SUMMARY REPORT
of the
NATIONAL BIODEFENSE SCIENCE BOARD
Public Meeting
September 23, 2008
Sheraton National Hotel
900 South Orme Street
Arlington, VA 22204

VOTING MEMBERS PRESENT

Patricia Quinlisk, M.D., M.P.H., *Chair*
Stephen V. Cantrill, M.D.
Roberta Carlin, M.S., J.D. (by phone)
Albert J. Di Rienzo (by phone)
Kenneth L. Dretchen, Ph.D.
John D. Grabenstein, R.Ph., Ph.D.
James J. James, Brigadier General (Retired), M.D., Dr.P.H., M.H.A.
John S. Parker, Major General (Retired), M.D.
Andrew T. Pavia, M.D.
Eric A. Rose, M.D. (by phone)
Patrick J. Scannon, M.D., Ph.D.

NBSB VOTING MEMBERS NOT PRESENT

Ruth L. Berkelman, M.D.
Thomas J. MacVittie, Ph.D.

EX OFFICIO MEMBERS PRESENT

Richard E. Besser, M.D., Coordinating Office for Terrorism Preparedness and Emergency Response, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services
Michelle M. Colby, D.V.M., M.S., Office of Science and Technology Policy, Executive Office of the President (by phone)
Rosemary Hart, Office of Legal Counsel, U.S. Department of Justice
Boris D. Lushniak, M.D., M.P.H., Rear Admiral/Assistant Surgeon General, Office of the Commissioner, Food and Drug Administration, U.S. Department of Health and Human Services (by phone)
Willie May, Ph.D., National Institute of Standards and Technology, U.S. Department of Commerce (Dianne Poster, designee)
Frank Scioli, Ph.D., Division of Social and Economic Sciences, National Science Foundation (by phone)
John P. Skvorak, Colonel, D.V.M., Ph.D., U.S. Army Medical Research Institute for Infectious Diseases, U.S. Department of Defense (DoD)
Richard S. Williams, M.D., Office of the Chief Health and Medical Officer, National Aeronautics and Space Administration (Vincent Michaud, designee)

EX OFFICIO MEMBERS NOT PRESENT

Joseph Annelli, D.V.M., Animal and Plant Health Inspection Service, U.S. Department of Agriculture

Hugh Auchincloss, M.D., National Institute of Allergy and Infectious Diseases, National Institutes of Health, U.S. Department of Health and Human Services

Diane Berry, Ph.D., Office of Health Affairs, U.S. Department of Homeland Security (DHS)

Lawrence Deyton, M.D., M.S.P.H., Chief Public Health and Environmental Hazards, U.S. Department of Veterans Affairs (VA)

Bruce Gellin, M.D., M.P.H., National Vaccine Program Office, Office of the Secretary, Office of Public Health and Science, U.S. Department of Health and Human Services

Peter Jutro, Ph.D., National Homeland Security Research Center, U.S. Environmental Protection Agency

Lawrence (Larry) D. Kerr, Ph.D., National Counterproliferation Center, Office of the Director of National Intelligence

Carol D. Linden, Ph.D., Biomedical Advanced Research and Development Authority, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services

Claudia A. McMurray, Ph.D., Environmental and Scientific Affairs, U.S. Department of State

Carter Mecher, M.D., Homeland Security Council

Patricia A. Milligan, R.Ph., C.H.P., U.S. Nuclear Regulatory Commission

Timothy R. Petty, Deputy Assistant Secretary for Water and Science, U.S. Department of the Interior

Patricia R. Worthington, Ph.D., Office of Health and Safety, U.S. Department of Energy

INVITED GUESTS

NBSB DISASTER MEDICINE WORKING GROUP

NATIONAL DISASTER MEDICAL SYSTEM ASSESSMENT PANEL (PRESENT)

Michael Allswede, D.O., Program Director, Emergency Medicine Residency, Emergency and Disaster Medicine Residency, Memorial Medical Center

Erik Auf der Heide, M.D., M.P.H., FACEP, Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services (by phone)

James Blumenstock, Chief Program Officer, Public Health Practice, Association of State and Territorial Health Officials

Steve Englender, M.D., M.P.H., Director, Center for Public Health Preparedness, Cincinnati Health Department (by phone)

John H. Fitch, Jr., Senior Vice-President, Advocacy, National Funeral Directors Association

David Gruber, Senior Assistant Commissioner/Preparedness Director, Association of State and Territorial Health Officials

Scott Lillibridge, M.D., Texas A&M Health Science Center; Director, National Center for Emergency Preparedness and Response; Assistant Dean, School of Rural Public Health; Associate Director, Western Regional Center of Excellence for Biodefense and Emerging Infectious Diseases

John Reed, President-Elect, National Funeral Director's Association

Gary Sizemore, M.B.A./HCM, President, National EMS Pilot Association

STAFF OF THE NATIONAL BIODEFENSE SCIENCE BOARD
Leigh Sawyer, D.V.M., M.P.H., CAPT, U.S.P.H.S., Executive Director
David Noll, Ph.D., Science Policy Fellow
Donald Malinowski, M.S., Program Analyst
Carolyn Stevens, Staff Assistant

CALL TO ORDER AND CONFLICT OF INTEREST RULES
Leigh Sawyer, D.V.M., M.P.H., CAPT, U.S.P.H.S., Executive Director, National Biodefense Science Board (NBSB), Office of the Assistant Secretary for Preparedness and Response (ASPR), U.S. Department of Health and Human Services (HHS)
Patricia Quinlisk, M.D., M.P.H., Chair, NBSB

CAPT Sawyer welcomed the Board members and the public to the meeting, then reviewed the Conflict of Interest statement that was sent to all members. She noted that NBSB is governed by Federal advisory board regulations. Most NBSB work is performed by working groups, whose findings have been presented to the entire Board. CAPT Sawyer added that members of the National Disaster Medical System (NDMS) Assessment Panel had been invited to attend the meeting and would be introduced by Dr. Stephen Cantrill.

The meeting agenda included a public comment period. CAPT Sawyer asked that those members of the public who wished to speak in person sign up to do so. Those intending to speak by phone would receive instructions at the appropriate time.

Dr. Quinlisk also welcomed the Board, the Disaster Medicine Working Group, members of the National Disaster Medical System Assessment Panel, and other participants. She encouraged all present to participate in the discussion and thanked those who contributed to the report. She then introduced Dr. Kevin Yeskey to give the opening remarks.

OPENING REMARKS
Kevin Yeskey, M.D., Director, Office of Preparedness and Emergency Operations, and Deputy Assistant Secretary for Preparedness and Response, HHS

Dr. Yeskey thanked Dr. Quinlisk and the Board for having him. His remarks were intended to provide a background for those unfamiliar with the National Disaster Medical System (NDMS), as well as offer an update on activities, specifically NDMS performance during the recent hurricanes. The ultimate goal is to provide better care to those in need during a disaster.

Dr. Yeskey explained that NDMS is really a partnership among HHS, DHS, the VA, and DoD. All team members are federal employees. The System was formed during the cold war in order to deal with any large-scale emergencies that might arise, such as the Soviet Union launching an invasion into Western Europe. NDMS was also intended to deal with natural disasters, such as earthquakes in California, where there were projections of 100,000 potential patients. Initially, teams were sponsored by hospitals. While many aspects of the NDMS were organized as if it were a nonprofit organization, it did receive training and supplies from the Federal government.

Over the years, Federal funding improved. In the most recent fiscal year, NDMS received $46 million, an amount that has been steady the last few years. In 2002, team members became Federal employees. While they do not receive pay unless they are activated, they no longer have

to be sworn in each time. As Federal employees, team members are protected against liability, are covered for workers' compensation, and have the same right as the military to return to their jobs after service. They are subject to the Uniformed Services Employment and Re-employment Rights Act, the Federal Tort Claims Act, and the Federal Employees Compensation Act.

NDMS operations have three components: field work, patient transport, and definitive care. In 2006, NDMS was fully integrated into Emergency Support Function 8 (ESF-8) and moved the Department of Homeland Security's, Federal Emergency Management Agency (FEMA) to HHS. The result is an integrative approach. NDMS remains a critical component of the federal response capability, but it is now integrated with other response resources.

Dr. Yeskey made several analogies between Federal medical services and the military: the U.S. Public Health Service is full-time, Federal, active duty service, like the U.S. Armed Forces; NDMS is a part-time Federal service, similar to the military reserves; its volunteers are comparable in some respects to the National Guard. One goal for all of these teams is better integration into a national response system. When NDMS was transferred from FEMA, approval of individual applications to serve as team members took a full year. Now the application acceptance interval is down to 7 weeks. The administrative process is much shorter and more efficient.

The NDMS is also looking at what constitutes a team in terms of clinical capabilities. There is an effort to standardize teams and recruit members to meet identified needs, rather than having individuals join on an ad-hoc basis, as in the past. ESF-8 includes public health, primary care, acute care, and inpatient care. The latter two are the special responsibilities of NDMS and encompass victims, responders, casualties, and displaced hospital patients. NDMS currently assigns responsibilities according to what tasks the teams can perform. Responsibilities center on hospital inpatient care, ICU/trauma care, and fatalities management. Other disaster responsibilities, such as food and water safety, outpatient care, and nursing home care, fall to other services, like the U.S. Public Health Service. There is some overlap, and these services augment state and local capabilities. This is one of the reasons NDMS wants the best teams, not just ad-hoc members. The NDMS wants to recruit and pinpoint teams to meet specific needs.

During the recent hurricanes, Gustav and Ike, the deployed teams had a game plan for Texas and Louisiana. NDMS engaged with FEMA well beforehand and knew which hospitals were most likely to need help, as well as their plans and resources. Therefore, going in, NDMS knew some of the affected areas' capabilities. The NDMS tried to maintain flexibility due to the unpredictability of the storms. It takes about 72 hours to evacuate, so NDMS maintained teams in key places in order to move into affected areas. The NDMS moved 11,000 people in 2 days after Hurricane Gustav, as opposed to just 37 people after Hurricane Katrina in 2005.

There was a great deal of pre-stage work. NDMS starts moving when an evacuation starts. For these hurricanes, NDMS had equipment in place and was prepared to access electronic health records. The response was integrated at every level, with state and local organizations, and helped them refine their own responses. NDMS had people stationed at FEMA headquarters and was in constant communication with the Agency. In the course of patient evacuation, tens of thousands of people were moved; NDMS moved the sickest among these. A gap analysis showed where the needs were. The response was not perfect, but that is the nature of disasters. NDMS responded quickly and flexibly. Committed teams were at the heart of the system. The NDMS will use feedback to do better next time.

Dr. Quinlisk thanked Dr. Yeskey for his remarks.

REPORT TO THE NBSB BY THE NATIONAL DISASTER MEDICAL SYSTEM (NDMS) ASSESSMENT PANEL OF THE NBSB DISASTER MEDICINE WORKING GROUP
Stephen Cantrill, M.D., Co-Chair, NBSB Disaster Medicine Working Group and Chair, NDMS Assessment Panel

Dr. Cantrill introduced the members of the Assessment Panel who were not also members of NBSB.

The Panel saw their charge as an opportunity to provide a constructive response to NDMS. They decided to make this report relatively brief and to deal only with significant issues. Therefore, the presentation addressed conclusions; more details are available in the full report. The charge to the Panel was to provide HHS with feedback on the joint review of the NDMS 2008 Consolidated Report of Recommendations (the "MITRE Report"). The Panel reviewed numerous previous reports and conducted multiple teleconferences with detailed comments on the MITRE report. The Panel met face-to-face in June, and planned to provide recommendations based on this meeting.

Dr. Cantrill discussed each recommendation individually.

RECOMMENDATION 1.1

Develop a clear, current strategic vision for NDMS including how it integrates with the mandate of Emergency Support Function 8 (ESF-8) Public Health and Medical Services and how resource sharing partnerships between the NDMS, the states and the healthcare industry might be enhanced for improved medical responses during a disaster.

For Recommendation 1.1., the Panel felt that a clear and current strategic vision should include the concept of integration with ESF-8, as well as with the state and private sector health industry.

RECOMMENDATION 1.2

Establish an ongoing civilian advisory group for the National Disaster Medical System and for HHS ESF-8 efforts in general. This group should meet on a regular basis and assist in the ongoing assessment and improvement of our nation's disaster medical response.

Recommendation 1.2 was intended to establish a civilian (i.e., non-federal) advisory group for NDMS and ESF-8 in general.

RECOMMENDATION 2.1

Establish a formal mechanism to track the implementation of recommendations and lessons-learned from after-action reports. This process should identify the factors which have precluded effective implementation of previous recommendations, such as insufficient staff, staff turnover, unclear responsibilities, lack of funding, etc., so that these primary issues may be addressed.

Dr. Cantrill noted that there are always lessons observed. There have been multiple previous studies but no apparent organized method to track lessons learned. Therefore, the Panel recommended establishing a formal mechanism to track implementation of recommendation.

RECOMMENDATION 3.1

Every effort should be made to achieve full staffing and operational status for all NDMS response teams. This includes dealing with identified issues in the following Response Team areas: concept of operations, equipment and logistics, command and control, communications and training.

RECOMMENDATION 3.2

Finalize and implement an improved, streamlined application process for NDMS medical personal.

For Recommendations 3.1 and 3.2, response personnel are key. Recommendation 3.1 addresses full staffing, while 3.2 addresses the application process.

RECOMMENDATION 3.3

Establish a uniform and consistent training curriculum across each of the types of volunteer teams. These efforts must be complementary and build upon a national, standardized approach for resource typing, uniform training, field deployment and logistics support.

Recommendation 3.3 speaks to the need for a uniform training curriculum.

RECOMMENDATION 3.4

Implement an accounting/tracking system that can properly register the true capacity of non-overlapping medical response personnel who can be deployed for an event. Consideration should be given to improving the NDMS personnel capability and gap analysis for multiple specified national scenarios, including consideration of conflicting obligations and time to respond.

Recommendation 3.4 addresses a tracking system to register the true capacity of the non-overlapping medical response personnel available for an event. An appendix addresses a specific methodology.

RECOMMENDATION 4.1

Review and expand the definition, if necessary, of what constitutes an NDMS patient. Serious consideration should be given to including any individual evacuated across state lines (regardless of mode of evacuation) due to a disaster, who requires medical evaluation or care, to be an NDMS patient for a specified limited period of time (including long-term care patients).

Recommendation 4.1 starts by defining an NDMS patient, which is necessary in order to avoid adding stress to people who are already under stress. This is particularly true of long-term care patients. Thousands of such patients required care after Hurricane Katrina.

RECOMMENDATION 4.2

Reimbursement for care of disaster victim patients should not be limited to just NDMS hospitals, but should include all hospitals, outpatient clinics, nursing homes, alternate care facilities, shelters, etc, wherever care is provided during the time of event or the following impact period. Reimbursement should continue at 110% of the Centers for Medicare and Medicaid Services' rate.

Number 4.2 deals with reimbursement of care at all hospitals and care facilities during event and afterwards, as needed. This was an issue with Hurricane Katrina, especially when people were moved to other states.

RECOMMENDATION 4.3

Establish a standard patient movement concept of operation. This plan should explicitly address the needs of at-risk individuals including children, pregnant women, senior citizens and other individuals who have special needs in the event of a disaster or public health emergency.

Recommendation 4.3 addresses the need for a standard patient movement concept of operation. Such a plan should include special needs patients, according to a broad definition, in public health emergencies.

RECOMMENDATION 4.4

Field usability of the NDMS Electronic Medical Record (EMR) currently under development must be the goal of primary importance for its implementation. To the degree possible, integration of the NDMS EMR platform with future patient tracking and medical resource availability systems should be encouraged

Recommendation 4.4 addresses electronic medical records.

RECOMMENDATION 4.5

Undertake a comprehensive review of federal health-related regulations and determine how such regulations pose barriers to the efficient and effective administration of patient care during times of extreme medical need. Develop criteria to specify when health-related federal regulations should be considered for temporary suspension in areas affected by a disaster and potentially those areas receiving the evacuated patients and convey these criteria to the healthcare community to assist in their disaster preparedness planning.

Recommendation 4.5 seeks a review of Federal health-related regulations (e.g. EMTALA, HIPAA), which is needed in order to determine how they create barriers in an emergency, how to handle such situations during an emergency, and how to ensure that medical personnel know the appropriate actions in advance.

RECOMMENDATION 5.1

Consistent with Recommendation 1.1 the NDMS should improve and expand its efforts to build sustainable partnerships with State and local resources.

RECOMMENDATION 5.2

Establish improved alliances between NDMS and the public/private healthcare sector to provide assistance in field care, patient transport and definitive patient care. These alliances should be designed to provide additional assets to augment NDMS operations during a time of national need.

Recommendations 5.1 and 5.2 emphasize the need to engage with partners, a special concern in dealing with local governments.

RECOMMENDATION 6.1

Every effort should be made to secure adequate, increased funding for the NDMS so it may successfully accomplish its critically important mission.

Recommendation 6.1 addresses current funding levels, which are inadequate for carrying out the NDMS mission. While it is beyond the scope of this group to determine a budget, there seems to be a consensus that the existing budget is insufficient.

RECOMMENDATION 7.1

The ASPR should consider this report and recommendations of the NBSB Disaster Medicine Working Group's NDMS Assessment Panel. The NBSB asks for feedback concerning each recommendation above as to whether it has: 1) essentially already been implemented; 2) will be implemented; or 3) will not be implemented, with reasons if possible.

Recommendation 7.1 takes the report and Panel recommendations into consideration. The NBSB would appreciate feedback concerning whether recommendations have been implemented, will be implemented, or will not be implemented, with feedback if possible.

NBSB DISCUSSION AND CONSIDERATION OF THE REPORT
Patricia Quinlisk, M.D., M.P.H., Chair, NBSB

Dr. Quinlisk asked about the Emergency Medical Transfer and Labor Act (EMTALA). Dr. Auf der Heide observed that EMTALA reflects anti-dumping laws created so that hospitals do not dump unwanted patients. EMTALA requires permission of the receiving hospital before a patient is transferred. A disaster makes this unrealistic, because cellular and telephone lines are more often than not damaged or jammed. In addition, many communities still do not have a functioning inter-hospital two-way radio system. Disaster research studies have shown that most casualties are transported to the closest hospitals by private vehicles, while others slightly farther away wait for patients that never arrive. This can result in the closer hospitals being overloaded. A number of experts have therefore suggested using the closest hospitals to quickly assess and triage arriving casualties, then to distribute them rationally and equitably to the other medical facilities. EMTALA makes this very difficult and time consuming. Problems can also occur when a hospital is damaged and needs to evacuate. The Secretary can waive the Act, but it is hard to convey this information to the hospitals. Furthermore, in many domestic disasters, most patient flow is over before such a waiver is received. In a typical disaster, the first few hours are critical, and that is long before the Secretary can react. Dr. Auf der Heide wondered if there should be a standing waiver in communities where the hospitals using such a waiver have agreed to participate in a pre-existing community plan for moving patients among them in a disaster. Such waivers could be reviewed at regular intervals to identify any problems that adversely effect patient care.

Dr. Pavia complimented the report, especially Recommendation 7.1 regarding accountability. He wondered if the Panel had thought of NDMS in the context of other emergencies, as in pandemic influenza. This rapid deployment would be poorly suited for that, and it is unclear how NDMS would be organized for a pandemic. Dr. Cantrill responded that a pandemic would require development of a more robust response at the local level. A pandemic might not have a NDMS solution. A geographically isolated crisis is more suited for this type of response. Dr. Pavia suggested two recommendations that might work in this situation: training for disaster medicine, and a way to deal with legal barriers. Dr. Cantrill agreed, especially regarding the latter. A better integration of national, state, and local resources would help with the former.

Dr. Grabenstein suggested some word changes. In Recommendation 6.1, it would be good to refer to “sustained” funding. On Recommendation 4.1, he was curious about the phrase “across state lines” – in an earthquake scenario, San Francisco to San Diego is a long distance, for example, yet all in one state. Dr. Cantrill explained that the Panel wanted some degree of limitation, but the point was well taken, especially for large states. He reminded those present that they would have a chance to make changes. In response to a question by a Board member regarding whether the Panel looked at the requirements that hospitals have to take patients, Dr. Cantrill replied that when a patient shows up, it does not matter if the facility is an NDMS hospital. Dr. Auf der Heide stated that as an emergency physician, he has observed that unfunded mandates for financially struggling hospitals cause a great deal of trouble. Resources therefore need to be provided for these situations. There have been problems with situations in which the plans are sophisticated but there are no resources. Dr. Cantrill agreed, as his institution still has not been reimbursed for Hurricane Katrina work. Dr. Sizemore said that in an emergency, there is sometimes a breakdown in the coordination system, therefore some of these things do not work like they are supposed to. Dr. Auf der Heide added that coordination involves time, expenditures, and training.

PUBLIC COMMENT SESSION

Dr. Quinlisk thanked the members for their comments. After a brief break, CAPT Sawyer announced that one member of the public was present to speak. Serena Vinter from Trust for America's Health asked if the Panel had considered at-risk populations. She also wanted to know how NDMS planned to respond in limited English/minority areas where the population had trust issues. Dr. Cantrill stated that those issues were not cited as such, but at-risk populations were discussed.

NBSB DISCUSSION AND VOTING

The group was to review each recommendation and take suggestions from Board members. Changes would require a discussion and consensus on the modification. Final recommendations would then go to the Secretary, who can then move them along. The goal of the meeting was to come up with final recommendations and the background report.

Regarding Recommendation 1.1, Dr. Quinlisk said that it provided a clear, current, and strategic vision, but she wondered if it should reference something tangible. She asked if there should be a request for something specific, and what the vision might need. Dr. Cantrill explained that the recommendation asks that NDMS be considered in the broader context of ESF-8. Therefore, the Panel wanted a description of the vision, and tried not to be too prescriptive. Dr. Quinlisk asked if they should say that this should be shared. CAPT Sawyer asked if it was covered in Recommendation 7.1. Dr. Cantrill replied that they could include something specific in Recommendation 7.1. Dr. Allswede said the recommendation should refer to specific events, both overt and covert, and those for which there is advance warning, like a hurricane. He said that for all of the recommendations, they should reference three different strategies, and that this needed to be clarified. Dr. Parker asked if the strategic vision would include a new NDMS concept of operation. Dr. Cantrill said that that would depend on whether it broadened the scope, as a greater scope may mandate a review. He suggested adding a sentence: "If the new vision involves an increase in scope, this may necessitate a revision and review of the recommendations." However, he wondered if this was the right place for that discussion. Mr. Gruber said that as he read the Board charter, he noted that this is an advisory board, which might preclude them from adding more work. Dr. Cantrill said that the group requests rather than demands. Dr. Lillibridge cautioned that they were getting down in the weeds when thinking about divisions. He thought this was a good, broad, general document. The next administration will have to have a visioning session. Therefore, he recommended that they keep the recommendations broad, and he thought Recommendation 1.1 was fine as written. Dr. James agreed, adding that some of what had come up should be in the accompanying documentation. He wanted to get the broad recommendations to the Secretary, and let that person return to the NBSB if necessary. Dr. Quinlisk agreed that perhaps the new sentence really belonged in the background document rather than the recommendations, because it watered down the recommendation a bit.

Recommendation 1.1 as agreed upon reads as follows:

RECOMMENDATION 1.1

Develop a clear, current strategic vision for the NDMS including how it integrates with the mandate of Emergency Support Function (ESF)-8 Public Health and Medical Services and how resource sharing partnerships between the NDMS, the states, and the healthcare industry might be enhanced for improved medical responses during a disaster.

In discussion of Recommendation 1.2, Dr. Pavia stated that the advisory board is useful. He wondered about the focus on NDMS versus the entire scope of ESF-8. Dr. Cantrill said that the recommendation did not have ESF-8 wording, but that it referenced a broader scope in terms of response. If they took a systems approach, it might incorporate more aspects of ESF-8. The Panel did not want to limit it to conventional thinking. Dr. Quinlisk noted that the recommendation referred to a civilian advisory group. She wondered how important it was to include people who are already part of system, and whether "civilian" included those people. Dr. Cantrill said that the intent of the recommendation was to get end users involved. It was not meant to exclude end users outside the Beltway or volunteer hospitals.

Recommendation 1.2 as agreed upon reads as follows:

RECOMMENDATION 1.2

Establish an ongoing civilian advisory group for the National Disaster Medical System and for the U.S. Department of Health and Human Services (HHS) ESF-8 efforts in general. This group should meet on a regular basis and assist in the ongoing assessment and improvement of our nation's disaster medical response.

Dr. Cantrill explained that Recommendation 2.1 was about potential opportunities for corrective action and offered a good systems approach to organizational integrity. Dr. Carlin was pleased to see this, and mentioned the possibility of establishing a mechanism to track implementation. She asked how they would ensure that the reports are reviewed in a consistent and timely manner. Dr. Cantrill said that the reports are already reviewed. This effort is part of a long-term look, with the deficiency being the lack of institutional memory. Therefore, the intent of reports is lost over the long-term despite reviews. Dr. Quinlisk asked which reports are included, all or just NDMS reports. Dr. Cantrill said that any reports with valuable input for NDMS are included. Dr. Quinlisk said they should make that clear, because to ensure that they get comments from people outside of NDMS, they may need to request those reports. Such reports may be the most unbiased. Dr. Cantrill said that perhaps the statement should be, "learn from appropriate after-action reports and other evaluations." Dr. Dretchen said that having a civilian advisory board look at the reports would be a strength. Dr. James noted that an important term was "formal mechanism." Dr. Allswede said that to strengthen the recommendation, they should add language that addressed finding an authoritative party for implementation. Dr. Parker asked if they determined whether the agency and directorate to run NDMS is of sufficient size to carry out its charge. Dr. Cantrill said that it was difficult to say if staffing is adequate. The Panel would leave this up to them, especially with funding level issues, since the Panel does not want

to be too prescriptive. Therefore, the change was to, "this process should be administered by a responsible authority to ensure implementation." Dr. Cantrill added that the process should identify a responsible party for implementation. However, Dr. James suggested that they address this elsewhere, because implementation is somebody else's issue. The new sentence was removed and held for consideration elsewhere. Dr. Parker noted that the whole point of the size of the organization had a bearing on whether or not it had the ability to absorb requirements.

After this discussion, Recommendation 2.1 reads as follows:

RECOMMENDATION 2.1

Establish a formal mechanism to track the implementation of recommendations and lessons-learned from appropriate after-action reports and other evaluations. This process should identify the factors which have precluded effective implementation of previous recommendations, such as insufficient staff, staff turnover, unclear responsibilities, lack of funding, etc., so that these primary issues may be addressed.

There were no comments on Recommendation 3.1, which was left as follows:

RECOMMENDATION 3.1

Every effort should be made to achieve full staffing and operational status for all NDMS Response Teams. This includes dealing with identified issues in the following Response Team areas: concept of operations, equipment and logistics, command and control, communications and training.

In discussion, it was determined that Recommendation 3.2 was already under way. As an aside, it was noted that the timeline for approving applicants is down to 42 days for applicants, and Dr. Yeskey added that within the bureaucracy, it is impossible to get below 6 weeks. Dr. Quinlisk asked whether that made Recommendation 3.2 redundant. Dr. Cantrill said that it made the point that these are important issues even if they are already being worked on. Dr. James said that he would have fewer recommendations in order to raise the likelihood of consideration. Dr. Quinlisk suggested that they insert a statement in the documentation to the effect that they believe this action had been done. Dr. Cantrill then recommended that they delete the original Recommendation 3.2 and renumber the subsequent recommendations.

What was Recommendation 3.3 is now Recommendation 3.2, and addresses communication about available resources. Dr. Pavia suggested adding a statement about a national curriculum for emergency response. Dr. James recommended adding the phrase, "consistent with education and training requirements as defined by HSPD-21."

Recommendation 3.2 now reads as follows:

RECOMMENDATION 3.2

Establish a uniform and consistent training curriculum across each of the types of volunteer teams consistent with the education and training requirements as defined under HSPD-21. These efforts must be complementary and build upon a national, standardized approach for resource typing, uniform training, field deployment, and logistics support.

Recommendation 3.3, which had been Recommendation 3.4, dealt with incorporating improved gap analysis, which was outlined in detail in Appendix E of the report. In terms of personnel, there may be double or even triple counting. Each hospital counts nurses who work in multiple places, and this recommendation addresses that.

Recommendation 3.3 now reads as follows:

RECOMMENDATION 3.3

Implement an accounting/tracking system that can properly register the true capacity of non-overlapping NDMS medical response personnel who can be deployed for an event. Consideration should be given to improving the NDMS personnel capability and gap analysis for multiple specified national scenarios, including consideration of conflicting obligations and time to respond.

Dr. Cantrill explained that Recommendation 4.1 deals with the definition of an NDMS patient, historically someone who has been treated or moved by NDMS. The goal was to develop a system to respond to the needs of disaster victims, and the definition as it exists is quite restrictive. He asked whether the wording about state lines should be removed. Dr. James thought it was fine as written. Dr. Yeskey said that this definition probably exists in the Office of the General Counsel. Dr. Quinlisk asked why the definition of a patient was important. Dr. Cantrill explained that it had to do mostly with reimbursement. There was a great deal of undocumented care provided in good faith during Hurricane Katrina that was never compensated. Dr. James said that this area is so complex and so poorly understood that he recommended getting the main point across of who is entitled to NDMS care, with the rest of the discussion in the body of the document. Dr. Cantrill preferred to leave in a little detail and lay it out a bit more. Dr. Parker asked if it was it clear when someone enters the NDMS system. Dr. Cantrill said that if a person receives care or transportation from an NDMS resource, that person is an NDMS patient. Dr. Yeskey added that this can be very complex. Self-evacuees can get sick and end up in a hospital, or transported by the National Guard or others, so they constitute a large group of people who present medical care issues and have not been tracked. And yet they are sick and need to be repatriated, so the bill rapidly escalates. NDMS is the payer of last resort. Therefore, patients must go through and be qualified for this kind of care. FEMA does not cover this expense, which means there has to be a supplemental appropriation. It is crucial that the definition be fairly exact, from both legal and medical standpoints. Dr. Lillibridge added that there are dozens of permutations that make this issue extremely important, especially from a hurricane.

Recommendation 4.1 now reads as follows:

RECOMMENDATION 4.1

Review and expand the definition, if necessary, of what constitutes an NDMS patient. Serious consideration should be given to including any individual evacuated across state lines (regardless of mode of evacuation) due to a disaster, who requires medical evaluation or care, to be an NDMS patient for a specified limited period of time (including long-term care patients).

Recommendation 4.2 deals with broadening the scope of reimbursement. As Dr. Cantrill stated, when care is provided by entities that are not traditionally eligible for NDMS reimbursement, the reimbursement should not depend on the physical location. Dr. Quinlisk asked who really is responsible for the reimbursement decision at other hospitals. Dr. Cantrill replied that this is probably a decision made at the regulatory level. Mr. Gruber said that states put in requests. Dr. Quinlisk asked if the group felt that this was a critical issue that should be sent to the Secretary separately, or if there were better way to request action on this. Dr. James said that while he believed in keeping recommendations simple, this was of tremendous import. They are still sorting out funding for Hurricane Andrew, let alone Katrina. This is an ongoing problem, and it needs to be raised in the body of the report. Dr. Carlin questioned why the language of reimbursement fell under the section on serving the patient. Dr. Cantrill maintained that without sorting out funding, the patients cannot be served because hospitals will become unwilling to serve them.

Recommendation 4.2 now reads as follows:

RECOMMENDATION 4.2

Reimbursement for care of disaster victim patients should not be limited to just NDMS hospitals, but should include all hospitals, outpatient clinics, nursing homes, alternate care facilities, shelters, etc., wherever care is provided during the time of event or the following impact period. Reimbursement should continue at 110% of the Centers for Medicare and Medicaid Services' rate.

Recommendation 4.3 deals with at-risk persons and those with special needs. Dr. Cantrill said that it encourages the continuing effort in this area. Dr. Carlin suggested they specifically mention people with disabilities, pregnant women, and the elderly. "Special needs" means different things to different people. Dr. Quinlisk explained how 18 months ago, during a winter storm and its aftermath, the largest at-risk group in her area was those with medical needs but living at home, assisted by family and visiting nurses. When the winter storms hit and electricity went out, they could not stay at home, nor could they go to a regular shelter because of their medical needs. She suggested mentioning in the narrative that these people need help during a crisis. They need help getting out of their homes, and they need to go to special shelters that can address their special needs. Dr. Lillibridge said that medical special needs people were almost a show-stopper in the recent hurricanes. They are an extremely important group. In addition, the lack of power and water can bring down a hospital. Dr. Quinlisk said that something like this is

important and can be planned for. It goes beyond movement of individuals, because they also may need oxygen, and if a blizzard keeps oxygen from being transported, that becomes a problem. Dr. James said that "special needs" is a well-understood term. The population is already defined. The problem involves movement. Dr. Parker said that as worded, it was unclear whether they were discussing medical risk with at-risk individuals. He wondered if this expanded the program. Dr. Cantrill said that the Panel was trying to note that this population should be considered. Dr. Parker gave the example of a stable amputee in a wheelchair and asked if NDMS would be responsible for that person's movement. Dr. Cantrill said that there is not a combined concept of operation. This was not an attempt to put the whole burden on NDMS. There are coordination efforts involving national, state, and local levels. The recommendation simply said that these populations should be addressed. Dr. Quinlisk added that the issue needed to be brought up somewhere. Dr. Lillibridge noted that the practical value is that the special needs population is mentioned, which is necessary.

Recommendation 4.3 now reads as follows:

> ***RECOMMENDATION 4.3***
>
> *Establish a standard patient movement concept of operation. This plan should explicitly address the needs of at-risk individuals including children, pregnant women, senior citizens, and individuals with medical disabilities and other special needs, in the event of a disaster or public health emergency.*

Recommendation 4.4 stresses the field utility of electronic medical records. Dr. Cantrill explained that the goal is to send patients to places that have the right resources. Mr. Di Rienzo thought it was valuable to have this thought in the recommendation. They do not want to just say something about future platforms. Some current existing platforms and standards work well, and they ought to leverage those platforms. Dr. Cantrill said that this is an evolving area. Mr. Di Rienzo mentioned interoperability formats. Dr. Pavia proposes that the wording change to "NDMS platform should reflect best practices," which should be added as a new sentence. The NDMS EMR platform should use medical IT best practices and protocols that will allow the greatest degree of interoperability with existing and future EMR systems. Mr. Gruber suggested they make a recommendation that they develop standardization. Dr. Cantrill agreed. Mr. Gruber also suggested referring to standards that all future systems must have. Mr. Di Rienzo noted that that is a whole human factors issue and a key point. Mr. Gruber advised changing the wording to mention a "core set of standardized fields." NDMS should take the lead in identifying the specific minimum patient information required in a patient tracking system. Dr. James cautioned that he was not sure NDMS should be taking the lead on this, considering the comparably low number of patients the NDMS cares for. Dr. Yeskey said that in building an integrated system, they are working with others to address patient tracking. Modifications will be necessary, and they will need a system that matches patients with available beds in an integrated system. Dr. Englender said that disaster research literature indicates that medical records are one of first things to go out the window in a disaster. In addition, a records system is only as good as the people who use it. If it can be tied with hospital needs regarding billing and the like, it will be more useful. Dr. Yeskey added that if they can get a patient monitoring system for this, they can build on it. There is the intermediate and long term based on what is seen in events. There is a good acceptability of the EMR. Part of this is that when they pre-train, they train on EMR. It will probably be incorporated into pre-deployment training now. Dr. Quinlisk summed up this

part of the discussion, saying that NDMS should take the lead in defining the minimal patient data set that is required in a patient tracking system.

Recommendation 4.4 now reads as follows:

RECOMMENDATION 4.4

Field usability of the NDMS Electronic Medical Record (EMR) currently under development must be the goal of primary importance for its implementation. To the degree possible, integration of the NDMS EMR platform with future patient tracking and medical resource availability systems should be encouraged. The NDMS EMR platform should use medical IT best practices and protocols that will allow the greatest degree of interoperability with existing and future EMR systems. NDMS should take the lead in defining the minimal patient data set that is required in a patient tracking system.

Regarding Recommendation 4.5, Dr. Auf der Heide observed that this issue (EMTALA waivers) came up before to the HHS's Centers for Medicare and Medicaid Services, and they indicated they wanted to do it on a case-by-case basis. Therefore, this may be an uphill battle. Dr. Cantrill said that if NDMS can get criteria established, it would help the hospitals as well.

Recommendation 4.5 reads as follows:

RECOMMENDATION 4.5

Undertake a comprehensive review of federal health-related regulations and determine how such regulations pose barriers to the efficient and effective administration of patient care during times of extreme medical need. Develop criteria to specify when health-related federal regulations should be considered for temporary suspension in areas affected by a disaster and potentially those areas receiving the evacuated patients and convey these criteria to the healthcare community to assist in their disaster preparedness planning.

There was no further discussion of Recommendation 5.1, which reads as follows:

RECOMMENDATION 5.1

Consistent with Recommendation 1.1 the NDMS should improve and expand its efforts to build sustainable partnerships with State and local resources.

Recommendation 5.2 addresses further integration of resources. Dr. Carlin asked if they should integrate the language of emergency responders due to issues of identifying patient transport. Dr. Pavia said that Recommendation 5.2 circles back to Recommendation 1.2, so it could be part of the charge to the advisory board. Dr. Cantrill said that NBSB needs to address NDMS and public/private health care first. They will look at first responders next time.

Recommendation 5.2 now reads as follows:

RECOMMENDATION 5.2

Establish improved alliances between NDMS and the public/private healthcare sector to provide assistance in field care, patient transport, and definitive patient care. These alliances should be designed to provide additional assets to augment NDMS operations during a time of national need.

On Recommendation 6.1, Dr. Grabenstein suggested adding the word "sustained."

Recommendation 6.1 now reads as follows:

RECOMMENDATION 6.1

Every effort should be made to secure adequate, sustained, increased funding for the NDMS so it may successfully accomplish its critically important mission.

Dr. Cantrill reminded those present that Recommendation 7.1 was edited because there is no enforcement capability. He suggested inserting a line about the 2009 meeting. Dr. Lillibridge asked if it would be appropriate to ask for money to address the various recommendations. Dr. Quinlisk advised another recommendation about funding and implementation. A new recommendation, 7.2, was created to recommend a longer term follow-up study, similar in quality and depth to an IOM study section, to focus on these NDMS recommendations. Dr. Lillibridge then suggested keeping Recommendation 7.1 as originally written. He observed that where help is really needed is in the areas of policy and funding, because the operators in the field are strong. He did, however, suggest changing "asks" to "respectfully requests."

Recommendation 7.1 now reads as follows:

RECOMMENDATION 7.1

The ASPR should consider this report and recommendations of the NBSB. The NBSB would respectfully request feedback at our spring/summer 2009 meeting concerning each recommendation above as to whether it has: 1) essentially already been implemented; 2) will be implemented; or 3) will not be implemented, with reasons if possible.

Recommendation 7.2 was added and reads as follows:

RECOMMENDATION 7.2

As follow-up to the NBSB report, the HHS/ASPR should request a study by the Institute of Medicine that would assess and evaluate the current status and progress of the NDMS program and make recommendations for future directions.

Dr. Quinlisk announced that it was time to take the vote by voting members of NBSB. She suggested voting on the recommendations on as a whole, which was seconded. She explained that she would call roll as to "yes" or "no." If approved, the recommendations as modified that afternoon would be sent to the Secretary along with a copy of the full report.

Dr. Quinlisk called the roll, and the voting members of NBSB responded as follows:
Dr. Berkelman (absent)
Dr. Cantrill: yes
Dr. Carlin: yes
Mr. Di Rienzo: yes
Dr. Dretchen: yes
Dr. Grabenstein: yes
Dr. James: yes
Dr. MacVittie (absent)
Dr. Parker: yes
Dr. Pavia: yes
Dr. Rose: yes
Dr. Scannon: yes
Dr. Quinlisk: yes

Dr. Quinlisk declared a majority; therefore the recommendations and report were voted on and approved. The modified recommendations and report will go to the Secretary of HHS.

UPDATES ON OTHER NBSB ACTIVITIES
Patricia Quinlisk, M.D., M.P.H., Chair, NBSB

The next NBSB meeting is scheduled for November 18-19. At that meeting, they could expect to receive a report with recommendations for consideration and deliberation from the NBSB's Disaster Mental Health Subcommittee. They will also hear from the NBSB's U.S. Medical Countermeasures Research and Development Processes for Chemical, Biological, Radiological and Nuclear Agents Working Group, and from the Disaster Medicine Working Group.

ADJOURN
Leigh Sawyer, D.V.M., M.P.H., CAPT, U.S.P.H.S., Executive Director, NBSB, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services

CAPT Sawyer thanked everyone who participated and adjourned the meeting.