Community-Based Trauma System Development: Key Barriers and Facilitating Factors

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Background: Local progress in developing trauma systems has been slow, because of a variety of political, financial, social, and organizational challenges. The purpose of this study is to discuss effective community strategies for dealing with these obstacles to trauma system development.

Methods: In-depth case studies were conducted in 12 study sites across the United States. These communities had similar sociodemographic characteristics (e.g., resident populations of 1 million or more) but had varying progress in the development of trauma systems.

Results: Several factors were identified in community and leadership characteristics that promoted the development of comprehensive trauma systems.

Conclusion: The most important strategies included broad-based participation of key stakeholders (especially community representatives), local trauma leaders who were patient and resourceful, local events (some of which were orchestrated) that demonstrated the need for change in trauma delivery, and financial programs that recognized the needs of trauma centers with high numbers of uninsured patients.

Thirty-five states across the United States were actively engaged in developing and refining trauma systems in the 1990s after federal support through the Trauma Care Systems Planning and Development Act (Public Law 101-590). This infusion of new federal support reinvigorated earlier state efforts to develop regional trauma systems, which had lost momentum during the 1980s. The Health Research and Educational Trust in collaboration with researchers at The Johns Hopkins University received support from The Robert Wood Johnson Foundation to study trauma system development over this period. The main research objectives were to

- identify the structure, administration, and policies being developed by trauma systems,
- examine community decision-making about trauma system policy and operations so that the factors that affected progress in trauma system development could be identified, and
- assess how financial factors affected the continued participation of trauma centers in trauma systems.

A national survey was conducted to address the first objective and resulted in a 1993 progress report on the status of trauma system development across the United States.¹ We found that, although many
states had made progress by 1993, most had a long way to go to develop comprehensive trauma systems. A variety of obstacles were being confronted by local trauma leaders who passionately sought to restructure local trauma delivery. These obstacles spanned a wide range of political, financial, social, and organizational factors. In this study, we summarize what we learned about effective community strategies for dealing with these obstacles. These strategies should help trauma system leaders who wish to reinvigorate system development efforts in their communities.

**STUDY METHODS**

We conducted intensive case studies to understand community decision-making about local trauma policy. Twelve metropolitan areas were selected for study, all of which had populations of 1 million or more to ensure that they shared common urban problems (such as violence and poverty) that affect trauma systems and centers. The sites were also selected to obtain diversity in trauma system structure. The specific sites studied were as follows: Atlanta, Ga; Baltimore, Md; Charlotte, NC; Cleveland, Ohio; Denver, Colo; Miami, Fla; Nassau County, NY; Oakland, Calif; Philadelphia, Pa; Phoenix, Ariz; Portland, Ore; and St. Louis, Mo.

Stakeholder interviews took place with many individuals in each site, including public officials, hospital executives and administrators, trauma surgeons, emergency physicians, nurse managers, prehospital providers, and other involved individuals. These interviews focused on what had been accomplished in trauma system development, why progress was made (or was lacking), and stakeholder perceptions about the effectiveness of the existing trauma system. In addition to interviews, we analyzed patient discharge and financial data to examine the costs and financing of trauma care at trauma centers in the 12 cities.

**LOCAL STRATEGIES THAT FACILITATED TRAUMA SYSTEM DEVELOPMENT**

Our in-depth studies confirmed our expectations that local trauma system development was a very complex task. This conclusion was principally attributable to the diverse group of stakeholders who were affected by local decisions made about the structure and operation of the trauma system. These parties can have very different visions of how a trauma system should be organized, and these differences need to be reconciled through the development process. Elsewhere, we published a comprehensive, qualitative analysis of the successes and failures of six study cities in accomplishing specific milestones in trauma system development. Here, we summarize key findings about the most effective local strategies in achieving these milestones.

First, we found that local events that strongly suggested the need for change in the existing system of trauma care delivery were especially influential in accelerating progress. These events included such things as multicasualty incidents, potentially preventable trauma deaths involving young individuals, and local studies that document deficiencies with existing delivery systems. Clearly, the first two events represent random occurrences that cannot be predicted or controlled, but local stakeholders can initiate the third event by conducting local studies with existing or newly collected data. A wide variety of local studies may be needed to refute the array of arguments raised by system opponents. We found that it was typically ineffective to rely on the findings of studies conducted in other communities, even when these were published and highly regarded, because system opponents could easily dismiss these studies as not reflecting the unique circumstances of their community.

Strong and consistent leadership was also vitally important to system progress. Leaders capitalized
on events occurring in their communities and also initiated events such as local studies to demonstrate the need for trauma system development. They also educated stakeholders and worked with them to shape acceptable policy options for system structure. Effective leaders also spent substantial time educating politicians so that trauma system development was viewed as an important issue and so that policy makers were equipped with knowledge to fend off arguments of system opponents. Effective leaders were persistent and also faithful to agreements reached with stakeholders so that the trust they built was not lost.

Another critical factor was broad-based participation in local policy making, including not only lead agencies and direct providers of trauma care but also non-trauma center hospitals and community representatives. Figure 1 illustrates the composition of local trauma coordinating councils or committees we found in study sites achieving the most progress in trauma system development. Community representation was perhaps the most important factor in moving the process forward. When educated to understand the issues, these individuals kept the focus on the best interests of the patient and could easily spot those who were acting on their own self-interests. Local leaders should encourage broad-based participation and should actively be involved in educating key community representatives so that they can be effective in local policy development.

In the communities studies, we found that particularly skillful trauma leaders were able to develop a critical mass of support in local councils or committees around specific trauma system policy and strategies. This occurred largely through the education process and by being open to listen and respond concretely to stakeholder concerns. Clearly, such an open process takes substantial time and nurturing, but the level of trust that results and the high degree of ownership in the final plan facilitates its implementation. We found that when a small, elite group of local trauma experts devised a trauma system plan on their own, they did tend to reach consensus with each other quickly about ideal trauma system features. However, there also tended to be insufficient buy-in and sometimes downright suspicion among other key stakeholders that slowed or stopped progress in implementing the trauma system.

We asked stakeholders in each study community to rate the effectiveness of their current trauma system. Generally, systems that received the highest effectiveness ratings were those that had: (1) limits on the number of hospitals receiving trauma center designation based on community need, (2) system evaluation activities, (3) centralized medical control, and (4) ongoing assessments of hospital compliance with trauma center standards. Distinguishing operational characteristics included broad-based representation of stakeholder groups (as illustrated in Fig. 1), extensive local educational efforts about severe trauma and the importance of trauma systems, and a strong financial base that supported state and local efforts.

Perhaps the most important finding for sites deemed highly effective was that most stakeholders perceived the need to engage in continuous quality improvement. Stakeholders in these sites did not believe that their initially crafted trauma plans were necessarily the best design. Rather, they believed that key assumptions underlying these plans needed to be continuously reevaluated. Systems deemed highly effective were not simply the product of careful initial planning but were constantly evolving.
through reassessment and refinement.

STRATEGIES TO MAINTAIN TRAUMA CENTER PARTICIPATION

Essential to the continuing success of a trauma system is the sustained commitment of designated trauma centers. Prior studies of trauma centers have documented, however, that financial pressures are often present, because of the large number of poor and uninsured trauma patients. These studies provide little guidance, however, on strategies to mitigate these financial pressures. We examined how hospital, trauma system, and the reimbursement environment affected the financial burdens experienced by hospitals providing trauma services. The trauma centers examined in the analysis all had continuing commitments to trauma care, even those located in very poor neighborhoods within a city.

We looked specifically at trauma center reimbursement to gain insight on how the financial stresses of trauma centers could be alleviated. Because a hospital's ability to negotiate payment in private markets is limited, public programs of Medicaid, Medicare, and local governments hold potential for offsetting trauma losses given their broader social agendas. We found that public payment programs, especially provisions to assist hospitals with high indigent burdens, were particularly important in alleviating the financial burden of trauma care. As illustrated in Figure 2, hospitals that operate teaching programs and/or care for a significant number of indigent patients often receive additional payments from Medicaid, Medicare, and local governments. These program enhancements offset uncompensated costs to facilities with moderate indigent care loads, although their influence for trauma centers with substantial indigent loads seems to be less. That they are less effective for the most stressed facilities argues for both more funding and better targeting of available funds to the neediest hospitals.

Overall, we found that private trauma centers in our study communities had achieved a delicate financial balance through the combination of direct patient payments and special subsidies and enhancements that could easily be disrupted. Trauma system leaders must be diligent to ensure that public programs, especially Medicaid and Medicare Disproportionate Share Hospital programs, continue to focus on those hospitals that treat large numbers of indigent patients.

SUMMARY

Across the nation, trauma system development has been slowed by a myriad of forces and a myriad of stakeholders affected by trauma system policy. Communities that have achieved substantial success had broad-based participation in designing local trauma systems. They also had local trauma leadership that was both patient and persistent in their actions. These leaders focused their time and energy on educating key stakeholders and conducting studies so that the issues were understood and stakeholders could act in the community's best interest. Communities have also benefited from the expansion of many public programs providing financial support for hospitals treating indigent patients, especially Medicaid and Medicare Disproportionate Share Hospital payments. Finally, federal technical assistance and grant support for trauma system organizing activities have continued...
to play an important role in advancing state and local trauma system development. Indeed, state and local activity has historically expanded when federal grant support was available and contracted when such support was withdrawn. National, state, and local trauma leaders must work together to ensure that this financial support continues so that trauma systems and centers can maintain their commitment to trauma care.

Above all, the United States has been fortunate to have highly committed trauma leadership that has persisted despite frustrations and slow progress. Continued endurance and a passionate commitment to improved trauma care are essential to ensure that the vision of nationwide comprehensive trauma systems becomes a reality.

REFERENCES


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