Community consultation: 
The foundation of effective risk management

John Lunn

ABSTRACT

Since the development of the Australian New Zealand Standard on Risk Management (AS/NZ 4360:1995), the philosophy and concepts have been embraced and applied in many contexts outside of the insurance industry. One of these contexts is emergency management.

The reason it has been adopted as a mantra in emergency management is that it appears to make emergency management more “scientific.” There appears to be a generally held belief that the more scientific we become, through the incorporation of numbers, the more it will guarantee our successful management of emergencies and disasters.

Within the standard, there is brief reference to the need for communication with all “stakeholders.” This catch-all phrase would implicitly include the community. But I contend that unless consultation with the community is explicit and specific and we start talking “with” rather than “at” the community, emergency management is treading down a path that could lead to a community perception and reputation that is currently “enjoyed” by the insurance industry.

Why is it with all of our scientific skills and knowledge and apparent debate on such issues, very little agreement appears to have been reached? First of all, debate implies a dialogue when in reality it is a series of monologues, and most often the monologues are in different languages that often serve to exclude rather than invite discussion and exchange of perspectives. Scientists will speak in terms of sound science, protocols, research, logic, experiment, and control groups, etc., to justify their propositions. The concerned in the community will speak in terms of values, morality, ethics, feelings, and beliefs, etc., to justify their opposition. The debate can be further complicated by scientists with opposite opinions and other stakeholders with different agendas and motivations.

BACKGROUND

We are subject to risks every day, some voluntary and others involuntary (Table 1). A number of contemporary issues have elements of voluntary and involuntary risk and also generate vigorous debate where there seems to be no hope of reaching agreement on what constitutes “acceptable” risk. These issues include such things as:

■ fetal research

■ animal rights

■ surrogacy

■ climate management

■ food with genetically modified components

WHY RISK MANAGEMENT?

Risk management is the “hot topic” at the moment, and it appears that it is pervading all management processes in the same way management by objectives did. Whether or not we agree with risk management and its various applications, we need to develop our understanding of it and be able to talk about it if we are to maintain our credibility in this field of operation. The most appropriate starting point is a definition of the term. The definition I favor most is from Australian Standard AS/NZS 4360: 1999, where risk is defined as a function of likelihood and...
Table 1. Examples of daily risks: Voluntary and involuntary

<table>
<thead>
<tr>
<th>Voluntary risks</th>
<th>Involuntary risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveling in a car</td>
<td>Environmental pollution</td>
</tr>
<tr>
<td>Participating in a sport</td>
<td>Food poisoning</td>
</tr>
<tr>
<td>Smoking</td>
<td>Airborne infectious diseases</td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td>Floods, fires, storms</td>
</tr>
<tr>
<td>Taking drugs</td>
<td>Insect bites</td>
</tr>
</tbody>
</table>

consequence. So risk is described as something like: The risk of being killed is one in a million in any one year.

In this example, the likelihood is one in a million in any one year, and the consequence is death. Part of the reason I favor this is that it is currently the most widely accepted internationally. So if you are talking about risk to other people in other places, you are more likely to be talking the same language. But it does highlight the need to ensure that the person to whom you are talking is clear about the definition you are using. I have come across other definitions, one of which is:

\[
\text{Risk} = \text{hazard} \times \text{vulnerability}^2
\]

My concerns include the thought that someone has tried to make it more like a mathematical formula, with the hope that it will enhance the credibility of what they are proposing. But it seems a bit of nonsense to me that, for example, if you multiply a flood by an assessment of vulnerability, it will equal a level of risk. To me, it just sounds silly. I could perhaps accept it a bit more if it was described as: Risk is a function of the level of vulnerability to a particular hazard. But proponents of the term vulnerability associated with risk generally don’t like to talk about hazards, as that raises in their mind the specter of hazard analysis, which they are trying to supplant with risk management and vulnerability assessment.

I have now introduced another term, that is “vulnerability.” So the issue is to now define this word in the context of risk management. As I said earlier, risk management is a hot topic that is pervading all types of management. Risk management historically was about insurance risk calculations. But in the last few years, risk management has been applied to a number of differing areas, including the Australian Public Service, the British Health Service, and also internationally in emergency and disaster management.

The first definition I came across was one where vulnerability was described as a measure of “susceptibility” and “resilience.” I was comfortable with this as “susceptibility” was an indication of the likelihood of the impact of a “source of risk” (hazard). That seems to me to be congruent with the international definition of risk and its components, and it appears that there is a relationship emerging between risk management and vulnerability. “Resilience” is basically about being able to resist and/or recover from the effects of an emergency or disaster. The idea for risk management then is that we reduce risk by reducing vulnerability. To my mind that means that we can reduce vulnerability by reducing susceptibility and/or increasing resilience. So we decrease the possibility of the emergency disaster and/or increase our ability to cope with or manage the consequences.

Over the last year I have noticed, in a number of different sources, that vulnerability has been defined only in terms of resilience.9 Nowhere have they explained why they have dropped off susceptibility, but it seems strange to me to only define vulnerability with one other word. That would seem to beg the question as to which word should be used, one or the
other. So that is another reason I am happier with vulnerability having two constituent parts: susceptibility and resilience.

If it all sounds a bit woolly, don’t worry—you are not alone. There is much debate still going on, and it will still be some time before it is resolved, if ever. So the key thing at this stage is to sort it out in your own mind and then make the concepts and definitions that you are using clear from the start when you are communicating with others.

At this point, I would like to discuss some of my views on the Australian Standard on Risk Management (AS/NZS 4360: 1999). As it is currently described, the process is as follows, with the caveat that monitoring, review, communication, and consultation take place at every stage in the process:

- **Establish the context:** Define the problem; establish the emergency risk management framework; develop risk evaluation criteria
- **Identify risks:** Identify and describe hazards, both community and environment; scope vulnerability; describe risks
- **Analyze risks:** Determine likelihood and consequences
- **Evaluate risks:** Compare risk against criteria; set risk priorities
- **Treat risks:** Identify and evaluate options (accept/tolerate risks or not); select options; plan and implement risk treatment strategies

To me, each stage in the process is described using “input” terms, whereas I think it would be more useful if they were described in “output” terms. This would have the added advantage of recognizing there will be many more activities that will be involved in producing the desired output at each stage. So I am advocating that the stages would be better described as:

- **Context described:** Describe the legislation, regulations, policies, and procedures relevant to this context; describe the problem; develop risk evaluation criteria. (I don’t think most of us have the authority to “establish” the context, but we do need to know the constraints within which we need to work and be able to describe them for others and ourselves)
- **Risks described:** Identify and describe the hazards (sources of risk), the community, the environment, and the vulnerability
- **Risks analyzed:** Determine likelihood and consequences
- **Risks evaluated:** Compare risk against criteria set in the context description; set risk priorities
- **Risks treated:** Identify and evaluate options (accept/tolerate risks or not); select options; plan and implement risk treatment strategies

I don’t know of anyone who is happy with the description of the final stage in the process, but “risks managed” is what the whole process is about. Therefore, until someone can come up with more appropriate terms than “treat risks” or “risks treated,” we are stuck with them. My colleague Ian Manock has told me that occupational health and safety professionals refer to it as “risks controlled,” so that is an option that could be considered.

**VULNERABILITY ASSESSMENT**

Many people talk about vulnerability assessment, but few provide a methodology. What I have done here is to provide a scale that we developed in Tasmania. Although it was developed as part of three engineering lifeline studies, it can be applied in any context. The following scale is used to assess the susceptibility to damage for each element against each hazard:
Susceptibility Indicator

**Very Low**—Not very susceptible to damage.

**Low**—Low susceptibility to damage and would require minimal repairs/resources to sustain a full service.

**Medium**—Susceptible to damage that will require some repairs/resources before full service can be provided.

**High**—Susceptible to damage that will require extensive repairs/resources before basic service can be provided.

The consequences of the failure of each element and the ability of the community to function—its resilience—can then be determined according to the following scale:

Resilience Indicator

**High**—The community could function for an extended time without this element. The economic impact would generally be low.

**Medium**—This element will be required at an early stage as the organization re-establishes normal functioning, and its continued unavailability would mean general community inconvenience. The local economy will be significantly affected, and there could be some business failures.

**Low**—This element is required to facilitate a part of the emergency response and recovery process, and its continued unavailability could mean increased community disruption, possible public health problems, and widespread business failure.

**Very Low**—This element is vital, and the continued unavailability could cause substantial loss of life or property and a devastating impact on the business sector.

The relative vulnerability of any aspect of a community and its component parts can then be indicated by considering the susceptibility and resilience indicators using the vulnerability matrix described below.

Vulnerability matrix

The financial resources of any community are finite and, therefore, decisions need to be made about where the limited funds can be invested for the most benefit. The purpose of the vulnerability matrix is to display the relative vulnerability of the various elements. If any element has a High rating for Susceptibility and a Very Low rating for Resilience, it would appear to warrant more urgent consideration than one that had a Very Low rating for Susceptibility and a High rating for Resilience. The vulnerability indicator can be obtained using the matrix in Table 2.

The vulnerability indicator numbers have no special pseudoscientific basis. They are just squared each time to indicate that the importance of each factor increases dramatically as a situation of High susceptibility and Very Low resilience is approached. The numbers only indicate the relative vulnerability you ascribe to the elements you have considered. There is no absolute right or wrong answer; it is just a way you have indicated your relative priority.

Table 3 presents a sample vulnerability matrix and provides a suggested format for completing your own matrix. The list below describes the columns and their contents, representing one way that data could be presented in a vulnerability matrix to emphasize the relative vulnerability and priority.

**Elements**—Description of the elements.

**Credible threats**—Description of the credible threats.

**Susceptibility rating**—Specification of the susceptibility rating.

**Resilience rating**—Specification of the resilience rating.
Table 2. Vulnerability matrix

<table>
<thead>
<tr>
<th>Susceptibility rating</th>
<th>Resilience rating</th>
<th>Vulnerability indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low</td>
<td>High</td>
<td>2</td>
</tr>
<tr>
<td>Very low</td>
<td>Medium</td>
<td>4</td>
</tr>
<tr>
<td>Very low</td>
<td>Low</td>
<td>16</td>
</tr>
<tr>
<td>Very low</td>
<td>Very low</td>
<td>256</td>
</tr>
<tr>
<td>Low</td>
<td>High</td>
<td>3</td>
</tr>
<tr>
<td>Low</td>
<td>Medium</td>
<td>9</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
<td>81</td>
</tr>
<tr>
<td>Low</td>
<td>Very low</td>
<td>6561</td>
</tr>
<tr>
<td>Medium</td>
<td>High</td>
<td>4</td>
</tr>
<tr>
<td>Medium</td>
<td>Medium</td>
<td>16</td>
</tr>
<tr>
<td>Medium</td>
<td>Low</td>
<td>256</td>
</tr>
<tr>
<td>Medium</td>
<td>Very low</td>
<td>65536</td>
</tr>
<tr>
<td>High</td>
<td>High</td>
<td>5</td>
</tr>
<tr>
<td>High</td>
<td>Medium</td>
<td>25</td>
</tr>
<tr>
<td>High</td>
<td>Low</td>
<td>625</td>
</tr>
<tr>
<td>High</td>
<td>Very low</td>
<td>390625</td>
</tr>
</tbody>
</table>

**Vulnerability indicator**—Determination of the vulnerability indicator.

The vulnerability assessment is a consideration of Susceptibility and Resilience: High Susceptibility and Low Resilience = HIGH VULNERABILITY; Low Susceptibility and High Resilience = LOW VULNERABILITY.

**Risks described and prioritized**

Having completed all of your descriptions, analysis, and vulnerability assessments, you are now in a position to describe the risks to your community. What is at risk? Which particular elements are at risk and to what extent?

Now you are faced with the dilemma of deciding which ones you address first. Since none of us has the resources to fix everything at once, again some sort of overall priority needs to be sorted out. Table 4 outlines the S M A U G Prioritization Process in which you identify Seriousness, Manageability, Acceptability, Urgency, and Growth.

**Identification of management measures**

The last step in this process is a rational approach to the specification of appropriate preventative and contingent actions to protect your plans for safeguarding your community. Potential problem analysis involves identifying the following:

- Potential problems
- Likely causes
- Preventative actions that can be taken
- Contingent actions that can be planned
- Trigger events for contingent actions
Table 3. Example of a completed vulnerability matrix

<table>
<thead>
<tr>
<th>Elements</th>
<th>Credible threats</th>
<th>Susceptibility rating</th>
<th>Resilience rating</th>
<th>Vulnerability indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping station No. 5 is a key part of the water supply to the North and Western suburbs of Hobart</td>
<td>Flooding of building</td>
<td>Medium as it is in an area subject to floods with a return period of 1 in 50 years</td>
<td>Very low as nothing has been done to relocate the pumping station, and nothing has been done to floodproof the building and the electrical motors, etc.</td>
<td>65536</td>
</tr>
</tbody>
</table>

**RISK COMMUNICATION**

In the management of emergencies, a critical element of its effectiveness is the degree of ownership by the community. If something is done “to” the community, it will be less effective than something that is done “with” or “by” the community. This was an important aspect of hazard analysis/risk assessment when the focus was very much on prevention, preparedness, and response, but the principles remain true for all aspects of emergency management.

*Shut up and listen*

This section addresses the “science” of listening and community consultation. (This is paraphrased from an article written by Julie Macken, a senior writer with the Australian Financial Review, and was a conversation with Steven Ames, a futurist.)

Covert listening is what many organizations are currently doing within our communities and around the world. All kinds of surveys, questionnaires, and polls are being undertaken to test the waters either before the launch of a product or to find ways of keeping it afloat. In a recent example, a current affairs program asked people to ring in if they had any concerns about increases in their insurance premiums. Therefore, it was no surprise that they did in fact get calls from people who had concerns about increases in their insurance premiums. This is a typical example of organizations hearing what they want to hear, but whether this is representative of the general situation is another question. It also makes sense, from the survey or pollster’s point of view, to tell the client what they want to hear and not provide a result that might reflect badly on the organization or the CEO, with their survey being condemned to a dark cupboard. How many times would a bearer of bad news be rewarded with a new contract, or how many times would they consider shooting the messenger?

Covert listening has become big business in itself and is increasingly sophisticated. But how often are the questions, answers, and reports skewed to provide the appropriate answers? How often is it used to find ways of selling what I have rather than finding out what people want? Overt, open, or public listening is what we need to engage, but finding an organization with the will to invest in this strategy is difficult. Overt listening is providing a forum for people who want to have a voice. The fact that they want to have a voice often means they are passionate about the issues, or otherwise they would have no interest in expressing their views. Whether their views are based on fact, fiction, rumor, good advice, or bad advice should not be a barrier to their being heard. If people are not given the opportunity to have their views heard, they might become strident activists, not necessarily because their view is the “right” view, but because no one would hear what they had to say.

Covert and overt listening both have their place and both have their benefits and limitations, and each forms part of a holistic approach, which benefits from the resulting synergy. Corporations answer to their stockholders and communities answer to their stakeholders; but neither scenario is mutually exclusive, and consideration of each needs to impact the other for ultimate survival, growth, and prosperity.

Steven Ames cites the example of Rio Tinto’s
<table>
<thead>
<tr>
<th>Factor</th>
<th>Description of risk</th>
<th>Priority rating</th>
</tr>
</thead>
</table>
| S Seriousness | • The risk will affect the most people and/or will cost the most money.  
• It will affect the least number of people or cost the least dollars. | High priority 
Low priority |
| M Manageability | • The risk could be most affected by intervention.  
• We can do little to affect the risk. | High priority 
Low priority |
| A Acceptability | • The risk is the least acceptable in terms of the political, social, or economic impact.  
• It will have little political, social, or economic impact. | High priority 
Low priority |
| U Urgency | • The risk urgently needs to be fixed.  
• It could be fixed next year. | High priority 
Low priority |
| G Growth | • The risk will increase quickly.  
• It will remain static. | High priority 
Low priority |

backing away from the Jabiluka uranium mine as a recent example of the impact of stakeholders on corporations. “Here’s a company that has read the community sentiment and chosen not to proceed.” Another recent example was the Australian Treasurer’s response to the bid by Royal Dutch Shell for the Woodside oil and gas fields on the North West Shelf.

It would be naïve for any organization to think they can quarantine their operations from the glare of publicity with a global media for whom “bad news” is “good news.” In the run up to the next federal election, “listening” to the electorate has become a platform competition for all of the parties. But as Ames states, “listening” is not the same as “hearing,” and even “I am hearing what you say” has become a pejorative term. We need to hear from all of our constituents and not turn a deaf ear to the sounds that threaten our harmony. Ignorance may be bliss, but it will be short lived.

To survive, organizations need to demonstrate a genuine desire to hear the community concerns about their operations, outputs, and outcomes for the community. Any attempts to “gag the debate” or suppress a view will only cause it to go underground and surface at a time and place and to an extent that will be unexpected and potentially more damaging. Overt listening to or hearing the community has to be honest, open, and visible, characterized by humility and not “smart” and “high tech.” Overt listening means providing the community with the opportunity to speak of their fears about the “sky falling in” without fear of ridicule. Overt listening is seeing all of their concerns listed and addressed without omission or condescension. Overt listening can be scary, but with a sound process it will provide enormous rewards.

A vital part of overt listening is recording verbatim the comments from the community. Do not interpret, paraphrase, summarize, or change in any way the comments that come from the community. In this way, they will feel ownership and commitment to the process and the results. If you interpret their words, they will no longer own the process—you will—and you will not gain their commitment to the results.

The creation of community consultative groups is providing a vehicle, but what is needed now is the map to enable the vehicle to get to the appropriate
destination; otherwise, it will get off track and could even crash and burn. The prioritization process covered earlier, SMAUG, is an ideal mapping process to use. It gives communities the chance to see their concerns recorded as they identify them and also be assigned the priority that they, as a community, believe is most appropriate.

The power of “open” communication

I am reminded of a time when I was part of a state government department that had the responsibility for managing the visits of nuclear-powered warships to Hobart in Tasmania, Australia. It was and still is the case, I believe, that the governments from which these visiting warships emanated would never confirm or deny if their warships carried any nuclear weapons, but they would notify of the fact if a ship was powered by a nuclear reactor. When we were notified of an impending visit from a nuclear-powered warship, we had to prepare and test all of the arrangements for the management of the visit. For many years, despite governments of different persuasions coming and going, these arrangements were kept secret. For many years prior to and during the visits, there was much strident criticism of the visits and the perceived risk they posed to the community. Eventually, the government was persuaded to make the plans a public document and the public could purchase copies. I am unaware of a single copy being purchased.

I remember talking with a medical doctor from a group calling itself “Doctors Against Wars.” When I showed him the plans and the “scientific fact” that the risk of an accidental release of radioactive material was less than one in 10,000,000, his response was that no level of risk was acceptable because of the perceived consequences.

I did notice that after these plans were made public, demonstrations decreased, although opponents of the visits of nuclear-powered warships would never agree that the visits were appropriate. I think they were more prepared to accept the visits when access was given to all of the information we possessed.

“I am listening to what you say, but I don’t trust you”: Science is no longer revered—it is feared

In our increasingly litigious society, many of the

Making America ready: The Red Cross empowers communities to help themselves

At the American Red Cross Chapter in Cincinnati, US Department of Homeland Security Secretary Tom Ridge publicly launched the “Together We Prepare” campaign as the thrust for nationwide preparedness continues to increase.

One-thousand Red Cross chapters and Blood Services regions across the US are partnering with communities to equip residents against emerging dangers and potential disasters before they happen. The “Together We Prepare” campaign entails five proactive measures individuals can take to help ensure safety for their families and neighborhoods. Americans are urged to make a plan, build an emergency kit, get trained, volunteer, and give blood as the integral components of the Red Cross program.

“It’s not just terrorism for which residents want to be prepared. A tornado or another severe storm can be just as devastating,” said John Degand, with disaster services of the North Central Kansas Chapter.

“If the terrorist threat is what it takes to make people think about preparedness, the same measures are going to take care of them in a tornado.”

Accordingly, Red Cross chapters across the nation have responded with readiness programs unique to their communities. From Nevada to Rochester, NY, citizens are turning out for “Preparing for the Unexpected” classes offered by their local chapters. Encompassing topics such as developing family disaster plans, assembling disaster supply kits, steps to take in an evacuation, how to shelter in your own home, and basic first aid and safety skills, these classes as well as relevant brochures and additional information are being offered in hundreds of Red Cross chapters throughout the United States.

More information about community service programs in your area are available online at http://www.redcross.org/more/commenserv/mapintro.html.
disputes between industry, science, and the community are going to end up in the courts with the verdict decided not by scientists, but by lay people drawn from the community. There is the case mentioned by Steven Maynard-Moody in a book by D. Nelkin. In 1974, a Boston physician named Edelin was arrested and charged with the manslaughter of a fetus. In the eyes of his scientific peers, the medical procedures and protocols followed by Dr. Edelin were routine and accepted practice. To several observers the trial produced more confusion than clarity. The jury found the doctor guilty of “wanton and reckless” behavior. After one year of probation and the conviction being overturned in 1976, the fact remained. A doctor who had followed a standard medical procedure during a legal operation was found guilty of an offense. Although some jurors indicated they considered Edelin a competent physician, they did not believe the scientific standards were enough to guarantee responsible medical behavior.

This is a manifestation of many contemporary concerns. Just because some behavior, test, or intervention is scientifically possible does not automatically guarantee that it is appropriate in the community view. Other examples include things like the atomic bomb, human cloning, napalm, genetic manipulation, neutron bombs, etc.

The community view is that the scientists produce new technologies because they are able to; but then they step back, saying that their production and use are not the issues with which they are concerned. The moral and ethical issues have to be decided in other places, certainly not in the secret laboratories. But if we have to resolve all the moral and ethical dimensions before we make any scientific discovery, how many very beneficial scientific advances would have been made (smallpox, polio vaccines, etc.)? At the end of the day, the judgment is going to be made by the jury, and the jury is going to comprise representatives of the community at large. If the scientific community does not want to be found guilty of “wanton and reckless” behavior and wants the support of the community, the initiative lies with them. And their communications strategy should include the following:

- First, scientists should adopt an open and transparently honest dialogue. The first time they are caught being dishonest or secretive will mean they will forever be perceived to be so. (Don’t hide behind “commercial in confidence” labels; it will never be commercially viable without community support.)

- Second, scientists should talk in the language of the people with whom they are trying to communicate. (I have heard scientists say, “people are stupid because they do not understand what I say” when clearly they are showing their failings as communicators.)

- Third, they should listen to and heed the concerns of the community, including feelings, values, beliefs, and attitudes.

- Fourth, they should answer the concerns of the community in a way the community can understand. If they cannot do that, they must ask themselves “should I be doing what I am doing?”

- Lastly, they must maintain the dialogue. We may never get everyone to agree with what we are doing, but hopefully we can achieve a general acceptance through our full, open, and honest disclosure and communication.

CONCLUSION

Many managers in the emergency management community still seem to believe that emergency management is something they do to the community. They stand the lay people on one side while they fix it, then let them back afterward. Some are embracing
the concepts of risk management in the emergency management context and seem to think that the “science” will guarantee the accomplishment of their objectives. But emergency management or risk management will not achieve optimum results without appropriate consultation with the community. When the fire is out, the storm has dissipated, or the flood abated, the emergency services go back to awaiting their response to the next emergency. The community has to pick up the pieces, put their lives back together, and restore the functioning of their community. The community needs to be involved at every stage of emergency or risk management, have ownership, and be architects of their own fates, not the victims of the emergency services response plans. Increasing the use of “right science” will not be our salvation. Correct consultation with the community is the foundation on which optimum emergency or risk management will be built.

John Lunn, Course Coordinator, School of Public Health, Charles Sturt University, Bathurst, New South Wales, Australia.

REFERENCES

FURTHER READING

**in BRIEF**

**COMPUTER SIMULATOR AIDS IN EMS RESOURCE ALLOCATION**

Those charged with allocating funds for emergency medical service (EMS) operations need to maximize the return on an all-too limited budget. In a recent issue of the American Journal of Emergency Medicine, researchers found that a computer-simulation model might be one way for departments to save both time and money.

The simulation model was based on Taipei city’s EMS system. Using eM-Plant software, investigators were able to monitor levels of resource allocation and rates of idle errands and found that ambulance use averaged about 8.78 percent. The simulator showed that, by reducing the number of ambulances to one at each of the 36 response units in the study, the use rate increased to 15.47 percent without compromising quality of service. Thus, ambulance use improved, while the time patients had to wait for pre-hospital care and to arrive at hospitals was only slightly affected. Considerable cost savings were the result. (Source: Am J Emerg Med. 2002; 20: 627-634.)