

National Preparedness: Ambulance Diversions Impede Access to Emergency Rooms

Prepared for Rep. Henry A. Waxman

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EXECUTIVE SUMMARY

The devastating events of September 11 have focused attention on how well U.S. cities and states are prepared to respond to potential future terrorist attacks, including attacks with chemical, biological, and conventional weapons that could cause mass injuries. While each possible kind of attack requires its own preparation, one key element common to all is the essential role of hospitals and their emergency rooms. No matter what the disaster – terrorist bombing, anthrax attack, or contamination of the food or water supply – Americans will seek medical care in emergency rooms. In the words of one terrorism expert in testimony before Congress, "Should a bioterrorist attack on US civilians occur, hospitals would be frontline institutions for dealing with the response, regardless of the type or scale of the attack."

Unfortunately, there are warning signs that hospital emergency rooms may have difficulty responding to a terrorist attack that causes widespread injuries. Many areas around the nation have experienced "ambulance diversions," which occur when officials at crowded hospitals declare they cannot safely accept incoming emergency vehicles, causing patients to travel further distances to seek medical attention. These diversions are occurring under current conditions, even without the added stress of a terrorist attack.

Rep. Henry A. Waxman asked the Special Investigations Division to examine ambulance diversions, their impact on the access of Americans to hospital emergency rooms, and their significance for national preparedness. Because no governmental or other organization collects national data on ambulance diversions, the Special Investigations Division compiled for the investigation a database of relevant state and local news reports from around the country. This database was then analyzed to assess the magnitude and impact of ambulance diversions. This report is the first national report on ambulance diversions and their impact on preparedness.

The report finds that ambulance diversions have impeded access to emergency services in metropolitan areas in at least 22 states since January 1, 2000. More than 75 million Americans reside in the areas affected by these ambulance diversions. Multiple hospitals in these areas have repeatedly restricted access to their emergency rooms by diverting ambulances, with the result that patients had to delay needed care.

In Tucson, Arizona, so many hospitals diverted ambulances that paramedics had to struggle to find any place to bring patients. In the Boston area, ambulance diversions last year ran as much as ten times higher than in previous years. On some days in Atlanta, eight to ten hospitals diverted ambulances at the same time. In Los Angeles, two dozen emergency rooms at the heart of the area's emergency system were closed to ambulances almost one-third of the time in June 2001. Many other cities, from Denver to Cleveland to Minneapolis to Omaha, experienced similar incidents. The problem was so severe in St. Louis that the *Post-Dispatch*

¹Dr. Tara O'Toole, *Hearing on Terrorism Preparedness: Medical First Response*, House Government Reform and Oversight Committee (Sept. 22, 1999).

warned in an editorial:

[A] word to the wise: Try not to get sick between 5 p.m. and midnight, when hospitals are most likely to go on diversion. Try not to get sick or injured at all in St. Louis or Kansas City, where diversions are most frequent. And if you're unlucky enough to end up in the back of an ambulance diverted from one ER to another, use the extra time to pray.²

In at least nine states, every hospital in a local area diverted ambulances at the same time. Also in at least nine states, medical personnel have believed that these ambulance diversions and associated emergency room crowding either caused or risked severe injury or death to persons needing emergency care.

Experts consulted by the Special Investigations Division confirmed that ambulance diversions and shortages of emergency room capacity raise questions about the nation's ability to respond effectively to a terrorist attack. Dia Gainor, President of the National Association of State EMS Directors, said, "Many hospitals would have difficulty handling a mass casualty situation, including a terrorism attack." According to Dr. Robert W. Schafermeyer, President of the American College of Emergency Physicians:

Today's crowded emergency departments and the problems of ambulance diversion are powerful symptoms of a system without any surge capacity needed to deal with a sudden influx of patients from multiple car accident or from flu season, let alone thousands of patients injured in a terrorist attack. A sudden surge in demand resulting from a terrorist attack would exceed the capacity of many emergency departments and hospitals in the U.S. today.

This report is not a comprehensive assessment of the preparedness of the medical system. There are many elements of preparedness besides basic access to emergency rooms. Moreover, the absence of national data on ambulance diversions and this investigation's reliance on published articles means that more areas of the nation may be experiencing diversion problems than reported here. The findings of the report should be considered a warning sign: They are a signal that the nation's emergency response capacity is severely strained and needs enhancement.

²No Room at the ER, St. Louis Post-Dispatch (Mar. 15, 2001).

I. INTRODUCTION

After the devastating events of September 11, the possibility of a future terrorist attack on a U.S. city, including the use of chemical or biological weapons, has attracted significant attention. One key element in the response to such an attack is the preparedness of hospitals and their emergency rooms. Dr. Tara O'Toole, senior fellow at the Center for Civilian Biodefense Studies at Johns Hopkins University, testified before the House Government Reform Committee: "Should a bioterrorist attack on US civilians occur, hospitals would be frontline institutions for dealing with the response, regardless of the type or scale of the attack." As other experts have similarly recognized, "Hospitals, because of their emergency services and 24 hour a day operation, will be seen by the public [in the event of an attack] as a vital resource for diagnosis, treatment, and followup for both physical and psychological care."

Since the 1980s, however, the supply of acute care hospitals has steadily decreased. According to the American Hospital Association, one in six intensive care unit beds and over 100,000 medical or surgical beds in the United States were lost during the 1990s.⁵ Over 1,000 emergency departments closed from 1988 to 1998.⁶

Are remaining hospitals ready to respond to a terrorist attack? A key measure of access to emergency care is the frequency of "ambulance diversions," which occur when officials at crowded hospitals declare they cannot safely accept incoming emergency vehicles, with the result that patients must travel further distances to seek medical attention.⁷ According to Dr. Mark Henry, chair of the medical advisory committee for New York State's emergency medical system, "When hospitals are telling ambulances to go somewhere else, they're telling people in the community 'We can't take care of you,' and there's a question of community readiness."

³Dr. Tara O'Toole, *Hearing on Terrorism Preparedness: Medical First Response*, House Government Reform and Oversight Committee (Sept. 22, 1999).

⁴American Hospital Association, *Hospital Preparedness for Mass Casualties* (August 2000).

⁵American Hospital Association, *Emergency Departments – An Essential Access Point to Care*, Trendwatch (March 2001).

⁶ER Conditions: Critical, USA Today (Feb. 4, 2000).

⁷Under the Emergency Medical Treatment and Active Labor Act (EMTALA), hospitals cannot close their emergency rooms to individuals who arrive at the hospital by means other than ambulance.

⁸Bursting Seams, Newsday (Jan. 8, 2001).

Rep. Henry A. Waxman asked the Special Investigations Division of the minority staff of the Committee on Government Reform to investigate ambulance diversions as a measure of access to essential emergency care and national preparedness. This report presents the results of this investigation. It is the first report to examine the problem of ambulance diversions on a national basis.

II. METHODOLOGY

No governmental or private organization tracks the frequency and duration of ambulance diversions across the United States. In the absence of such a resource, the Special Investigations Division assembled a database of state and local news reports, mainly from newspapers and magazines, obtained through the Lexis/Nexis and Westlaw services. More than 130 reports were identified since January 1, 2000. The subject terms used included "emergency department," "emergency room," [state], and "diversion*." Additional searches using more specific terms were conducted based on initially identified articles.

Each article was reviewed for six elements: (1) statistics relating to ambulance diversions and loss of hospital capacity; (2) the perspectives of state and local health officials; (3) whether all area hospitals were diverting ambulances at the same time (or where comprehensive statistics were not available, whether ambulance drivers reported an inability to find a hospital accepting patients); (4) whether medical personnel have believed that ambulance diversions or associated emergency room crowding have either risked or caused severe injury or death to persons needing emergency room care; (5) factors cited as possible causes of the problem; and (6) steps being taken to improve access to emergency care.

Not all ambulance diversions indicate a serious problem in access to emergency services. Even the best hospitals may have to reduce emergency room access on rare occasions. For example, ambulances may need to be diverted after a major automobile accident, when all specialized trauma beds are filled and nearby hospitals have openings. In this report, states were classified as experiencing a substantial problem only if the state or a metropolitan area within the state experienced many ambulance diversions and reports indicated significantly impeded access to emergency services.

This report should not be considered a comprehensive national survey of access to emergency room care. Because of the lack of a national database of ambulance diversions, this report relies on published articles to indicate the existence of diversion problems at the state and local level. If an area experienced widespread ambulance diversions that impeded access to emergency room care, but there was no report on the diversions in the local media, the diversions would not be included in this report. As a result, more states and areas may have experienced ambulance diversions that impeded access to emergency rooms than are reported here.

III. FINDINGS

A. Ambulance Diversions Are a Widespread Problem

Ambulance diversions have been reported in at least 32 states since January 2000. Substantial problems accessing emergency services occurred in at least 22 of these states. The affected metropolitan areas in these states are home to more than 75 million people, according to figures from the 2000 census. These areas are displayed in Figure 1.

For example, after losing 24% of its hospital beds between 1988 and 1998,¹¹ Massachusetts has been battling a growing problem of ambulance diversions. Last winter, hospitals in the southeastern part of the state closed to ambulances for 677 hours of diversions in December 2000 alone.¹² On some occasions, as many as six Boston hospitals diverted ambulances simultaneously.¹³ Public health authorities are investigating at least two deaths associated with the diversions.¹⁴ "It's like calling 911 and being told the police and fireman can't come," said Dr. Alan Woodward, chief of emergency services at Emerson Hospital in Concord, Massachusetts.¹⁵ He added: "We are basically the canary that's telling the story that the whole system is in trouble, its capacity is inadequate to meet the peak demands."¹⁶

⁹These states are Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Washington.

¹⁰These states are Arizona, California, Colorado, Connecticut, Florida, Georgia, Kentucky, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Texas, Virginia, Wisconsin, and Washington.

¹¹Trouble in the ER, National Journal (May 19, 2001).

¹²ER Diversions Rose Again at Year-End, Boston Globe (Jan. 6, 2001).

¹³ER Diversions of Ambulances Skyrocket in Mass., Boston Herald, (Jan. 26, 2001).

¹⁴Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

¹⁵ER Diversions Rose Again at Year-End, Boston Globe (Jan. 6, 2001).

¹⁶Emergency Crews Worry as Hospitals Say 'No Vacancy,' New York Times (Dec. 17, 2000).



Figure 1: Selected Cities Where Problems with Ambulance Diversions Have Been Reported Since January 1, 2000

In at least nine states, ambulance diversions became so severe that every local hospital in a particular area diverted patients at the same time. During such a crisis, paramedics may waste valuable time as they drive around in search of an accessible hospital. These states include:

- **Arizona**, where "so many [Tucson] hospital emergency rooms were on divert at the same time that paramedics often had no place to take patients" and where "[m]etropolitan Phoenix's 29 emergency rooms simultaneously closed on eight occasions between January and April." ¹⁸
- Colorado, where paramedics in Denver have at times been "driving around going

¹⁷Emergency Room Visits Are Up Even as Hospitals Are Closing, Arizona Daily Star (Mar. 16, 2001).

¹⁸Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

- 'Where do we go? What do we do with this patient?'"19
- **Nevada**, where all of the hospitals near Las Vegas were on "divert status" at times last summer because "every hospital in this valley is full."²⁰
- **Wisconsin**, where "a few times a month, all three ERs [in Madison] are full."²¹

Other states where every hospital in a local area diverted ambulances are Missouri, ²² Pennsylvania, ²³ Texas, ²⁴ Virginia, ²⁵ and Washington. ²⁶

Also in at least nine states, medical personnel have concluded that ambulance diversions or associated emergency room crowding risked severe injury or death. In Massachusetts, 80% of emergency room directors said they had been forced to divert ambulances and 38% said they had seen "adverse events." ²⁷ A San Francisco emergency physician wrote, "it is becoming a public health crisis. . . . Unless something is done soon, somebody will die because of [ambulance diversions]. It could be you, it could be a family

¹⁹Traffic Jam in the ER, Rocky Mountain News (Aug. 4, 2001).

²⁰A Higher Priority, Las Vegas Review-Journal (Aug. 27, 2000).

²¹ERs Are Stuffed, Stressed, Wisconsin State Journal (Jan. 13, 2001).

²²Overcrowded Emergency Rooms Force Ambulances To Go Elsewhere, St. Louis Post-Dispatch (Jan. 28, 2001) (a St. Louis paramedic reported "pulling over to the side of the road" because repeated calls to hospitals found them all on diversion).

²³PA Senators Told of ERs in Crisis; Crowded Hospitals Diverting Patients, Pittsburgh Post-Gazette (Feb. 6, 2001) (frustrated ambulance drivers in the central part of the state "scurried to find any hospital that would accept more patients").

²⁴Hospitals with Crowded Emergency Rooms Seek Break, Houston Chronicle (Mar. 16, 2001) (paramedics in Houston became "frustrated . . . trying to find a hospital that's open").

²⁵Diverting Patients on the Rise at Area Hospitals, Daily Press (Feb. 23, 2000) (paramedics in the southern part of the state were told "everybody was on divert").

²⁶A Diversion of Care, The Columbian (Mar. 26, 2000).

²⁷Emergency Crews Worry As Hospitals Say, 'No Vacancy,' New York Times (Dec. 17, 2000).

member or it could be a friend."28 Similarly:

- An emergency room director in Albuquerque said, "Basically, people die because of situations like this." ²⁹
- A Minneapolis emergency room nurse said that an adverse outcome "is going to happen. . . . And all of us pray that it's not us and [not] on our shift."³⁰
- San Antonio's Emergency Medical Services Director said, "If we get the flu like all the people are saying, and we generate the acute care need expected, there's going to be a lot of people dying that don't need to die."³¹
- A Las Vegas emergency department director warned that during flu season, "We're going to have extended ambulance response times, people climbing the walls in waiting rooms and people dying."³²
- The emergency services director in Orange County, Florida, warned, "If there are four or five ambulances waiting at the hospital, and you're at home having a heart attack, it's going to take longer for the next-closest ambulance to get to you." 33
- A Northern Virginia emergency physician wrote, "When forced to maneuver so many sick patients through an overwhelmed system, I just don't know if I'm doing a good job anymore."³⁴

²⁸Scott Campbell, *On the Edge of a Health Care Disaster*, San Diego Union-Tribune (Jan. 24, 2001).

²⁹Critical Condition, Albuquerque Journal (May 6, 2001).

³⁰Packed ERs Saying No to Ambulances, Star Tribune (Jan. 7, 2001).

³¹Emergency Crews Worry as Hospitals Say, 'No Vacancy,' New York Times (Dec. 17, 2000).

³²Emergency Rooms in Crisis, Las Vegas Review-Journal (Aug. 17, 2000).

³³Waits Get Longer, Diversions More Common, Orlando Sentinel (Feb. 4, 2001).

³⁴J.B. Orenstein, *State of Emergency*, Washington Post (Apr. 22, 2001).

These crises in access to emergency care have occurred under current conditions without the added stress of a terrorist attack. As Deborah Love, executive director of the Richmond Academy of Medicine, wrote:

There was no natural disaster. No earthquake had leveled the city; no bioterrorist had released anthrax at the airport. There was no pile-up on I-95. Yet, the matter was grave. Rescue squads, carrying very ill persons, for whom seconds can matter, were hard-pressed to find an emergency room open for business. On both sides of the James, hospitals were telling emergency crews to turn back, go elsewhere – not an enviable position for the patient, the squad or the hospital. But on a cold winter night in January, in this region with 12 hospitals, that is precisely what happened. Simply, put there were too many sick people and not enough hospital beds.³⁵

Specific statistics and perspectives from the 22 states are described in the Appendix.

B. Reported Causes

In the 22 states with ambulance diversions that significantly impeded access to emergency medical services, reports have cited three major contributing factors: a decrease in the supply of hospital and emergency services, an increase in the demand for hospital and emergency services, and local hospital and EMS policies.

The loss of hospital capacity was considered a proximate cause of ambulance diversions in many of the states. As communities lose hospital beds, those institutions that survive accrue greater responsibility for emergency services. At some point, this responsibility overwhelms the area's resources.

According to reports, several factors have caused hospitals and emergency rooms to close:

- Managed care companies have used their market power to reduce hospital rates, forcing some hospitals to close emergency rooms or go bankrupt.³⁶
- Some hospitals cannot afford to provide uncompensated care to uninsured individuals in emergency rooms. Under the Emergency Medical Treatment and

³⁵Nursing Shortage Puts ERs at Risk, Richmond Times Dispatch (Feb. 25, 2001).

³⁶See, e.g., *Trouble in the ER*, National Journal (May 19, 2001) ("Insurance companies have been under pressure from employers to lower health care costs, so they've lowered payments to doctors and hospitals"); *Area ERs Increasingly Post No-Vacancy Sign*, Philadelphia Business Journal (Jan. 12, 2001) (according to Dr. Michael Chamsky, chair of emergency medicine at the Cooper Health System, "If we got reimbursed fairly for the services we provide, we could open more beds and maintain more beds and have better throughput through the [entire hospital] system").

Active Labor Act (EMTALA), hospitals cannot deny emergency medical treatment to anyone who arrives needing care. When those individuals are uninsured, however, the hospital often pays some or all of the bill. The result, as one expert explained, is that "[s]ome hospitals have closed their emergency departments so they won't have to take uninsured."³⁷

- Federal cutbacks to the Medicare program have reduced hospital payments by \$140 billion.³⁸
- Many hospitals have difficulty hiring sufficient staff, especially nurses. According to Carmela S. Coyle of the American Hospital Association, "If the issue was just physical beds, the problem could be solved in no time. The issue is, do we have the adequate human resources to staff these beds. And we don't."³⁹

Complicating the effects of the loss of hospital services is rising demand for care. There were over 10 million more emergency room visits in 1999 than in 1990.⁴⁰ Fueling this increase are such factors as population growth,⁴¹ an aging population,⁴² and decreased access to primary care physicians.⁴³

A third contributor to ambulance diversions are local policies. In some areas, there are no common standards for allowing hospitals to divert ambulances, leading to confusion for paramedics and potential abuses. In some cases, for example, hospitals have admitted that staff blocked access to ambulances already on hospital property, in violation of the hospitals' legal obligations to provide emergency room care under EMTALA.⁴⁴

³⁷Trouble in the ER, National Journal (May 19, 2001).

³⁸Trouble in the ER, National Journal (May 19, 2001).

³⁹Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

⁴⁰American Hospital Association, *Emergency Departments – An Essential Access Point to Care*, Trendwatch (March 2001).

⁴¹See, e.g., *Hospitals Divert Patients*, Northern Colorado Business Review (Sept. 7, 2001). ("Northern Colorado's soaring population is outpacing the ability of some hospitals to treat patients").

⁴²See, e.g., *A Mob Scene in the ER*, Buffalo News (Nov. 13, 2000).

⁴³See, e.g., ER Diversions Rose Again at Year-End, Boston Globe (Jan. 6, 2001).

⁴⁴See, e.g., Woman Diverted From Emergency Room Gets Apology From the Hospita; On Way to Second Hospital, She Had a Heart Attack, St. Louis Post-Dispatch (Feb. 4, 2001).

C. Reported Steps to Address Problem

Several states have attempted to address the problem of ambulance diversions. These responses generally fall into two categories. First, some local areas have aimed to improve their diversion policies. ⁴⁵ One model for appropriate diversion policies are the guidelines published by the American College of Emergency Physicians. ⁴⁶ Second, some hard-hit areas are also trying to encourage the opening of some new hospital beds and expansion of emergency services. ⁴⁷

However, both of these approaches have limits. While streamlined diversion policies make emergency care systems more fair and efficient, they do not address the underlying lack of capacity in hospital services. And while any new beds are welcome, it is not widely expected these measures alone will solve the problem, given the economic forces at play.⁴⁸ According to the *Los Angeles Times*:

Most government and medical leaders concede that the repairs they are making to emergency care systems around the country are little more than stopgap measures. Many say it will take a galvanizing event . . . to bring about changes. ⁴⁹

D. The Views of Experts

In addition to compiling and analyzing a database of articles on hospital diversions, the Special Investigations Division also sought the views of experts, such as the American College of Emergency Physicians and the National Association of State EMS Directors. These experts confirmed that ambulance divisions are a national problem with significant implications for emergency preparedness.

Dr. Robert W. Schafermeyer, President of the American College of Emergency Physicians, wrote to Rep. Waxman:

⁴⁵See, e.g., *Internet System Keeps Tabs on Hospitals' ERs*, Denver Post (May 24, 2001).

⁴⁶American College of Emergency Physicians, *Guidelines for Ambulance Diversion*, Annals of Emergency Medicine, 376-7 (October 2000). These guidelines include such topics as using diversions as a last resort, defining criteria prospectively, and having a plan for the case that all area hospitals are on diversion.

⁴⁷See, e.g., *ER Expansion Aimed At Patients*, The Boston Globe (Feb. 8, 2001); *Tampa, Fla-Area Hospitals Make Emergency Upgrades to Busy Trauma Centers*, Knight-Ridder Business News (June 7, 2001).

⁴⁸See, e.g., *Hospitals Expand, But Where are the Beds?*, Rocky Mountain News (Aug. 4, 2001).

⁴⁹Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

[C]rowded emergency departments and dangerous ambulance diversion are major problems in hospitals across the United States. Many, if not most, of the nation's emergency departments are operating at critical capacity, which is a symptom of our nation's health care system in crisis, and the problem is growing. An informal survey of crowding and ambulance diversion by the American College of Emergency Physicians showed the problem is occurring nationwide, to varying degrees.⁵⁰

Dr. Schafermeyer also stated that ambulance diversion and overcrowded emergency departments impair emergency readiness because they mean that there is no available "surge capacity":

Today's crowded emergency departments and the problems of ambulance diversion are powerful symptoms of a system without any surge capacity needed to deal with a sudden influx of patients from multiple car accident or from flu season, let alone thousands of patients injured in a terrorist attack. A sudden surge in demand resulting from a terrorist attack would exceed the capacity of many emergency departments and hospitals in the U.S. today.⁵¹

The state officials in charge of emergency medical services expressed a similar view. Dia Gainor, President of the National Association of State EMS Directors stated, "EMS directors see diversion as a problem because it ties up EMS personnel, delays responses and transports and puts patients in potentially unsafe clinical settings." She further stated:

We have lost the capacity of [emergency rooms] and hospitals to care for patients on a day-to-day basis. Where hospitals have reduced the number of beds so close to the daily average needs, in times of increased demand a sudden influx of patients is difficult or impossible to accommodate. Hospitals take aggressive action when an acute mass casualty event occurs: activation of disaster plans, mobilization of additional personnel, triage of patients and prioritization of bed availability. In reality, beds needed for critically ill and injured people, such as intensive care and surgical recovery, may already be full, and it will take time to get patients discharged and free up capacity. Many hospitals would have difficulty handling a mass casualty situation, including a terrorism attack.⁵³

⁵⁰Letter from Dr. Robert W. Schafermeyer, President of the American College of Emergency Physicians, to Rep. Henry A. Waxman (Oct. 12, 2001).

⁵¹Letter from Dr. Robert W. Schafermeyer, President of the American College of Emergency Physicians, to Rep. Henry A. Waxman (Oct. 12, 2001).

⁵²Letter from Dia Gainor, President of the National Association of State EMS Directors, to Committee on Government Reform staff (Oct. 10, 2001).

⁵³Letter from Dia Gainor, President of the National Association of State EMS Directors, to Committee on Government Reform staff (Oct. 10, 2001).

IV. CONCLUSION

Numerous factors will determine the ability of the nation's medical system to respond to a terrorist attack. The factors include the ability of the system to detect biological agents, such as anthrax, and the availability of antibiotics, vaccines, and other medicines. This report examines one important component of readiness: ambulance diversions and their impact on access to hospital emergency rooms.

More than 130 news reports since January 1, 2000, indicate that ambulance diversions are a problem across the United States, seriously impairing access to emergency care in at least 22 states. This finding indicates that our nation's emergency response capacity is severely strained. While states and localities are taking steps to streamline the ambulance diversion process and, in some areas, to open new beds, these efforts are likely to be insufficient. Increased attention to access to emergency care must be considered as part of any effort to upgrade the preparedness of U.S. cities and states.

Appendix: State-by-State Analysis of Ambulance Diversions

1. Arizona

Ambulance diversions have been reported in: <u>Tucson and Phoenix areas</u>.

- On several occasions in Tucson, so many emergency rooms were diverting ambulances at the same time that paramedics had no place to take patients.⁵⁴
- Metropolitan Phoenix's 29 emergency rooms simultaneously closed eight times between January and April.⁵⁵

"It's becoming disastrous. We're traveling across town, shopping for hospitals."

-Tucson Fire Captain Joe Gulotta⁵⁶

⁵⁴Emergency Room Visits Are Up Even as Hospitals Are Closing, Arizona Daily Star (Mar. 16, 2001).

⁵⁵Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

⁵⁶ER conditions: Critical, USA Today (Feb. 4, 2000).

2. California

Ambulance diversions have been reported in: <u>Los Angeles, San Francisco, and Sacramento</u> areas.

- Two dozen emergency rooms "at the heart of the Los Angeles County's emergency system" were closed to ambulances more than one-fourth of the time in May 2001 and almost one-third of the time in June 2001.⁵⁷
- Eighteen Sacramento-area hospitals were closed to ambulances a total of 11,097 hours in the year 2000, more than twice the previous year's total.⁵⁸
- Fifty California emergency rooms closed between 1990 and 1999.⁵⁹ Two more hospitals in the Los Angeles area are threatening to close.⁶⁰

"It is wrong and it is becoming a public health crisis. Unless something is done soon, somebody will die because of it. It could be you, it could be a family member or it could be a friend. And it is going to get worse."

– Emergency Physician Scott Campbell, M.D.⁶¹

⁵⁷Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

⁵⁸Region's ERs Have No Room to Spare, Sacramento Bee (Mar. 24, 2001).

⁵⁹Region's ERs Have No Room to Spare, Sacramento Bee (Mar. 24, 2001).

⁶⁰Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

⁶¹Scott Campbell, *On the Edge of a Health Care Disaster*, San Diego Union-Tribune (Jan. 24, 2001).

3. Colorado

Ambulance diversions have been reported in: Denver area.

- Denver metro emergency rooms were "on divert" for 7,125 hours in 2000.⁶²
- On every day of 2000, at least one Denver-area hospital diverted ambulances. On 83 days, at least three hospitals were diverting at the same time. 63
- Visits to emergency rooms in the Denver area have soared 25% in the last five years. There were no new emergency room facilities added in that period.⁶⁴

"We are struggling big-time, and I know we are not at all unique."

- Dr. Sheldon Stadnyk, Exempla St. Joseph Hospital⁶⁵

"The problem becomes when four or five contiguous hospitals get in that same mode. Now the ambulance people are driving around going 'Where do we go? What do we do with this patient?'"

- Dr. Peter Vellman, St. Anthony Hospitals⁶⁶

⁶²Traffic Jam in the ER, Rocky Mountain News (Aug. 4, 2001).

⁶³Traffic Jam in the ER, Rocky Mountain News (Aug. 4, 2001).

⁶⁴Traffic Jam in the ER, Rocky Mountain News (Aug. 4, 2001).

⁶⁵Traffic Jam in the ER, Rocky Mountain News (Aug. 4, 2001).

⁶⁶Traffic Jam in the ER, Rocky Mountain News (Aug. 4, 2001).

4. Connecticut

Ambulance diversions have been reported in: Connecticut hospitals.

• Between November 1, 2000, and January 15, 2001, there were 37 diversions by 11 hospitals statewide.⁶⁷

"We're down to the bone, not just muscle or fat."

- Dr. Peter Jacoby, St. Mary's Hospital⁶⁸

"If and when the flu does hit, we're not sure what we're going to be able to do."

– Dr. Steven Wolf, New Britain General Hospital⁶⁹

"There's overcrowding, where you have patients waiting for beds and a constant stream of patients coming into the ER, then surges caused by the flu or the weather are really the straw that breaks the camel's back."

- Dr. Michael Carius, Norwalk Hospital⁷⁰

⁶⁷Winter, Health Care Trends Drag on ER, Hartford Courant (Jan. 25, 2001).

⁶⁸Winter, Health Care Trends Drag on ER, Hartford Courant (Jan. 25, 2001).

⁶⁹Winter, Health Care Trends Drag on ER, Hartford Courant (Jan. 25, 2001).

⁷⁰Hospitals With Too Few Beds, Workers Are Stressed to the Limit, Associated Press (Jan. 10, 2001).

5. Florida

Ambulance diversions have been reported in: Orlando and Boca Raton areas.

- In the first few months of this year, one hospital turned patients away on 38 days, diverting them to facilities that were up to 45 minutes away.⁷¹
- Boca Raton Community Hospital's emergency room will see about 53,000 patients this year, up from 32,000 four years ago.⁷²

"Unlike the past, ambulance diversions now occur year-round." This has led to "unacceptably long transport time intervals."

– Florida Agency for Health Care Administration⁷³

"It used to be that 20 or 30 minutes was a big deal to me. Well, that's kind of a moot point anymore. Thirty minutes is nothing."

– Jeff Ward, Seminole County EMS/Fire Rescue, referring to how long it takes drop off patients at an emergency department⁷⁴

⁷¹Emergency Response May Take Longer, Overcrowded LRMC Turning Patients Away, Orlando Sentinel (Apr. 8, 2001).

 $^{^{72}}Rescue\ Officials\ Rebuff\ Packer-ER\ Alert\ System,$ South Florida Sun-Sentinel (May, 11 2001).

⁷³Area Hospitals Make Emergency Upgrades to Busy Trauma Centers, Knight Ridder Tribune Business News (June 7, 2001).

⁷⁴Waits Get Longer, Diversions More Common, Orlando Sentinel (Feb. 4, 2001).

6. Georgia

Ambulance diversions have been reported in: Atlanta area.

- On a typical day in metro Atlanta, two to three large hospitals divert ambulances. On some days eight to ten hospitals divert ambulances.⁷⁵
- One Atlanta hospital averages 400 to 500 hours of diversion a month.⁷⁶

"I'm concerned we're on a precipice waiting to fall off."

- Dr. Ken Miller, St. Joseph's Hospital⁷⁷

After being diverted by the closest hospital, an ambulance crew waited at a road exit for 18 minutes trying to find an available hospital. The patient went into respiratory arrest and the closest hospital then accepted him "because of his deteriorating condition." ⁷⁸

⁷⁵*Too Crowded Hospitals Play Diverting Game*, Atlanta Journal and Constitution (June 15, 2001).

⁷⁶Too Crowded Hospitals Play Diverting Game, Atlanta Journal and Constitution (June 15, 2001).

⁷⁷*Too Crowded Hospitals Play Diverting Game*, Atlanta Journal and Constitution (June 15, 2001).

⁷⁸*Too Crowded Hospitals Play Diverting Game*, Atlanta Journal and Constitution (June 15, 2001).

7. Kentucky

Ambulance diversions have been reported in: Louisville area.

- Ten Louisville turned away ambulances 2,032 times last year, up from 533 times in 1998.⁷⁹
- On 16 occasions in three weeks diversion was canceled in Jefferson County because all or most of the hospitals were trying to divert ambulances.⁸⁰

"We're cutting it real close to the bone."

- Dr. Daniel O'Brien, Jefferson County Medical Society⁸¹

⁷⁹Hospitals Turning Away More Ambulances, Courier-Journal (Feb. 11, 2001).

⁸⁰Hospitals Turning Away More Ambulances, Courier-Journal (Feb. 11, 2001).

⁸¹Hospitals Turning Away More Ambulances, Courier-Journal (Feb. 11, 2001).

8. Massachusetts

Ambulance diversions have been reported in: <u>central and eastern Massachusetts</u>, <u>including</u> the Boston area.

- In December 2000, hospitals in the greater Boston area had to divert ambulances a total of 677 times.⁸²
- On one day in January 2001, six hospitals in Boston were on diversion at one time.⁸³
- Ten times as many hospitals in southeastern Massachusetts closed emergency rooms in 2000 as compared with the year before.⁸⁴

"Last fall, a 55-year-old Cambridge woman suffering chest pains sought to be taken to a hospital where she had just been treated for a heart attack. But, according to a state investigative file, the hospital's ER was overcrowded, and the ambulance carrying her was turned away. Mass General's ER also turned her away, and the woman ended up at a third facility, which was not equipped to provide advanced cardiac treatment. By the time doctors there realized what the patient needed and sought to have her transferred to the first hospital, it was too late. She died."85

"We are basically the canary that's telling the story that the whole system is in trouble, its capacity is inadequate to meet the peak demands."

– Dr. Alan Woodward, Emerson Hospital⁸⁶

"This is a symptom of an entire health care system under extreme stress."

- Dr. Howard Koh, Commissioner of Public Health⁸⁷

⁸²ER Diversions Rose Again at Year-End, Boston Globe (Jan. 6, 2001).

⁸³ER Diversions of Ambulances Skyrocket in Mass., Boston Herald (Jan. 26, 2001).

⁸⁴ER Diversions Rose Again at Year-End, Boston Globe (Jan. 6, 2001).

⁸⁵Private Prosperities, Public Breakdowns, Los Angeles Times, (Aug. 6, 2001).

⁸⁶Emergency Crews Worry as Hospitals Say, 'No Vacancy,' New York Times (Dec. 17, 2000).

⁸⁷ER Conditions: Critical, USA Today (Feb. 4, 2000).

9. Minnesota

Ambulance diversions have been reported in: Twin Cities area.

- In 2000, Twin Cities hospitals closed their doors to ambulances about one thousand times.⁸⁸
- The rate of diversions was about twice the previous year in some areas.⁸⁹

"I've not seen anyone that has had a negative outcome yet. It's going to happen, though.

And all of us pray that it's not us and [not] on our shift."

- Marie Stewe, emergency department nurse⁹⁰

⁸⁸Packed ERs Saying No to Ambulances, Star-Tribune (Jan. 7, 2001).

⁸⁹Packed ERs Saying No to Ambulances, Star-Tribune (Jan. 7, 2001).

⁹⁰Packed ERs Saying No to Ambulances, Star-Tribune (Jan. 7, 2001).

10. Missouri

Ambulance diversions have been reported in: St. Louis area.

- One St. Louis hospital closed its emergency room to ambulances 25% of the time in January and February of 2001. Five other hospitals in the area diverted ambulances at least 10% of the time.⁹¹
- On at least one occasion 14 of the 16 adult emergency rooms in St. Louis and St. Louis County were diverting ambulances at the same time. 92 One St. Louis hospital diverted ambulances for 40 straight hours. 93

After being diverted from two hospitals, a woman with chest pains suffered a heart attack en route to the third hospital. She was admitted in critical condition. ⁹⁴ Another woman was turned away from a hospital and 22 minutes later suffered a heart attack while on the way to another hospital. ⁹⁵

"[A] word to the wise: Try not to get sick between 5 p.m. and midnight, when hospitals are most likely to go on diversion. Try not to get sick or injured at all in St. Louis or Kansas City, where diversions are most frequent. And if you're unlucky enough to end up in the back of an ambulance diverted from one ER to another, use the extra time to pray."

– Editorial, St. Louis Post-Dispatch⁹⁶

⁹¹Hospitals Release First Data on Hours They Diverted Ambulances, St. Louis Post-Dispatch (Mar. 11, 2001).

⁹²Overcrowded Emergency Rooms Force Ambulances to Go Elsewhere, St. Louis Post-Dispatch (Jan. 28, 2001).

⁹³Hospitals Release First Data on Hours They Diverted Ambulances, St. Louis Post-Dispatch (Mar. 11, 2001).

⁹⁴Overcrowded Emergency Rooms Force Ambulances to Go Elsewhere, St. Louis Post-Dispatch (Jan. 28, 2001).

⁹⁵Woman Diverted From Emergency Rooms Get Apology From the Hospital, St. Louis Post-Dispatch (Feb. 4, 2001).

⁹⁶No Room at the ER, St. Louis Post-Dispatch (Mar. 15, 2001).

11. Nebraska

Ambulance diversions have been reported in: Omaha and Lincoln areas.

- Omaha emergency rooms closed to ambulances 72 times in the first two months of this year, up from 12 in the first two months of 2000. 97
- At times this year, four of Omaha's seven emergency rooms have been closed to ambulances. 98

"That's the first time we've ever been closed for that amount of time."

– Nurse Manager Gary Mielke, St. Joseph Hospital, after the hospital diverted ambulances for 40 hours in a six-day period in February⁹⁹

⁹⁷When Ambulances Must Go Elsewhere, Omaha World-Herald (Mar. 7, 2001).

⁹⁸Hospitals Will Limit ER closings, Omaha World-Herald (Apr. 16, 2001).

⁹⁹When Ambulances Must Go Elsewhere, Omaha World-Herald (Mar. 7, 2001).

12. Nevada

Ambulance diversions have been reported in: Las Vegas area.

- Earlier this year, southern Nevada emergency rooms turned patients away half the time. 100
- Hospitals in the Las Vegas Valley diverted ambulances 50% of the time in February 2001, up from 18% of the time in February 2000. 101

"Everyone goes on 'superdivert' status several times a week. . . . It's a big problem."

 Becki Powell, spokeswoman for Sunrise Medical Hospital Center in Las Vegas¹⁰²

"Not only can the hospital not take you, but you're not going to get an ambulance either because we're sitting at the hospital."

– Sandy Young, Las Vegas Fire and Rescue, explaining what happens when too many hospitals are diverting and ambulances must wait 103

¹⁰⁰Patient Volume Prompts Las Vegas Hospital Diversions, Associated Press (Mar. 1, 2001).

¹⁰¹Patient Volume Prompts Las Vegas Hospital Diversions, Associated Press (Mar. 1, 2001).

¹⁰²Patient Volume Prompts Las Vegas Hospital Diversions, Associated Press (Mar. 1, 2001).

¹⁰³Emergency Rooms in Crisis, Las Vegas Review and Journal (Aug. 17, 2000).

13. New Jersey

Ambulance diversions have been reported in: Newark and Camden areas.

• One hospital in Camden diverted patients for 1,556 hours in 2000, up from 410 hours in 1999. 104

"This is the worst I've seen in 20 years. . . . Our hospital is filled to capacity, and we have used every available nook and cranny."

 $-\,$ Mark Rosenberg, Saint Clare's Hospital, during 2000 flu season 105

¹⁰⁴Area ER's Increasingly Post No-Vacancy Sign, Philadelphia Business Journal (Jan. 12, 2001).

¹⁰⁵Trickle of Cases is Now a Flood, Star-Ledger (Jan. 6, 2000).

14. New Mexico

Ambulance diversions have been reported in: Albuquerque area.

- In January 2001, at least three of nine Albuquerque hospitals were on caution or closed at the same time on 161 occasions. In February, it happened 132 times. In March, it happened 185 times. ¹⁰⁶
- From January to April 2001, Albuquerque ambulance crews spent more than 400 hours waiting to hand over patients to hospitals. 107

"We do the very best we can, but a disaster is going to happen. Basically people die because of situations like this."

– Dr. Haywood Hall, emergency room director of the Heart Hospital¹⁰⁸

¹⁰⁶Critical Condition, Albuquerque Journal (May 6, 2001).

¹⁰⁷Critical Condition, Albuquerque Journal (May 6, 2001).

¹⁰⁸Critical Condition, Albuquerque Journal (May 6, 2001).

15. New York

Ambulance diversions have been reported in: <u>New York City, Nassau County and the</u> Buffalo areas.

- There were 2,247 diversions at city hospitals in December 2000.¹⁰⁹
- In one week, five hospitals in Nassau County alerted police that they were out of beds and cardiac monitors. 110

"When you buy a house in a community, you ask about the schools; you just assume the emergency services are going to be there. Perhaps you should be asking if there's a bed for you-if someone will be prepared to see you when it's your day of need."

- Dr. Mark Henry, Stonybrook Hospital¹¹¹

"We use our halls, or what is affectionately known in our department as Halls A, B and C... and what you wind up having is patients who are within several feet of each other. The requirements for good medical care, such as breast examinations, rectal examinations or electrocardiograms, to try to do that with any sense of personal decency is out of the window. It is impossible under those circumstances."

- Dr. Gerald Brody, Winthrop-University Hospital¹¹²

 $^{^{109}}$ Fewer Ambulances Turned Away from Emergency Rms., Daily News (Feb. 13, 2001).

¹¹⁰Bursting Seams, Newsday (Jan. 8, 2001).

¹¹¹Bursting Seams, Newsday (Jan. 8, 2001).

¹¹²Bursting Seams, Newsday (Jan. 8, 2001).

16. North Carolina

Ambulance diversions have been reported in: Raleigh area.

- In an average month in the year 2000, one Wake County hospital was on diversion for the equivalent of four days and another for three and one-half days.¹¹³
- Some hospitals in Wake County diverted ambulances twice as often in 2000 as in 1998. 114

"It's just an everyday occurrence."

Joseph Zalkin, assistant director of Wake County
 Emergency Medical Services¹¹⁵

¹¹³When Ambulances Are Turned Away, News and Observer (Feb. 4, 2001).

¹¹⁴When Ambulances Are Turned Away, News and Observer (Feb. 4, 2001).

¹¹⁵When Ambulances Are Turned Away, News and Observer (Feb. 4, 2001).

17. Ohio

Ambulance diversions have been reported in: Cleveland area and Cuyohoga County.

- Metropolitan Cleveland's 22 emergency rooms were simultaneously shut for almost 10% of May 2001.¹¹⁶
- Last year, hospitals in Cuyahoga County diverted ambulances 1,618 days more than four times as many days as in 1998. In the first few weeks of 2001, six hospitals in Cuyahoga County turned away ambulances more than 40% of the time. 117
- Cleveland Clinic, "in the heart of the city," restricted ambulances for a total of 175 days last year. 118

In the Cleveland suburb of Parma, Rob Balodis was diverted because of emergency room overcrowding to Parma Community General Hospital, "which did not have the specialists he needed." His mother said: "The [Parma] doctors asked me, 'Why is he here? . . . Well, we really can't help.' "He died 15 hours after arriving at Parma. 119

"This is the worst I've seen it in 25 years. . . . There are no ports in the storm."

- Cleveland paramedic 120

¹¹⁶Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

¹¹⁷Will Your ER Be There for You?, Plain Dealer (Apr. 1, 2001).

¹¹⁸Will Your ER Be There for You?, Plain Dealer (Apr. 1, 2001).

¹¹⁹Private Prosperities, Public Breakdowns, Los Angeles Times (Aug. 6, 2001).

¹²⁰Will Your ER Be There for You?, Plain Dealer (Apr. 1, 2001).

18. Pennsylvania

Ambulance diversions have been reported in: Philadelphia, Pittsburgh and Harrisburg areas.

- Philadelphia area hospitals closed their emergency rooms for a total of almost 20,000 hours in 2000, up from 12,000 in 1998. 121
- In southeastern Pennsylvania, 80 hospitals have cut about 3,000 beds in the last five years. 122
- On one night, every hospital in the Central Pennsylvania region placed itself on "divert status," frustrating ambulance drivers who "scurried to find any hospital that would accept more patients." In suburban Philadelphia one night, all seven of Delaware County's hospitals were full at the same time and trying to divert patients. 124

After being diverted to another hospital, Jane Barton spent two hours in the waiting area "before anyone even talked to her," and then three hours on a gurney in the hall. Once she was finally given a space in the emergency department she spent two and a half days in a curtained area while tests were run because there were no beds available upstairs. "It wasn't any fun, I'll tell you that. It was a horrible thing to go through," said Barton. 125

"[A]ll the hospitals were diverting patients, so the police and fire department (which handles the majority of the emergency medical transports in Philadelphia) simply ignored diverts and sent people anyway."

– Dr. Leon Malmud, president and CEO of Temple University Health System¹²⁶

¹²¹Area ER's Increasingly Post No-Vacancy Sign, Philadelphia Business Journal (Jan. 12, 2001).

¹²²Overloaded Philadelphia Area Hospitals Turn Away Patients, Associated Press (Jan. 10, 2001).

¹²³PA Senators Told of ERs in Crisis, Pittsburgh Post-Gazette (Feb. 6, 2001).

¹²⁴*Philadelphia-Area Hospitals Cope with Overload of Patients*, Philadelphia Inquirer, (Jan. 10, 2001).

¹²⁵ER, Sunday News (Lancaster, PA) (July 8, 2001).

¹²⁶Area ER's Increasingly Post No-Vacancy Sign, Philadelphia Business Journal (Jan. 12, 2001).

19. Texas

Ambulance diversions have been reported in: <u>Dallas, Austin, and Houston areas</u>.

- Dallas County diversion hours jumped to about 250 per hospital in 2000, up from about 125 150 per hospital in the previous few years. 127
- Almost all hospitals in North Texas reported a 15% to 20% increase in emergency room visits from 1999 to 2000. The first weeks of 2001 indicated that number "will continue to rise." ¹²⁸

"Austin has the very best EMS program in the country. The problem is that we cannot simply drive around with patients in the back of our ambulances. We need to be able to deliver them to an appropriate emergency department. And each major hospital in Austin . . too often is on 'bypass' to EMS, with its ER doors closed."

– Mike Levy, founder and publisher of Tom Monthly¹²⁹

¹²⁷Hospitals Diverting Patients; Report Documents Nationwide Problem, Dallas Morning News (May 10, 2001).

¹²⁸ Visits to North Texas Emergency Rooms Are Rising as Hospitals Struggle To Keep Up, Dallas Morning News (Jan. 23, 2001).

¹²⁹ Closed ER Doors, Austin Business Journal (June 15, 2001).

20. Virginia

Ambulance diversions have been reported in: Roanoke and Richmond areas.

- One hospital near Roanoke was on diversion for several days in a row in July of 2001, the longest period in its history. 130
- During the 2000 flu season, one hospital in Hampton had to divert patients on 20 days in January. 131

"There was no natural disaster. No earthquake had leveled the city; no bioterrorist had released anthrax at the airport. There was no pile-up on I-95. Yet, the matter was grave. Rescue squads, carrying very ill persons, for whom seconds can matter, were hard-pressed to find an emergency room open for business. On both sides of the James, hospitals were telling emergency crews to turn back, go elsewhere – not an enviable position for the patient, the squad or the hospital. But on a cold winter night in January, in this region with 12 hospitals, that is precisely what happened. Simply, put there were too many sick people and not enough hospital beds."

–Deborah Love, executive director of the Richmond Academy of Medicine¹³²

¹³⁰VA Medical Center Will Add Beds, Roanoke Times & World News (July 7, 2001).

¹³¹Diverting Patients on the Rise at Area Hospitals, Daily Press (Feb. 23, 2000).

¹³²Nursing Shortage Puts ERs at Risk, Richmond Times Dispatch (Feb. 25, 2001).

21. Washington

Ambulance diversions have been reported in: Seattle area.

- On 14 of 31 days in October 2000, at least one, and as many as five hospitals in Seattle-King County had to divert "the most serious ambulance patients." ¹³³
- In January 2000, the Southwest Washington Medical Center was diverting patients 29% of the time. 134

A heart patient was diverted to another hospital during rush hour traffic. The transport took more than 2 hours. 135

"It's been a real hassle. . . . Sometimes we don't feel like the hospital has been there for us."

- Brad Allen, emergency medical services captain 136

¹³³Seattle-Area Emergency Rooms May Be Pressed This Winter, Associated Press (Nov. 25, 2000).

¹³⁴A Diversion of Care, The Columbian (Mar. 2001).

¹³⁵A Diversion of Care, The Columbian (Mar. 2001).

¹³⁶A Diversion of Care, The Columbian (Mar. 2001).

22. Wisconsin

Ambulance diversions have been reported in: Milwaukee and Madison areas.

- Ambulance diversions at Madison's three hospitals occur an average of 20 to 40 times a month. A few times each month, all three emergency rooms are full.¹³⁷
- On a half dozen occasions in less than six weeks, six or more of Milwaukee's thirteen hospitals simultaneously diverted ambulances. 138

"We've had incidents where we've been diverted from all three hospitals only to go back to the initial hospital. . . . We've got a real crisis in the state."

-Dr. Marvin Birnbaum, Madison Fire Department¹³⁹

¹³⁷ERs Are Stuffed, Stressed, Wisconsin State Journal (Jan. 13, 2001).

¹³⁸ER Crowding, Associated Press (Mar. 19, 2001).

¹³⁹ERs Are Stuffed, Stressed, Wisconsin State Journal (Jan. 13, 2001).