Trauma Death

Views of the Public and Trauma Professionals on Death and Dying From Injuries

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Objectives: To determine the values and preferences of the general public and trauma professionals regarding end-of-life care due to injury so as to inform practice guidelines.

Design, Setting, and Participants: Surveys of the general public sampled by random-digit dialing between June 6, 2005, and July 5, 2005, and of a convenience sample of trauma professionals during fall 2005 in the United States were conducted regarding preferences for care in the prehospital, emergency, and critical care settings.

Main Outcome Measures: Responses to the survey questions.

Results: Most of the public and trauma professionals would prefer palliative care when doctors determine that aggressive critical care would not be beneficial in saving their lives. During resuscitation of an injured loved one, 51.9% of the public and 62.7% of the professionals would prefer to be in the emergency department treatment room. Most of the public believes that patients should have the right to demand care not recommended by their physicians. Most of both groups trust a doctor's decision to withdraw treatment when futility is determined. More of the public (57.4%) than the professionals (19.5%) believe that divine intervention could save a person when physicians believe treatment is futile. Other findings suggest further important insights.

Conclusions: The results pose challenges that will require societal discourse to determine the best practice. Resolutions will need to be included in educational curricula and incorporated into practice to ensure that dying trauma victims and their families receive quality end-of-life care.

Arch Surg. 2008;143(8):730-735

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ALTHOUGH THERE HAVE BEEN several national initiatives to improve end-of-life care, none have specifically addressed the needs of trauma victims and their families.[1-4] Trauma poses unique issues to clinicians. Victims are unknown to them prior to the injury event and the clinicians frequently need to make rapid life and death decisions with little time to determine victims' values and preferences for care.[5]

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Surveys of the general public and trauma professionals were conducted to learn their preferences for care when a life-threatening or fatal injury occurs. The purpose of these surveys was to compare and contrast these preferences so as to inform practice guidelines for comprehensive end-of-life care for trauma victims. This article presents the results of the surveys.

METHODS

STUDY DESIGN

Researchers under the direction of Christopher Barnes, MA, at the Center for Survey Research and Analysis, University of Connecticut, Storrs, conducted and statistically analyzed a national telephone survey of the general public. The same survey, with some minor conversions from telephone survey language to written survey language, was mailed to trauma professionals.

SURVEY OF THE PUBLIC

One thousand six members of the public residing in the United States completed the survey over the telephone; all were aged 18 years or older. The sample was obtained by random-digit dialing between June 6, 2005, and July 5, 2005. The mini-

mum response rate was 19%. It was calculated as the number of complete interviews divided by the number of all interviews (complete plus partial) plus the number of noninterviews plus all cases of unknown eligibility.[6] When an estimate of the eligible proportion of cases of unknown eligibility was included, the response rate was 22%. The margin of error was ±3.2 percentage points. No financial incentive was offered to respondents.

SURVEY OF TRAUMA PROFESSIONALS

The same survey was piloted with 15 trauma professionals who offered feedback on wording. It was mailed via the US Postal Service to all medical directors at level I and II trauma centers in the United States, to the entire membership of the Society of Trauma Nurses, and to groups of emergency medical services personnel in New Orleans, Louisiana, Chicago, Illinois, and Hartford, Connecticut. An addressed stamped envelope was provided. Seven hundred seventy-four surveys were returned for a response rate of 51%. This was calculated as the number returned divided by the number sent. No financial incentive was offered for completion.

SURVEYS

The surveys were tested to take approximately 15 to 20 minutes to complete. The topics for questions in the survey were based on recommendations generated by an expert panel of national trauma experts at a Trauma Leadership Forum convened by the American Trauma Society.[7] Topics relevant to care in the prehospital setting, emergency department (ED), and intensive care unit were queried. Forty-three questions asked for opinions on issues such as futility, advanced directives, organ donation, and beliefs related to culture and spirituality.

STATISTICAL ANALYSIS

Responses of the public and the professionals were compared using 2-sided *z* tests by the Center for Survey Research and Analysis. To ensure a representative sample of the public, their responses were weighted based on US Census data for sex, age, race, educational level, and number of people in the household.

RESULTS

Tables 1, **2**, **3**, **4**, and **5** provide the percentages of the general public and the trauma professionals who chose each option for selected survey items. The questions in the Tables have been abbreviated from the telephone interview and the paper survey.

EXPERIENCE WITH EMERGENCY CARE AND TRAUMA

Similar percentages of the public (46.2%) and the professionals (47.4%) indicated that they had received emergency medical care in the past 10 years. Similar percentages of respondents in both groups (12.4% of the public and 12.7% of the professionals) had a close friend or family member die as a result of a serious accident.

TRAUMATIC DEATH ON SCENE

Responses of the public regarding care in the prehospital environment indicated that about one-half (50.1%) prefer that a loved one fatally injured in an accident be taken to a hospital (Table 1). Their reasons for this are almost evenly divided between hoping that further treatment might be done and feeling more comfortable at a hospital (47.3% vs 48.1%, respectively). The professionals were more accepting of a place other than a hospital or morgue to take their deceased loved one than the public (13.6% vs 1.7%, respectively). If religious and counseling services were offered at an alternative facility, 29.4% of the public and 63.4% of the professionals would prefer this option. However, most of both groups would not be willing to pay extra for insurance coverage for use of such a facility. Most of the public would be willing to pay an extra fee to bring their deceased loved one to the hospital. This was not true for the professionals.

Table 1. Preferences Regarding End-of-Life Care in the Prehospital Environment

Question and Responses[a]	Public, % (n=1006)	Professionals, % (n=774)	*P* Value
If a person is dead at the scene of an accident, to which facility would you prefer that your loved one be transported?			
Hospital	50.1	36.8	<.001
Morgue	41.1	35.0	<.001
Other	1.7	13.6	<.001
If you prefer that the person be taken to the hospital, what is the main reason?[b]			
You hope something might be done	47.3[c]	13.4[d]	<.001
More comfortable with a hospital	48.1[c]	84.6[d]	<.001
If there were an alternative facility with religious and counseling services, which would you prefer?			
New facility	29.4	63.4	<.001
Hospital	37.9	11.4	<.001
Morgue	26.1	13.6	<.001
Would you pay for insurance coverage for a new facility?			
Yes	34.8	28.4	<.001
No	56.7	50.9	.01
Would you pay an extra fee to bring your loved one to the hospital?			
Yes	58.5	29.5	<.001
No	36.8	52.2	<.001

[a] Responses of do not know or refused to answer are not included.
[b] Asked only of those who indicated hospital in the previous question.
[c] Sample size was 500.
[d] Sample size was 292.

TREATMENT IN THE ED

Most of the public (51.9%) and the professionals (62.7%) would prefer to be present in the treatment room as opposed to the waiting room in the ED during resuscitation of a loved one (Table 2). This preference endured even when respondents may witness disturbing sights. If the victim were a child, the preference for being in the treatment room increased to 79.0% of the public and 78.7% of the professionals.

Table 2. Preferences for Family Presence and a Comfort Focus

Question and Responses[a]	Public, % (n=1006)	Professionals, % (n=774)	*P* Value
If a loved one needs resuscitation, in which would you prefer to be?			
Treatment room	51.9	62.7	<.001
Waiting room	40.9	29.6	<.001
If you were to see large amounts of blood or other difficult sights in the treatment room, in which would you prefer to be?[b]			
Treatment room	73.1[c]	83.8[d]	<.001
Waiting room	17.7[c]	11.4[d]	<.001
If your loved one were a child, in which would you prefer to be?			
Treatment room	79.0	78.7	.85
Waiting room	17.3	14.7	.15
If you were in an accident and were likely to die despite treatment, which would you prefer the medical team to do?			
Focus on making you comfortable	57.3	72.7	<.001
Do everything to keep you alive	34.5	22.9	<.001
If the patient were a loved one, which would you prefer the medical team to do?			
Focus on making him or her comfortable	46.8	67.8	<.001
Do everything to keep him or her alive	41.9	24.8	<.001

[a] Responses of do not know or refused to answer are not included.
[b] Asked only of those who indicated treatment room in the previous question.
[c] Sample size was 588.
[d] Sample size was 526.

In the event that respondents were critically injured and expected to die despite life-saving interventions, 57.3% of the public and 72.7% of the professionals would prefer a treatment focus on comfort (Table 2). If the patient were a loved one, the percentages of respondents selecting the comfort focus dropped to 46.8% of the public and 67.8% of the professionals.

GOALS OF CARE AND LIMITED RESOURCES

When physicians believe there is no hope of recovery for a patient, most of the public (72.8%) and the professionals (92.6%) believe that life-sustaining treatments should be stopped and the focus of care should be on comfort (Table 3). Of those indicating that all efforts should continue indefinitely, 86.2% of the public and 33.3% of the professionals say efforts should continue regardless of the financial cost. Of those who originally said that all efforts should continue indefinitely, 56.1% of the public and 62.8% of the professionals indicated that efforts should *not* continue if these efforts take medical resources and personnel away from patients more likely to survive. When intensive care unit beds are limited, most of both groups would support transferring those patients who are almost certain to die to a regular hospital room.

Table 3. Preferences for Goals of Care and Limited Resources

Question and Responses[a]	Public, % (n=1006)	Professionals, % (n=774)	*P* Value
If doctors believe there is no hope of recovery, which would you prefer?			
Life-sustaining treatments should be stopped and should focus on comfort	72.8	92.6	<.001
All efforts should continue indefinitely	20.6	2.5	<.001
Should these efforts continue regardless of the financial cost?[b]			
Yes	86.2[c]	33.3[d]	<.001
No	9.0[c]	42.2[d]	<.001
Should efforts continue if they take medical resources and personnel away from other patients more likely to survive?[b]			
Yes	28.8[c]	23.3[e]	<.001
No	56.1[c]	62.8[e]	<.001
Would you support or oppose that patients in the ICU who are expected to die be transferred to a regular hospital room where comfort care is the focus?			
Strongly support	38.9	62.1	<.001
Somewhat support	23.8	19.4	.02
Somewhat oppose	10.9	9.8	.52
Strongly oppose	19.7	4.7	<.001
Same question as above but now there is a limited number of ICU beds?			
Strongly support	47.6	61.2	<.001
Somewhat support	23.6	21.4	.29
Somewhat oppose	9.4	8.3	.44
Strongly oppose	13.8	4.8	<.001
If the ICU were full, should patients expected to die be transferred to make room for others with a greater chance of survival, or should ICU admission be on a first-come, first-served basis?			
Move those expected to die	72.1	77.3	.01
First come, first served	17.8	9.7	<.001

Abbreviation: ICU, intensive care unit.
[a] Responses of do not know and refused to answer are not included.
[b] Asked only of those who indicated that efforts should continue indefinitely in the previous question.
[c] Sample size was 170.
[d] Sample size was 45.
[e] Sample size was 43.

FUTILITY AND TRUSTING PHYSICIANS

Most of both groups highly rated their level of trust in a doctor's decision to stop life-saving treatment when futility is determined. On a scale of 1 to 10 where 1 was do not trust at all and 10 was trust completely, professionals were found to almost completely trust the physician's recommendation (mean score, 9.4); the public's score was slightly lower (mean score, 7.0).

DEMANDING CARE AND PAYING FOR CARE

A majority of the public (72.4%) believes that patients should have the right to demand care even when doc-

Table 4. Responses Regarding Demanding Care and Goals of Care for Those in a Persistent Vegetative State

Question and Responses[a]	Public, % (n=1006)	Professionals, % (n=774)	*P* Value
Do patients have the right to demand care that doctors think will not help?			
Yes	72.4	44.3	<.001
No	20.2	44.8	<.001
If a patient demands such care, who should pay for it?			
Insurance company	48.5	30.5	<.001
Government	6.1	1.4	<.001
Patient personally	37.0	54.8	<.001
Should the government pay for long-term care of persons in a PVS?			
Yes	33.6	31.3	.30
No	58.1	44.2	<.001
If you were ever to be in a PVS, would you prefer to be kept alive or die?			
Be kept alive	10.8	3.2	<.001
Die	84.8	94.2	<.001
Do you believe that someone in a PVS could be saved by a miracle?			
Yes	61.3	20.2	<.001
No	32.5	57.0	<.001

Abbreviation: PVS, persistent vegetative state.
[a] Responses of do not know and refused to answer are not included.

tors think it is not indicated, and 48.5% believe that insurance companies should pay for such care (Table 4). The professionals disagree; 44.3% believe that patients have the right to demand care that is not recommended.

Regarding persons in a persistent vegetative state, 33.6% of the public and 31.3% of the professionals believe that the government should pay for their long-term care (Table 4). Most respondents, 84.8% of the public and 94.2% of the professionals, would prefer to die as opposed to receiving continued life-sustaining care if they were ever in a persistent vegetative state.

ORGAN DONATION AND ADVANCE DIRECTIVES

Half of the public respondents (50.6%) are organ donors, whereas a more significant majority of professionals (78.9%) are organ donors. Most of both groups believe that their family should not be able to reverse their decision to be an organ donor. The percentage of public respondents with living wills is 35.7%, whereas slightly more professionals (40.4%) have them. Most of both groups believe that their family should not be able to change their living will. Most of the public and professionals strongly support or somewhat support children aged 15 years or older having living wills. More than half of the public (59.3%) and 45.7% of the professionals have designated someone as their health care proxy.

When asked how well they understand medical issues faced by their family, living wills, and the wishes of their family, most of both groups indicated they understood. Mean scores for these questions, rated on a scale of 1 to 10 with 1 being do not understand at all and 10 being understand completely, were greater than 7.0 for the public and the professionals.

Table 5. Responses Regarding Race, Culture, Ethnicity, and Religion

Question and Responses[a]	Public, % (n=1006)	Professionals, % (n=774)	*P* Value
How concerned are you that ED and ICU medical staffs are sensitive to your race and culture?			
Very	17.1	17.7	.74
Somewhat	26.1	30.0	.07
Not too much	22.8	26.2	.09
Not at all	32.2	22.0	<.001
How concerned are you that medical personnel might not understand how your culture affects the type of treatment you would like to receive?			
Very	17.1	7.0	<.001
Somewhat	25.6	28.6	.17
Not too much	22.7	35.3	<.001
Not at all	32.1	25.8	<.001
How concerned are you that a doctor of a race or ethnicity other than yours might not give you the best care?			
Very	16.3	5.9	<.001
Somewhat	16.4	13.6	.12
Not too much	22.3	37.5	<.001
Not at all	43.0	41.0	.34
How important would your religious beliefs be in guiding decisions about your own medical care if you were critically injured?			
Very	41.0	30.6	<.001
Somewhat	25.8	30.6	.02
Not too much	13.6	19.9	<.001
Not at all	18.4	17.1	.47
If the doctors treating your family member said futility had been reached, would you believe that divine intervention by God could save your family member?			
Yes	57.4	19.5	<.001
No	35.5	61.1	<.001

Abbreviations: ED, emergency department; ICU, intensive care unit.
[a] Responses of do not know and refused to answer are not included.

CULTURAL AND RELIGIOUS SENSITIVITY

Responses of the public indicated that they were either not too concerned (22.8%) or not at all concerned (32.2%) that ED and intensive care unit staffs are sensitive to their race and culture (Table 5). Of the professionals, 26.2% were not too concerned and 22.0% were not at all concerned regarding the same issue. Most respondents in both groups (65.3% of the public and 78.5% of the professionals) were either not too concerned or not at all concerned that a doctor of a different race or ethnicity might not give them the best care.

When the responses of the public to the questions regarding race and culture were analyzed by racial categories of white and nonwhite, the percentages indicated more concern by nonwhite respondents. Of the respondents, 58.6% of nonwhite respondents and 38.5% of white re-

spondents indicated that they are very concerned or somewhat concerned that ED and intensive care unit staffs are sensitive to their race and culture. Also, 60.5% of nonwhite respondents and 37.0% of white respondents are very concerned or somewhat concerned that medical personnel might not understand how their culture affects the treatment they would like to receive. Furthermore, 48.3% of nonwhite respondents and 27.4% of white respondents are concerned that a doctor of a race or ethnicity different from their own might not give them the best care.

For 41.0% of the public and 30.6% of the professionals, religious beliefs would be very important in guiding their decisions about medical care if they were critically injured. Another 25.8% of the public and 30.6% of the professionals said religious beliefs were somewhat important in making medical decisions related to critical injury. More of the public (61.3%) than the professionals (20.2%) believe that a person in a persistent vegetative state could be saved by a miracle (Table 4). Similarly, more of the public (57.4%) than the professionals (19.5%) believe that divine intervention from God could save a person even when the physicians have determined that treatment is futile (Table 5).

COMMENT

The number of deaths due to intentional injuries (eg, homicides, suicides) and unintentional injuries (eg, motor vehicle crashes, falls, burns) has made trauma the third or fourth leading cause of death in the United States for the past 17 years.[8-26] In 2003, there were 163 988 deaths due to all injury.[24] This steady rate suggests that even though prevention strategies may reduce the number of nonlethal injuries, trauma professionals will still be confronted with a significant number of persons who die from their injuries.

The Institute of Medicine cites breaking-point rates of ambulance diversions, ED visits, and closures of EDs as a national epidemic.[27] Therefore, the appropriateness of transporting patients with no likelihood of survival to trauma centers and implementing aggressive resuscitation efforts can be questioned.[7] Transportation of the traumatized dead to a morgue or a new facility may be the right action to take. A better alternative might be to develop a facility in the hospital that does not initiate medical therapy but provides psychosocial and religious support for the next of kin. With almost 30% of the public preferring this option, it might be that with careful and sensitive implementation, these other facilities could be made acceptable to an even greater percentage of the public.

The preference to be in the treatment room during resuscitation of a loved one, especially a child, has implications for professionals who would prefer that family members not be present. Recommendations from the National Consensus Conference on Family Presence During Pediatric Cardiopulmonary Resuscitation to support family attendance at resuscitation of children have been promoted with representation of many organizations, including the American Trauma Society, the American College of Surgeons, and the American Academy of Pediatrics.[28] Reasons for not wanting family presence should be explored and policies decided in advance to reconcile these different preferences.

Concerning decision making in the event of critical injury and a high likelihood of death, our findings indicate that persons have a harder time selecting an option for loved ones than for themselves when it comes to comfort vs doing everything to sustain life. This finding reinforces the need to ask persons what they believe their loved one would want. This may relieve some of the burden of making a decision by focusing on what decision the loved one would make for himself or herself.

Regarding patients who doctors believe have no chance of survival, the results suggest that the public and professionals appreciate the necessities posed by limited intensive care resources and understand the need to achieve fair and just use of scarce resources.

Regarding medical futility, the results indicate that physicians can be reasonably sure they are trusted to make those decisions. However, they need to be prepared to deal with families who are waiting for a miracle. Pellegrino,[29] one of the national experts at the American Trauma Society Trauma Leadership Forum, has suggested that futility is best determined by identifying the end or purpose of a particular treatment through shared decision making involving the physician and patient or surrogate. The process ought to balance the treatment's effectiveness (the physician's decision), its benefits (the surrogate's decision), and its burdens (decided by both).[29]

The large percentage of people who indicated that religious beliefs are important, including the potential for miracles to change futile outcomes, should be appreciated by health care professionals. Sensitivity to this belief will promote development of a trusting relationship that is critical to convey the scientific basis for the conclusion that there is objective, overwhelming evidence that continued medical interventions will not lead to a successful outcome.

The perceived right to demand care that doctors do not think is indicated and the belief that insurance companies should pay for such care pose challenges to society as a whole. Although Americans are accustomed to having rights, demanding and receiving care that in the physician's best medical judgment will not be effective could overwhelm the entire health care system. This entitlement mentality has been cited as one of many reasons a family may request care that the health care team believes is futile.[30]

Opinions regarding organ donation have important implications for trauma professionals. If patients meet the legal criteria to be organ donors, their wishes should be honored as justified by the principles of respect for personal autonomy and justice. Letting families know that most people do not want their decision to be reversed should lessen the families' angst. Adhering to this practice of not requiring family consent when a person is a professed donor should increase organ donation substantially.[31]

Regarding children aged 15 years or older having living wills, the results suggest that it might be time to

promote the completion of living wills by younger individuals, including children as young as 15 years. Establishing this behavior at a young age will not only benefit children and their families if the need arises but may create a mindset for lifelong attention to advance directives.

Results regarding questions about race and culture highlight the need for sensitivity and recognition of persons as unique individuals. Professionals need to be aware that their race, if different from the patients', may create some insecurity for the patients.

CONCLUSIONS

The findings of the surveys pose challenges for trauma professionals, hospital administrators, insurers, and society as a whole. Issues need to be discussed in the clinical and public arenas and within the curricula of health professional education. Rich and sensitive dialogue is needed so that all dying trauma patients and their families receive quality end-of-life care.

Accepted for Publication: April 4, 2007.
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Author Contributions: Dr Jacobs had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. *Study concept and design:* Jacobs, Burns, and Bennett Jacobs. *Analysis and interpretation of data:* Jacobs, Burns, and Bennett Jacobs. *Drafting of the manuscript:* Jacobs, Burns, and Bennett Jacobs. *Critical revision of the manuscript for important intellectual content:* Jacobs, Burns, and Bennett Jacobs. *Obtained funding:* Jacobs, Burns, and Bennett Jacobs. *Administrative, technical, and material support:* Jacobs. *Study supervision:* Jacobs.
Financial Disclosure: None reported.
Funding/Support: The survey of the public was supported by funds from the Aetna Foundation.
Role of the Sponsor: The Aetna Foundation had no role in the design and conduct of the study; in the collection, analysis, and interpretation of the data; or in the preparation, review, or approval of the manuscript.
Additional Contributions: The Center for Survey Research and Analysis, University of Connecticut, Storrs, collected, analyzed, and supplied the data from the survey of the public and performed statistical analysis to compare the responses of the public and the professionals.

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