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-004204.

143 Beall interview, Jan. 10, 2006, p. 48.

144 FEMA, Mission Assignment, 1603DR-LA-HHS-02, Aug. 31, 2005. Provided to Committee; filed as Bates no. OPHEP-28877; FEMA, Mission Assignment, 1603DR-LA-HHS-02, Aug. 31, 2005. Provided to Committee; filed as Bates nos. OPHEP 28878 through 28879.

145 Beall interview, Jan. 10, 2006, pp. 43-44; Capt. Art French, M.D., After-Action Presentation, "New Orleans Airport Evacuation: The MST Perspective on the Hospital from Hell," briefing slides, Feb. 2006.

146 Robert Jevec, e-mail to Gary Kleinman and others, Aug. 31, 2005, 10:41 a.m. Provided to Committee; filed as Bates nos. DHS-FEMA-0098-0004357 through 0004358.

147 NDMS Patient Movement AAR, Dec. 2005.

148 Capt. French interview, Mar. 2, 2006, pp. 13-14, 54-56.

149 Capt. French interview, Mar. 2, 2006, pp. 64-65; *See also*: FEMA, NDMS After-Action Report, Disaster Medical Assistance Team San Diego CA-4, Mission: Hurricane Katrina, Dec. 29, 2005. Provided to Committee; *See also*: OR-2 DMAT, Hurricane Katrina – After Action Report, Sept. 25, 2005. Provided to Committee.

150 The Incident Management Team was designed to provide food, showers, and other logistical support for emergency teams working in the field. Upon arriving in Louisiana, the Team literally sent out "scouting parties" to determine where their logistical support could be used after they determined that their original mission assignment to establish a base camp

in Port Allen, Louisiana was already being met by another agency. One of the scout teams identified the airport as a critical need and the team got permission from its regional coordinator to relocate there. George Custer, After Action Report – FEMA Hurricane Katrina, Southern Area Incident Management Team, TX=FEM-05004, Provided to Committee.

151 U.S. Department of Homeland Security, *National Response Plan*. Washington: Government Printing Office, Dec. 2004, p. 12.

152 Committee staff interview of Rear Adm. John Babb, Director, Office of Force Readiness and Deployment, U.S. Public Health Service, U.S. Department of Health and Human Services, conducted on Feb. 8, 2006, transcript, pp. 5, 24.

153 Rear Adm. Babb interview, Feb. 8, 2006, pp. 5.

154 Rear Adm. Babb interview, Feb. 8, 2006, pp. 41-45.

155 U.S. Department of Health and Human Services, Concept of Operations Plan (CONOPS) for Public Health and Medical Emergencies, Jan. 2005, p. 4, Appendix A.

156 U.S. Public Health Service, "History of the Commissioned Corps." http://www.usphs.gov/html/history.html. Accessed on Apr. 21, 2006.

157 Rear Adm. Babb interview, Feb. 8, 2006, p. 22; Committee staff interview of U.S. Public Health Service, Alpha Team members, Jan. 12, 2006 (untranscribed).

158 Rear Adm. Babb interview, Feb. 8, 2006, pp. 14-15.

159 Rear Adm. Babb interview, Feb. 8, 2006, p. 33; U.S. Public Health Service, Alpha Team members interview, Jan. 12, 2006; U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee staff, Jan. 12, 2006.

160 U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee staff, Jan. 12, 2006; U.S. Public Health Service, briefing on PHS Katrina Response: Baton Rouge Deployment Alpha Team, Oct. 16, 2005. Provided to Committee. The USPHS team at the PMAC worked with a team of volunteers from Illinois obtained through an EMAC agreement and a DMAT team that was stationed there for approximately one week.

161 Rear Adm. Babb interview, Feb. 8, 2006, pp. 22-24.

162 Officers were identified to support NDMS and the Strategic National Stockpile (SNS), a LA hospital, and to staff the FMSs which were part of OPHEP's strategy to increase facility surge capacity. *See also*: John T. Babb, e-mail to William C. Vanderwagen and others, Aug. 29, 2005, 2:12 p.m. Provided to Committee; filed as Bates no. OSG170.

163 Rear Adm. Babb interview, Feb. 8, 2006, p. 62.

164 Rear Adm. Babb interview, Feb. 8, 2006, pp. 69-70.

165 It was explained that since USPHS personnel do not have pharmaceuticals, medical supplies and equipment, and other supports, it would be best to couple their deployments to the FMS shelters. Rear Adm. Babb interview, Feb. 8, 2006, pp. 61-63, 66-67.

166 Rear Adm. Babb interview, Feb. 8, 2006, p. 72.

167 Rear Adm. Babb interview, Feb. 8, 2006, pp. 69-71 ("Basically, we had been told to put together people that would staff ten 250-bed federal medical shelters, which we did. But when they began to deploy them, they didn't necessarily deploy the teams the way we had them structured. … When the travel contractor deployed people, well, parts of teams arrived in different places. … New Orleans airport was almost non-functional. It was accepting very few flights. Baton Rouge had – every seat was full. Every time we turned around, we were trying to get flights in there and couldn't get people there.").

168 Rear Adm. Babb interview, Feb. 8, 2006, pp. 71-72.

169 Rear Adm. Babb interview, Feb. 8, 2006, p. 62.

170 Rear Adm. Babb interview, Feb. 8, 2006, pp. 14-15, 35-37.

171 Rear Adm. Babb interview, Feb. 8, 2006, p. 67: "So to look at the delay in the deployment as thought it was because officers didn't get down field is assuming that the resource was there and waiting on them or that they were taking it with them, and that was not the case. They had to wait until the resource got there."

172 Committee staff interview of Robert E. Lavender, Jr., Deputy Director of Information Technology Communications, U.S. Department of Health and Human Services, conducted on Feb. 3, 2006, transcript p. 10 ("In this year's hurricane season, you couldn't get into airports, so we had to find the closest airport and find a way to transport our people from that remote airport into the area in which we were asking them to provide services. So it was – this year was different from anything I've ever experienced in that it required a lot of creativity. There were no hotels, so one of the things that I did was – we call them rock star buses. We had sleeper buses sent in that slept 12 people. And so we did the best we could to provide as reasonable an accommodation as we could for the people that we were deploying.").

173 Lavender interview, Feb. 3, 2006, pp. 74-75. Two week deployments have traditionally been used because of the dual federal role of many USPHS officers and the nature of the typical disaster deployment.

174 Rear Adm. Babb interview, Feb. 8, 2006, p. 16. Despite Secretary of HHS Michael Leavitt activating the USPHS on Sunday, August 28, which made all USPHS deployments mandatory, many USPHS officers were still unable to deploy due to professional commitments at their daily positions. Committee staff interview of Rear Adm. Craig Vanderwagen, Acting Chief Medical Officer, Indian Health Service, and Officer, U.S. Public Health Service, U.S. Department of Health

and Human Service, conducted on Feb. 7, 2006, transcript pp. 2, 62-64; Lavender interview, Feb. 3, 2006, pp. 74-75.

175 Rear Adm. Babb interview, Feb. 8, 2006, pp. 79-80. USPHS officers are required to update their status and obtain medical waivers when necessary as they come on-call and they receive e-mail reminders each time they are on-call to update their availability status. However, there are no sanctions for not reporting changes in deployment status or for not deploying.

176 Rear Adm. Babb interview, Feb. 8, 2006, pp. 79-80.

177 Noreen Hynes, e-mail to John Babb, Aug. 30, 2005, 3:55 a.m. Provided to Committee; filed as Bates no. OSG162.

178 Capt. French interview, Mar. 2, 2006, p. 67.

179 Monica Giovachino, et al., *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF#8 Support*, The CNA Corporation, IPR 11208, Feb. 2005, pp. 42-43 [hereinafter, *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF#8 Support*]. The report focused on improving the HHS ESF-8 response and focused a section on the USPHS. Prior to Hurricane Katrina, Hurricanes Frances and Ivan involved the largest deployment of personnel from HHS and its ESF-8 partners. The report stated that officers were deployed from each region of the country and each USPHS rotational roster was "tapped for personnel." The CNA report concluded, "This examination reveals a fractured system that does not have the manpower or administrative infrastructure necessary to support a major deployment." The report concluded that OFRD does not have the capacity to coordinate major personnel deployments, as evidenced by the fact that senior level staff spent the weekend to identify and contact officers individually by phone for deployment.

180 *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF#8 Support*, p. 45 ("Each roster is *not* set up to be a 'ready-go' asset for OASPHEP. Instead it is a pool of personnel that may be available in a time of need.").

181 *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF#8 Support*, p. 46.

182 *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF#8 Support*, p. 43.

183 Rear Adm. Babb interview, Feb. 8, 2006, p. 78.

184 PHS deployed 138 officers for Frances and 263 for Ivan. *Source*: *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF#8 Support,* pp. 39-40. A total of 1,885 were deployed to affected areas and 247 to other locations for Katrina. *Source*: U.S. Department of Health and Human Services, Response to the U.S. Senate, Committee on Homeland Security and Governmental Affairs, Feb. 28, 2006, p. 42.

185 Committee staff interview of Stewart Simonson, Assistant Secretary for Public Health Emergency Preparedness, U.S. Department of Health and Human Services, conducted on Feb. 16, 2006, transcript p. 107.

186 "Public Health Security and Bioterrorism Preparedness and Response Act of 2002." (P.L. 107-188), 42 U.S.C. § 201 ("The Secretary shall, directly or though an award of a grant, contract, or cooperative agreement, establish and maintain a system for the advance registration of health professionals for the purpose of verifying the credentials, licenses, accreditations, and hospital privileges of such professionals when, during public health emergencies, the professionals volunteer to provide public health services. … In carrying out the preceding sentence, the Secretary shall provide for an electronic database for the verification system.").

187 HRSA's mission is to provide national leadership, program resources and services needed to improve access to culturally competent, quality health care. They support healthcare systems that are culturally competent, comprehensive, and provide quality care for the goal of optimal health for all.

188 Simonson interview, Feb. 16, 2006, p. 112.

189 Rear Adm. Babb interview, Feb. 8, 2006, p. 39.

190 Rear Adm. Babb interview, Feb. 8, 2006, pp. 54, 39; Simonson interview, Feb. 16, 2006, p. 112. In FY2005, HHS asked for funding for a portal that would have pooled the data across all states to create a national credentialing mechanism; however, the request was not funded.

191 Norman Coleman, e-mail to Norman Coleman and others, Sept. 2, 2005, 12:06 a.m. Provided to Committee; filed as Bates no. OPHEP 9408. On Saturday September 3, the Web site was opened to the public.

192 Rear Adm. Babb interview, pp. 19, 44.

193 Clara Witt, e-mail to Thomas Christl and others, September 7, 2005, 1:20 p.m. Provided to Committee; filed as Bates no. OPHEP 9779. Even after the private contractor was hired and work was under way, there were talks within HHS to use states to assist in credentialing in the process after the federal contractor had already initiated the process

194 Clara Witt, e-mail to Ann Knebel, Sept. 7, 2005, 8:31 p.m. Provided to Committee; filed as Bates no. OPHEP 9990.

195 John Babb, e-mail to Ann Knebel, Sept. 5, 2005, 9:02 a.m. Provided to Committee; filed as Bates no. OPHEP 9660. Rear Admiral Babb stated, the volunteers, "are going straight to OPHEP and we don't have any visibility. At this point, that's fine. But I would like to know what kinds of personnel are being deployed."

196 Lavender interview, Feb. 3, 2006, pp. 66-67.

197 For instance, numerous changes were made to the website to include specialties of healthcare workers left off the original list. Lynn May, e-mail to Norman Coleman, Sept. 3, 2005, 5:37 p.m. Provided to Committee; filed as Bates no. OPHEP 8636; Mary Couig, e-mail to Ann Knebel, Sept. 4, 2005, 8:42 a.m. Provided to Committee; filed as Bates no. OPHEP 8635.

198 Teresa Brown-Jesus, e-mail to Ann Knebel, Sept. 6, 2005, 5:26 p.m. Provided to Committee; filed as Bates no. OPHEP 9805 ("States … have continued to express their concerns about the way that federal volunteer recruitment ef-

forts have been implemented.").

199 The Federal volunteer database also created conflict with the purpose and mission of the Medical Reserve Corps (MRC). The MRC is comprised of health professionals who voluntarily join locally-sponsored medical units that can be called upon to provide additional medical personnel in an emergency. The Director of the MRC expressed concerns almost one week after the hurricane about the confusion surrounding the deployment process and how the MRC units would be integrated into the federal volunteer database that HHS had established. Because there was no clear connection between the MRC and the Federal volunteer database efforts, HHS created conflicting and overlapping volunteer systems. Ann Knebel, e-mail to Norman Coleman and others, Sept. 7, 2005, 5:55 a.m. Provided to Committee; filed as Bates no. OPHEP 9755; Robert Tosatto, e-mail to Ann Norwood, Sept. 7, 2005, 3:39 p.m. Provided to Committee; filed as Bates no. OPHEP 9670.

200 Ann Knebel, e-mail to Norman Coleman and others, Sept. 7, 2005, 5:55 a.m. Provided to Committee; filed as Bates no. OPHEP 9755; Robert Tosatto, e-mail to Ann Norwood, Sept. 7, 2005, 3:39 p.m. Provided to Committee; filed as Bates no. OPHEP 9670.

201 Dr. Guidry interview, Dec. 20, 2005, pp. 53, 56 ("To try to match up the resources with where they were needed became a full-time job…(t)he teams that worked the best, were like Illinois had a medical team. They came and you could hand them off a shift and they could pretty much handle it because they came trained and working together. They were organized. Other professionals who showed up as volunteers really have not trained in such events and really makes it difficult to perform when it's not well organized.").

202 Simonson interview, Feb. 16, 2006, p. 31. The FMS capacity for OPHEP has not been funded to date, but all development occurred using year-end money.

203 Lavender interview, Feb. 3, 2006, p. 57.

204 Simonson interview, Feb. 16, 2006, p. 66.

205 The Logistics section of OPHEP bore much of the burden for acquiring and coordinating movement of the FMSs, such as personnel and supplies. Given the growing list of demands for the mobile medical units, personnel, and supplies, OPHEP logistics had to exponentially increase their staff of four full-time employees; thus, many new staff did not have experience with procedures of the Logistics office. The lack of experience in the Logistics office, with the added burden of coordinating the establishment of unproven and never utilized FMS units prototype, compounded the logistical difficulties in Washington and on the ground. Lavender interview, Feb. 3, 2006, pp. 6-9, 31-32, 89-90. *See also*: Stewart Simonson, letter to Paul McHale, Aug. 31, 2005. Provided to Committee; filed as Bates no. OPHEP 27874. OPHEP requested assistance to support the following FMS unit deployments: 500 beds at Eglin Air Force Base in Pensacola, FL; 750 beds at Fort Polk, LA; 500 beds at Naval Air Station in Meridian, MS; and 500 beds at Mississippi Air National Guard Base in Jackson, MS.

206 Committee staff interview of Robert E. Blitzer, Deputy Assistant Secretary, Operations Security Program, U.S. Department of Health and Human Services, conducted on Feb. 2, 2006, transcript p. 96.

207 Stewart Simonson, e-mail to William Gimson and others, Aug. 31, 2005, 6:33 p.m. Provided to Committee; filed as Bates no. OPHEP 27771.

208 Committee staff interview of Richard Besser, Director of Coordinating Office for Terrorism Preparedness and Emergency Response, Centers for Disease Control and Prevention, and Steve Adams, Acting Director of the Strategic National Stockpile, Centers for Disease Control and Prevention, conducted on Feb. 14, 2006, transcript p. 14.

209 Besser and Adams interview, Feb. 14, 2006, p. 12.

210 Stewart Simonson, e-mail to William Gimson and others, Sept. 3, 2005, 7:22 a.m. Provided to Committee; filed as Bates no. OPHEP 27077 ("We are struggling right now with a Miss hospital resupply mission. The Push Pack may tide them over for a little while, but I need to pick-up the pace on this order. Please tell me if we cannot do both (FMS and Miss Hosp) resupply at once – if this is the case, we may have to back-off for a bit on the FMS ordering. I cannot have Miss run out of provisions." To which, SNS staff eventually replied "…we are doing this right now, SNS is focusing in the MS re-supply right now and will see if they can move back to the FMCS ordering this afternoon."). *See also*: Galen P. Carver, e-mail to Stewart Simonson, Sept. 3, 2005, 9:13 a.m. Provided to Committee; filed as Bates no. OPHEP 27076.

211 Simonson interview, Feb. 16, 2006, pp. 71-72.

212 Tom Sizemore, e-mail to Michael L. Vineyard, Sept. 3, 2005, 8:45 a.m. Provided to Committee, filed as Bates no. OPHEP 24464.

213 Centers for Disease Control and Prevention, Division of the Strategic National Stockpile, "Hurricane Katrina Update," Aug. 31, 2005. Provided to Committee; filed as Bates no. OPHEP 27774.

214 Robert Claypool, e-mail to William "Contact" Vanderwagen, Sept. 2, 2005, 7:49 a.m. Provided to Committee; filed as Bates no. OPHEP 24227.

215 Stewart Simonson, e-mail to Richard Chavez, Sept. 2, 2005, 5:29 p.m. Provided to Committee; filed as Bates no. OPHEP 27839 ("We have been turned away from the gate at the Mississippi Air National Guard Base in Jackson. We are diverting the beds scheduled for that facility to Meridian. Can you confirm with the base commander there that they will accept them. This is urgent."). For instance, MS could not transport their residents to Eglin Air Force Base in Pensacola, FL; therefore, two FMS units were moved to MS. *Source*: Sandy Bogucki, e-mail to Stewart Simonson, Sept. 4, 2005, 3:24 p.m. Provided to Committee; filed as Bates no. OPHEP 27584. In Louisiana, Mike Milner was assisting Adm. Vanderwagen in redeploying the FMSs that OPHEP had mapped out. He stated that at Ft. Polk there had been *no* patients and that the mission was redefined to support special needs shelters based on the state requests; this was only one of several FMS staffing and placement decisions that had to be interrupted by the SERT in Louisiana alone. *Source*: Mike Milner, e-mail

to William C. Vanderwagen, Sept. 5, 2005, 11:35 p.m. Provided to Committee; filed as Bates no. OPHEP 8198.

216 Stewart Simonson, letter to Paul McHale, Sept. 2, 2005. Provided to Committee; filed as Bates no. OPHEP 27877.

217 Shayne Brannman, e-mail to Gregory Davis, Sept. 8, 2005, 11:05 a.m. Provided to Committee; filed as Bates no: OPHEP 8745.

218 Craig interview, Jan. 25, 2006, pp. 72, 75.

219 Craig interview, Jan. 25, 2006, pp. 24-25; 28-29.

220 Paul McHale, letter to Stewart Simonson, Sept. 2. 2005. Provided to Committee; filed as Bates no. OPHEP 27880.

221 Gregory Banner, e-mail to KC Decker, Sept. 9, 2005, 10:39 p.m. Provided to Committee; filed as Bates no. OPHEP 8196.

222 Lavender interview, Feb. 3, 2006, pp. 35-49.

223 Lavender interview, Feb. 3, 2006, p. 35. Lavender acquired "primary medical bags … so that … when our people arrived on the ground, they could provide primary treatment, whether it be bandaging or removing a splinter, whatever it happened to be. But I procured those early in the event because we didn't have them," unfortunately, USPHS teams were not equipped with these materials and supplies prior to the event or as a matter of procedure because it was not "perceived to be a requirement."

224 Lavender interview, Feb. 3, 2006, pp. 45-46.

225 Centers for Disease Control and Prevention, "Strategic National Stockpile (SNS)," Apr. 14, 2005. http://www.bt.cdc.gov/stockpile/. Accessed on Apr. 21, 2006.

226 These supplies were dispatched by truck from Atlanta and Tennessee on the afternoon of September 28 and arrived at Camp Beauregard, LA after landfall.

227 HHS, Secretary's Operation Center Flash Report #6 – Hurricane Katrina, Aug. 30, 2005, 3 p.m., p. 2. Provided to Committee; filed as Bates no. OPHEP 28253.

228 Gregory Banner, e-mail to Keith Holtermann, Sept. 2, 2005, 2:39 a.m. Provided to Committee; filed as Bates nos. OPHEP 27869 through 27870 "My understanding of the situation is that hospitals and medical facilities along the coast are in desperate need of resupply for a variety of expendables. Supply requests have been submitted but the planned delivery times are still more than 24 hours away. The SNS push packages contain a number of needed items and so in the interest of speeding up the delivery of supplies to the hospitals, a push package was requested. This appeared to be the quickest way to obtain at least part of the needed supplies.").

229 Sandy Bogucki, e-mail to SNS OPS Center Lead, Sept. 2, 2005, 8:27 a.m. Provided to Committee; filed as Bates no. OPHEP 27642.

230 Besser interview, Feb. 14, 2006, pp. 53-55 ("I don't think that there was a complete understanding of what it meant to request a push pack and what that provided … we were trying to make sure the people on the ground specified clearly what it was that they wanted. And in Louisiana, a lot of what … people wanted was a restoration of their supply chains and their facilities, and a lot of chronic medications that weren't in push packs … sending out a push pack is an extremely expensive endeavor which is justifiable when the parties receiving it need what's in it. But it's, in my mind not justifiable for expense, plus a waste of people's time if they're getting, you know, 50 tons of material that isn't what they're looking for.").

231 Brian W. Amy, letter to Phil Naven, Sept. 1, 2005. Provided to Committee; filed as Bates no. OPHEP 27639 ("Mississippi's hospitals are in dire need of supplies from the Strategic National Stockpile's Push Packages … Sixteen hospitals located south of Interstate 20 are totally out of basic supplies, such as IV solutions and oral doses of broad spectrum antibiotics … as well as saline solutions, sterile water … syringes, etc. and *all* other related supplies. Thus far, supply requests have not been fulfilled for a variety of reasons. … Please note that the longer we are delayed in distributing supplies to hospitals, the more likely it will be that emerging infections will compound our all-ready overwhelming situation.").

232 Evidenced by an internal OPHEP e-mail "FYI, just got pinged by the DEOC [CDC's emergency operations center]. Gerberding [the Director of CDC] wanting to know who gave the permission to move SNS assets." Keith Holterman, e-mail to Stewart Simonson, Sept. 2, 2005, 6:33 a.m. Provided to Committee; filed as Bates no. OPHEP 28195.

233 Lavender interview, Feb. 3, 2006, p. 43.

234 Besser and Adams interview, Feb. 14, 2006, pp. 46-47.

235 U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee staff, Jan. 12, 2006. These materials arrived on Tuesday, August 30 and the PHS team reported that the packages were not very manageable and were not well-suited to meet the needs of a 200-bed special needs shelter.

236 U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee staff, Jan. 12, 2006.

237 U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee staff, Jan. 12, 2006. They reported that there was no organized method for obtaining supplies – they often went to the SNS who reported that it would take 1-2 days after ordering for delivery, they would then speak with the SOC to push the SNS orders, and would also speak with private vendors and pharmacies.

238 U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee

staff, Jan. 12, 2006.

239 U.S. Public Health Service, briefing on Hurricane Katrina: PHS Response, Team Alpha, given to Senate Committee staff, Jan. 12, 2006.

240 Besser interview, Feb. 14, 2006, pp. 9-10, 60-61 ("it's [the SNS] an asset that was developed around the bioterrorism, and has morphed to pandemics, but [it's] not been constructed in the same all-hazards approach as CDC as an agency is for public health events. For what it's worth, with all the hurricanes that have occurred since the program's inception in 1999, to my recollection, we've never deployed anything to a hurricane before, so it doesn't mean that we shouldn't have been thinking more broadly or – but in a environment of fixed resources, you know, we focus on missions that are clearly defined.").

241 Lavender interview, Feb. 3, 2006, p. 41.

242 Besser interview, Feb. 14, 2006, p. 10 ("I think, one of the things we saw with Katrina, here we had an organization that was designed for moving material, moving material very efficiently and effectively. It very quickly adapted to a situation where it was moving products that it hadn't been designed for. … What we saw in Louisiana was a complete loss of the supply chain for quite a large are in terms of medical supplies, and the stockpile was able to step up and become that chain – that delivery chain."). *See also*: Besser and Adams interview, Feb. 14, 2006, pp. 24-32.

243 Besser interview, Feb. 14, 2006, pp. 10-11 ("As we look at the [mission] for the stockpile … what we are looking at is, should the mission be broader, and if so … means developing logistical plans that are very different from a model where you are taking a large push pack delivering it and turning it over to the States … it's developing a logistical chain so that you're dealing with a wider array of products; you're dealing with ongoing consumption of products and replacement; you're putting in place systems for being able to look at what kind of patients are being seen so you can tailor your supplies in a very unique way. And I think, what Katrina demonstrates for us is a capacity that as country we need to have.").

244 Besser interview, Feb. 14, 2006, p. 76 ("I think that, I mean, Hurricane Katrina clearly identified chronic disease as an area that has to be addressed as part of response to major natural disasters. And if the SNS is the body that's going to do that, we need to put the systems in place to make that work.").

245 U.S. Department of Health and Human Services, Response to the U.S. Senate, Committee on Homeland Security and Governmental Affairs information request, Feb. 28, 2006, p. 41.

246 Lavender interview, Feb. 3, 2006, p. 50.

247 "As the primary agency for ESF #8, HHS coordinates the provision of Federal health and medical assistance to fulfill the requirements identified by the affected State, local and tribal authorities. ESF #8 uses resources primarily available from: HHS, including the Operating Divisions and Regional Office; the Department off Homeland Security (DHS); and other ESF #8 support agencies and organizations." *NRP*, p. ESF #8–4.

248 HHS possesses additional statutorily assigned health responsibilities under the Public Health Service Act, the Social Security Act, and the Federal Food, Drug, and Cosmetic Act. In fact, the Secretary of HHS declared public health emergencies for Louisiana, Mississippi and surrounding states pursuant to this independent authority beginning on Wednesday, August 31, 2005. U.S. Department of Health and Human Services, Concept of Operations Plan (CONOPS) for Public Health and Medical Emergencies, Jan. 2005, pp. 4-5, Appendix A.

249 *NRP*, p. 5

250 An initial planning meeting to establish "an interagency incident management system to address the ESF 8 public health and medical response" to Katrina was formally established held on Monday, September 5, 2005. A Unified Incident Management Team was established at the HHS headquarters in the Humphrey Building on that day. Secretary's Operations Center, e-mail to Allen Dobbs and others, Sept. 5, 2005, 2:44 p.m. Provided to Committee; filed as Bates nos. DHS-FEMA-0098-0000635 through 0000640.

251 Simonson interview, Feb. 16, 2006, pp. 64-65.

252 Jack Beall, e-mail to Stewart Simonson, Sept. 3, 2005, 10:56 a.m. Provided to Committee; filed as Bates no. OPHEP 27922.

253 Stewart Simonson, e-mail to Gerald Parker, Sept. 3, 2005, 2:55 p.m. Provided to Committee, filed as Bates nos. OPHEP 27922 through 27924.

254 *NRP*, pp. ESF 8–6, ESF 8–10.

255 Committee staff interview of Robert Claypool, M.D., former Deputy Assistant Secretary, Director of Mass Casualty Planning, Office of Public Health Emergency Preparedness, U.S. Department of Health and Human Services, conducted on Feb. 14, 2006, transcript p. 67.

256 The after-action report for HHS concerning the response to Hurricane Frances and Ivan recommended that the HHS Office of the Assistant Secretary for Public Health Emergency Preparedness work with the National Disaster Medical System (NDMS) "… to (i)mprove coordination between HHS and NDMS during response operations (the separation of NDMS from HHS has fractured ESF #8)." *Hurricanes Frances and Ivan: Improving the Delivery of HHS and ESF #8 Support*, p. 2.

257 Keith Holtermann, e-mail to Robert Love, Sept. 3, 2005, 1:27 a.m. Provided to Committee; filed as Bates nos. OPHEP 19978 through 19979.

258 NDMS and the Office of Emergency Preparedness at HHS were transferred to the Department of Homeland Security

when the Homeland Security Act was enacted in November, 2002, effective March, 2003 (P.L. 107-296 §503). Although the existing Office of Public Health Emergency Preparedness (OPHEP) was created by statute on June 12, 2002, and predates the transfer, the resulting changes created a vacuum in HHS' emergency response capability which it is still trying to fill. *See also* P.L. 107-488 § 102.

259 Committee staff interview of Jean Bennett, Regional Emergency Coordinator, Region VI, Office of Public Health and Emergency Preparedness, U.S. Department of Health and Human Services, conducted on Mar. 1, 2006, transcript p. 5.

260 Bennett interview, Mar. 1, 2006, p. 5.

261 Bennett interview, Mar. 1, 2006, pp. 15-17.

262 HHS/OPHEP provided three reasons why it did not participate in any of the 2004 or 2005 Hurricane Pam medical discussions – (1) the exercise was sponsored by FEMA and they were not specifically invited, (2) a Region VI REC was not yet in place when the bulk of the exercise took place in 2004, and (3) the Region VI REC was unable to take part in the final ESF-8 Hurricane Pam follow-up workshop (which occurred just days before Katrina hit) due to a scheduling conflict.

263 Robert Blitzer, e-mail to Robert Claypool, Sept. 5, 2005, 11:37 a.m. Provided to Committee; filed as Bates no. OPHEP 28178.

264 HRSA is the agency within HHS that provides funding and training programs to health care providers, such as health clinics, to provide care to the uninsured, people with HIV/AIDS, and pregnant women, mothers, and children.

265 Dr. Claypool interview, Feb. 14, 2006, p. 38.

266 Bennett interview, Mar. 1, 2006, p. 20.

267 Craig interview, Jan. 25, 2006, p. 25.

268 Downey interview, Jan. 20, 2006, pp. 46-48; Dr. Guidry interview, Dec. 20, 2006, pp. 78-79.

269 Betty Duke, e-mail to Richard Carmona, Sept. 7, 2005, 6:02 p.m. Provided to Committee; filed as Bates nos. OPHEP 27217 through 27220.

270 Dianne Whittington, e-mail to Brian Kamoie, Sept. 4, 2005, 2:30 pm. Provided to Committee; filed as Bates nos. OPHEP 22014 through 022017; Committee staff interview of Gerald Parker, M.D., D.V.M., Ph.D., Principal Deputy Assistant Secretary, Office of Public Health Emergency Preparedness, U.S. Department of Health and Human Services, conducted on Feb. 10, 2006, pp. 52-54.

271 Vanderwagen interview, Feb. 7, 2006, pp. 46-47; Brian Kamoie, e-mail to Stewart Simonson, Sept. 3, 2005, 2:33 p.m. Provided to Committee; filed as Bates no. OPHEP 27072.

272 Clara Cobb, e-mail to Robert Love, Sept. 5, 2005, 11:19 a.m. Provided to Committee; filed as Bates no. OPHEP 8344.

273 Mike Milner, e-mail to William C. Vanderwagen, Sept. 5, 2005, 11:35 p.m. Provided to Committee; filed as Bates nos. OPHEP 8198 through 8199.

274 Capt. Art French, M.D., USPHS, After-Action Presentation, "New Orleans Airport Evacuation: The MST Perspective on the Hospital from Hell," briefing slides, Feb. 2006.; Capt. French interview, Mar. 2, 2006.

275 George Havens, e-mail to Jack Beall, Sept. 4, 2005, 10:47 a.m. Provided to Committee; filed as Bates no. DHS-FEMA-0098-0001413.

276 Mark Roupas, e-mail to Paul McHale, Aug. 29, 2005, 5:54 p.m. Provided to Committee; filed as MMTF 00418-05.

277 Stewart Simonson, letter to Paul McHale, Aug. 31, 2005. Provided to Committee; filed as Bates nos. OPHEP 27874 through 27875.

278 Stewart Simonson, letter to Paul McHale, Aug. 31, 2005. Provided to Committee; filed as Bates nos. OPHEP 27874 through 27875.

279 Office of the Assistant Secretary of Defense (Homeland Defense), Hurricane Katrina/Rita/Ophelia Interim Timeline, Nov. 2, 2005, p. 7. Provided to Committee ("Oral approval of SecDef and Draft MOD$ to SecDef EXORD tasks SECARMY to provide Ft. Polk deployment site, SECNAV to provide Naval Air Station Meridian site, SECAF to provide Eglin AFB site, and CNGB to coordinate use of MS Army National Guard Base.").

280 Stewart Simonson, letter to Paul McHale, Sept. 2, 2005. Provided to Committee; filed as Bates nos. OPHEP 27884 through 27885.

281 U.S. Joint Forces Command, Hurricane Katrina Comprehensive Timeline, Nov. 15, 2005, p. 8. Provided to Committee, filed as Bates no. MMTF 00500-05.

282 Simonson interview, Feb. 16, 2006, pp. 97-98.

283 Simonson interview, Feb. 16, 2006, p. 74

284 Simonson interview, Feb. 16, 2006, p. 75

285 Simonson interview, Feb. 16, 2006, p. 76

286 Stewart Simonson, e-mail to Jack Beall, Sept. 2, 2005, 9:18, p.m. Provided to Committee; filed as Bates no. OPHEP 27927.

287 Dr. Claypool interview, Feb. 15, 2006, pp. 63-64.