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Minireview

Vital Role of Medical Examiners and Coroners in Organ Transplantation

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Many people die owing to the shortage of donor organs. Medical examiners and coroners (MEs/Cs) play a vital role in making organs available for potential recipients. Medical examiners'/coroners' case data were collected using a structured confirmatory-recorded methodology for calendar years 2000–01 and were linked and analyzed with donor and transplant data from the United Network for Organ Sharing, predicting the nature and extent of the loss of donor organs. Nearly seven percent of ME/C cases were denied recovery during 2000–01. Because 353 and likely, 411 potential organ donors (PODs) were denied, as many as 1400 persons on transplant waiting lists did not receive organs because of ME/C denials. Problematically for pediatric patients awaiting transplantation, nearly half of all ME/C denials occurred in pediatric patients. Eighteen percent of PODs aged five or less and 44.2% of child abuse PODs were denied recovery by the ME/C. There were no (zero) denials in three of the five largest U.S. cities and in four states. Since 1994, two states have enacted legislation restricting the circumstances of ME/C denials, resulting in an 83% decrease in ME/C denials. Release of all organs from ME/C cases is needed urgently to protect the lives of those persons awaiting transplantation. Medical examiners and coroners deserve recognition for their efforts in advocating methods and/or regulation/legislation designed to achieve 100% release of life-saving organs for transplantation.

Key words: Coroner, justice of the peace, ME/C denial, ME denial, medical examiner, organ donation, organ refusal, organ transplatantion, transplant legislation

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Introduction

The demand for organs for transplantation remains unmet. While nearly 100 000 persons could have benefited from a solid organ transplant in 2001, fewer than 20 000 did so (1). Regrettably, thousands of people needlessly die each year owing to a chronic shortage of organ donors. Medical examiners and coroners (ME/Cs) have the ability to ease, to some degree, what has become a public health crisis. They directly determine whether or not organs will be recovered from potential donors who die from circumstances within the jurisdiction of the ME/C. Their permission to recover organs is vital (2). Due to the sheer size of the recipient waiting list and the lack of organs, such decisions directly impact the fate of terminally ill transplant candidates.

The focus of this study was to determine the number of organs currently not recovered because of ME/C denials of organ recovery in ME/C cases. Second, the study compares the current state of ME/C denials with a previous study in order to determine the progress or lack of progress in achieving 100% ME/C organ release. Finally, the study explores measures implemented to achieve 100% release of organs from ME/C cases.

As the donor organ shortage has worsened, reports in the literature and in the media of nonrecovery of organs as a result of ME/C denials have continued to surface (3–15). When death investigation and organ donation cannot be accomplished simultaneously, the consequences are serious, as one organ procurement organization (OPO) reported that greater than 40% of potential organ donors were lost in 1 year because of ME/C denials (16–19).

There is no empirical evidence to support nonrecovery of organs in ME/C cases, including child abuse and homicide cases. An exhaustive case law review revealed no instance in which a state was unable to adequately investigate a crime or to prosecute a criminal defendant because necessary evidence had been altered by organ donation. Moreover, in no instance did the removal of organs for transplantation compromise autopsy proceedings to the point where cause of death could not be determined (3,20).

Nearly a decade has passed since the landmark study by Shafer et al. (3). Since then, awareness of the need for complete cooperation between death investigation and organ recovery activities with the goal of 100% organ release has resulted in improved public policy, either in the form of actual practice, regulation, or legislation. Many medical examiners have spoken in favor of organ donation and have advocated policies for zero denials (21–23).

Methods

The concepts critical to this study are defined in Table 1. Data collection procedures adhered to the concepts and definitions included in the table. Data were not obtained that could have enabled a comparison of actions by ME/Cs who were physicians vs. those who were not.

Following extensive pretesting, in February 2002, a data collection instrument was distributed to U.S. OPOs certified and designated by the Centers for Medicare and Medicaid Services to coordinate organ recovery in all 50 states and the territory of Puerto Rico. Medical examiner/coroner case data were collected using a structured confirmatory-recorded methodology for calendar years 2000 and 2001. Medical examiner/coroner denials were categorized according to the United Network for Organ Sharing (UNOS) classification system – a system applied routinely and uniformly to all potential organ donors.

Data were reported by 49 of 59 (83.1%) OPOs. For the study period, these OPOs recovered 85.8% of all organ donors in the U.S. There was no evidence of significant bias in the reported data, except for the following circumstance. The reported number of ME/C denials of PODs is included in the study, but it was not possible to report cases in which OPOs were never notified. Thus, the number and type of deaths for these cases remain indeterminate, and the data reported in this study may understate the total number of ME/C case denials. Data for the 1990–93 period were obtained

Table 1: Conceptual framework and definitions for the study

Concept	Definition	Calculations
Coroner	For purposes of this study, coroner shall also mean justice of the peace as the terms are used interchangeably between different geographical areas, as those individuals charged with conducting death investigations for a particular geographic area, usually a county.	None required
Medical examiner/ coroner jurisdiction (ME/C case)	Deaths falling within the jurisdiction of a ME/C generally include deaths from homicide, unnatural causes, unknown cause, suicide, deaths occurring within 24 h of admission to the hospital and deaths of unidentified persons.	Percent of Potential Organ Donors that are ME/C Cases = (ME/C Case Organ Donors + ME/C Denials)/(ME/ C Case Organ Donors + ME/C Denials + Non-ME/C Case Organ Donors)
Medical examiner or coroner denial (ME/C denial)	Refusal for organ recovery by the ME/C of any potential organ donor, regardless of what stage during the donation process that the denial occurred (i.e., whether the refusal came during the pre-referral, referral, evaluation, management or procurement stage of the donation process.	Percent of ME/C Cases that are denied recovery = ME/C Denials/(ME/ C Case Organ Donors + ME/C denials)
ME/C denial extended	The data obtained from the study OPOs accounted for 85.8% of the U.S. donor population during the survey periods. For that population, 353 ME/C denials were reported. "ME/C denials extended" estimates the denial experience of 100% of the U.S. potential donor population.	ME/C denials extended = ME/C denials x [1 + (1 – 0.858)]
Potential organ donor (POD)	A patient (1) who is brain dead or has an injury or disease capable of resulting in brain death (2) who is medically suitable for donation and (3) for whom family consent for donation has not been denied. (*This definition, for the purposes of this study, does not examine PODs that do not become donors for reasons of medical unsuitability, or family refusal, or ME/C denial.*)	None required
Organ donor	A patient from whom one or more organs are recovered for purposes of transplantation. (In 2000–2001, an average of 3.6 organs were recovered from each organ donor.)	Organs not recovered due to ME/C Denials = ME/C Denials x 3.6 Organs not recovered due to ME/C denials extended = ME/C denials extended x 3.6

from a previous publication (3) and were compared with the 2000–01 data collected in this study.

Results

The study results are reported for two time periods, 2000 and 2001, and the previously published 1990–92-time period (3). This approach enables direct comparisons to document changes during the past decade.

2000–01 study period findings

As shown in Table 2, during 2000–01, there were 12 066 organ donors in the U.S. The 49 OPOs participating in the study were responsible for 10 356 donors; therefore, the study accounts for 85.8% of the U.S. donor population. Of these donors, 4874 (47.1%) died from circumstances within the jurisdiction of ME/Cs, a further 4125 donors (39.8%) were not ME/C cases, and 1357 (13.1%) were reported as unknown. A total of 353 PODs were denied recovery of ME/Cs. In total, ME/C cases represented 56% of U.S. potential organ donors, with denials in 6.8% of donor eligible cases.

Most donors are the source of multiple organs. The national mean organ yield per donor for 2000–01 was 3.6 organs (24). Therefore, it is estimated that as many as 1271 donor organs, approximately 636 organs per year, were not recovered owing to ME/C denials.

Cause, circumstance, and mechanism of death. As shown in Table 3, head trauma was the cause of death most often associated with ME/C denial (53.8%). The circumstance of death with the greatest frequency of denial was child abuse (25.2%), followed by homicide (24.9%). Blunt injury was the most often stated mechanism of death (34.6%). When child abuse cases are grouped with homicide cases, half of all ME/C denials concern homicide. While child abuse victims constituted only 1.1% of organ donors, these cases amount to 25.2% of all ME/C denials. Overall, 44.2% of child abuse and 57.6% of all sudden infant death syndrome (SIDS) cases that were PODs were denied recovery by an ME/C.

Age. The largest percentage of denials occurred in pediatric PODs. During the study period, 20.1% of all ME/C denials involved children less than 1 year of age, increasing to 41% of all denials involving children aged 10 and less. There were only 183 organ donors less than 1 year of age, therefore nearly one-third (31.1%) of PODs less than 1 year of age were denied recovery (Table 3).

During the study period, there were 412 donors between the ages of 1 and 5 years. An additional 61 PODs (14.7% of the potential donors in this age category) were denied recovery by a ME/C. Individuals aged 17 and less comprised 16.6% of all donors, but almost half (47.6%) of all denials. In sum, pediatric patients (aged 17 and less) comprised

Table 2: Overall summary data

	2000		2001		Total (2000–01)	
Variable	N	%	N	%	N	%
Organ procurement organizations						
Universe†						
(U.S. total)	59	100.0	59	100.0	59	100.0
Study participants	48	81.3	49	83.0	49	83.0
Organ donors						
Universe†						
(U.S. total)	5985	100.0	6081	100.0	12 066	100.0
Study total	5029	84.0	5327	87.6	10 356	85.8
Study organ donors: ME/C case vs. non-ME/C cases						
ME/C case organ donors	2335	46.4	2539	47.7	4874	47.1
Non-MC/E case organ donors	2084	41.4	2041	38.3	4125	39.8
Unknown type organ donors	610	12.1	747	14.0	1357	13.1
Total	5029	100.0	5327	100.0	10 356	100.0
Organ donors that are ME/C cases‡						
Percent of organ donors	N/A	54.6	N/A	57.1	N/A	55.9
ME/C denials of potential organ donors						
Number of ME/C denials	170	N/A	183	N/A	353	N/A
Number of ME/C denials extended‡	197	N/A	206	N/A	403	N/A
Percent of ME/C cases that are denied recovery‡	N/A	6.8	N/A	6.7	N/A	6.8
Organs not recovered						
Organs not recovered owing to ME/C denials	612	N/A	659	N/A	1271	N/A
Organs not recovered owing to ME/C denials – extended‡	710	N/A	740	N/A	1451	N/A

N/A = not applicable, ME = medical examiner, C = coroner.
†See reference 24.
‡For a description of calculations, see Table 1.

Table 3: Medical examiner/coroner denials according to various characteristics of U.S. organ donors

	Total for 2000–01					
Variable	ME/C denials	MC/E denials extended	Total number of U.S. organ donors*	% of denials	% of U.S. organ donors	% of U.S. potential organ donors denied by MC/E
Cause of death						
Anoxia	75	87	1314	21.2	10.9	6.2
Cerebrovascular/Stroke	53	62	5203	15.0	43.1	1.2
Head trauma	190	221	5037	53.8	41.7	4.2
CNS tumor	2	2	114	0.6	0.9	2.0
Other	28	33	316	7.9	2.6	9.4
Unknown	5	6	83	1.4	0.7	6.6
Total	353	411	12 067	100.0	100.0	3.3
Circumstance of death						
Motor vehicle accident	31	36	2800	8.8	23.2	1.3
Suicide	10	12	908	2.8	7.5	1.3
Homicide	88	103	685	24.9	5.7	13.0
Child abuse	89	104	131	25.2	1.1	44.2
Non-motor vehicle accident	26	30	986	7.4	8.2	3.0
None of the above	58	68	3645	16.4	30.2	1.8
Other specify or natural causes	32	37	2823	9.1	23.4	1.3
Unknown	19	22	89	5.4	0.7	19.9
Total	353	411	12 067	100.0	100.0	3.3
Mechanism of death						
Drowning	1	1	96	0.3	0.8	1.2
Sudden Infant Death Syndrome	14	16	12	4.0	0.1	57.6
Intracranial hemorrhage/Stroke	53	62	5537	15.0	45.9	1.1
Seizure	5	6	82	1.4	0.7	6.6
Drug intoxication	7	8	149	2.0	1.2	5.2
Asphyxiation	18	21	285	5.1	2.4	6.9
Cardiovascular	35	41	713	9.9	5.9	5.4
Gunshot wound/stab	53	62	1235	15.0	10.2	4.8
Blunt injury	122	142	3454	34.6	28.6	4.0
None of the above/natural causes	18	21	412	5.1	3.4	4.8
Other, specify	6	7	6	1.7	0.0	53.8
Unknown	21	24	86	5.9	0.7	22.2
Total	353	411	12 067	100.0	100.0	3.3
Age group						
<1 year	71	83	183	20.1	1.5	31.1
1–5 years	61	71	412	17.3	3.4	14.7
6–10 years	14	16	328	4.0	2.7	4.7
11–17 years	22	26	1080	6.2	9.0	2.3
18–34 years	79	92	3088	22.4	25.6	2.9
35–49 years	60	70	3192	17.0	26.5	2.1
50–64 years	35	41	2788	9.9	23.1	1.4
65+ years	7	8	996	2.0	8.3	0.8
Unknown	4	5	0	1.1	0.0	100.0
Total	353	411	12 067	100.0	100.0	3.3
Race/ethnicity						
Caucasian	181	211	8891	51.3	73.7	2.3
Black	92	107	1429	26.1	11.8	7.0
Hispanic	57	66	1376	16.1	11.4	4.6
Asian	13	15	261	3.7	2.2	5.5
Other	5	6	110	1.4	0.9	5.0
Unknown	5	6	0	1.4	0.0	100.0
Total	353	411	12 067	100.0	100.0	3.3
UNOS region						
Region 1	9	10	480	2.5	4.0	2.1
Region 2	11	13	1515	3.1	12.6	0.8
Region 3	95	111	2017	26.9	16.7	5.2
Region 4	12	14	1083	3.4	9.0	1.3
Region 5	107	125	1573	30.3	13.0	7.3
Region 6	9	10	515	2.5	4.3	2.0

Table 3: Continued.

Variable	Total for 2000–01 ME/C denials	MC/E denials extended	Total number of U.S. organ donors*	% of denials	% of U.S. organ donors	% of U.S. potential organ donors denied by MC/E
Region 7	27	31	1141	7.6	9.5	2.7
Region 8	38	44	783	10.8	6.5	5.4
Region 9	1	1	681	0.3	5.6	0.2
Region 10	23	27	1091	6.5	9.0	2.4
Region 11	21	24	1188	5.9	9.8	2.0
Total	353	411	12 067	100.0	100.0	3.3

*United Network for Organ Sharing, Richmond, VA.

Table 4: States and large cities with no (zero) medical examiner denials, ranked in order of population

States	Cities*
New Jersey	New York, NY
New Hampshire	Houston, TX
Delaware	Philadelphia, PA
Vermont	San Antonio, TX
	Memphis, TN
	Washington, D.C.
	Boston, MA
	Austin, TX
	Fort Worth, TX
	Fresno, CA

*Cities among the top 50 cities in the U.S. with zero ME/C denials.

almost half of all ME/C denials (47.6%); and the percentage of pediatric PODs denied, 9.8%, (196/2003 from Table 3) was 4.7-fold greater than the 2.1% (215/10 064) seen in the adult population.

Race and ethnicity. African-American PODs were more than threefold as likely to be denied as Caucasians (7.0% vs. 2.3%). Similarly, Hispanic PODs were twice as likely to be denied by ME/Cs (4.6% vs. 2.3%) as Caucasians.

Geographic region. Medical examiner/coroner denials vary by geographic area, as well as by regions of the United Network for Organ Sharing (UNOS), as is apparent in Tables 3–6. Table 4 shows that, during the study period, in New York, NY, Houston, TX, and Philadelphia, PA – three of the five largest cities in the U.S. – there were no (0) potential organ donor denials by ME/Cs.

Table 5 summarizes state-level ME/C denials. Data was not obtained for seven states, and incomplete data was reported for five states owing to the sample size of 83% (49 of 59) OPOs.

Several states for which complete data were available had no (0) potential organ donors denied by ME/Cs. These states include New Jersey, New Hampshire, Delaware, and Vermont. (Tables 4 and 5).

Discussion

As shown in Table 2, it is possible that more than 1400 persons on transplant waiting lists did not receive donor organs owing to ME/C denials in 2000–01. Denials in pediatric PODs remain a serious issue because of the inability of many children to receive organs from adult donors. As noted previously, denials of pediatric PODs constituted nearly half of all denials in 2000–01. During 1990–92, 22% of all ME/C denials were from child abuse cases (2), compared with 44% in 2000–01 (Table 3).

The foregoing results are important findings that are both significant and troublesome. During 2000–01, there were, on average, 1131 children, aged 5 and less, that were added to the waiting list each year. Approximately 697 children in this age group were transplanted each year, but tragically 277 organs from children in this age category were denied each year. On average, 182 children in this age group died while waiting per year (Table 7). Some ME/Cs remain reluctant to consider the release of organs from child abuse and/or SIDS PODs (12,25).

Comparison study periods: 2000–01 vs. 1990–92

Nearly a decade has passed since the first published study documented the magnitude of PODs lost in the U.S. as a result of denial of organ recovery by ME/Cs (3) The percentage of ME/C denials appears to have remained virtually unchanged: 7.2% in 1990, and 6.7% in 2001; a modest decline of 6.9% (Table 7).

These results are fairly consistent with those reported elsewhere, using less rigorous data collection techniques. For example, Sopher recently contacted 64 city, county, and state medical examiner offices. Forty-four offices responded to the survey, corresponding to approximately 29% of the U.S. population. The offices reported that, overall, 7% of the requests were denied, 70% were granted unconditionally, and the remainder were granted, but with restrictions (4).

In light of the continued status quo in parts of the country, this situation must be addressed with urgency and effectiveness. As is apparent from the data, some states and

Table 5: Medical examiner denials by state

State	2000	2001	Total (2000–01)	State	2000	2001	Total (2000–01)
Alabama	8	7	15	Nevada	1	5	6
Alaska	N/A	N/A	N/A	New Hampshire	0	0	0
Arizona	N/A	N/A	N/A	New Jersey	0	0	0
Arkansas	2	8	10	New Mexico	0	1	1
California	51	48	99	New York*	0	1	1
Colorado	2	3	5	North Carolina*	0	0	0
Connecticut	2	3	5	North Dakota	4	3	7
Delaware	0	0	0	Ohio*	4	8	12
Florida*	18	16	34	Oklahoma	4	2	6
Georgia	1	3	4	Oregon	0	1	1
Hawaii	3	5	8	Pennsylvania*	2	4	6
Illinois	6	8	14	Puerto Rico	0	2	2
Indiana	5	1	6	Rhode Island	3	2	5
Iowa	0	1	1	South Carolina	11	1	12
Kansas	3	8	11	South Dakota	1	0	1
Kentucky	N/A	N/A	N/A	Tennessee	0	2	2
Louisiana	18	12	30	Texas	0	6	6
Maine	0	1	1	Utah	1	0	1
Maryland	1	1	2	Vermont	0	0	0
Massachusetts	0	1	1	Virginia	5	2	7
Michigan	1	4	5	Washington, D.C.	0	0	0
Minnesota	1	2	3	Washington	N/A	N/A	N/A
Mississippi	N/A	N/A	N/A	West Virginia	N/A	N/A	N/A
Missouri	2	3	5	Wisconsin	0	2	2
Montana	N/A	N/A	N/A	Wyoming	N/A	N/A	N/A
Nebraska	10	6	16	Totals	170	183	353

N/A = data not available.
Organ procurement organization (OPO) in the state did not participate.
*Incomplete reporting for this area. Some OPOs in the state did not participate.

Table 6: Comparison of medical examiner and coroner denials and donor population characteristics for two time periods: 1990–92 (study 1) and 2000–01 (study 2)

	Study 1*			Study 2	
Characteristic	1990	1991	1992	2000	2001
ME/C potential organ donors denied – extended (number)	219	302	363	198	207
ME/C potential organ donors denied (%)	7.2	9.6	11.4	6.8	6.7
Decrease in percent of ME/C potential organ donors denied from 1990 to 2001 (%)	N/A	N/A	N/A	N/A	6.9
Total U.S. organ donors (number)	4533	4530	4548	5985	6081
Percent of organ donors that are ME/C cases (%)	66.9	69.1	69.9	54.6	57.1
U.S. estimate of number of organ donors that are ME/C cases (number)†	3033	3130	3179	3268	3472
Increase in ME/C organ donors from 1990 through 2001 (%)	N/A	N/A	N/A	N/A	14.5
U.S. estimate of number of organ donors that are not ME/C cases (number)†	1500	1400	1369	2717	2609
Increase in non-ME/C organ donors from 1990 through 2001 (%)	N/A	N/A	N/A	N/A	73.9

N/A = not applicable.
*See reference 3.
†Calculated by taking the percentage of donors that are medical examiner/coroner (ME/C) cases times the actual number of U.S. organ donors.

localities have taken important steps to assure all potential donors are released. Such efforts have included a mixture of local protocol, regulatory and/or legislative approaches.

Legislation

Prior to 1994, two states, New York and Tennessee, had laws requiring the release of organs from PODs in ME/C cases (26,27). Since 1994, two other states, New Jersey and Texas, have enacted legislation that severely restricts the ability of ME/Cs to deny organ recovery. The New Jersey law directs MEs to release organs if they are not present at the time of recovery, viewing the organ in question, and determining at that time, that the organ cannot be released for transplantation (28). Following enactment of this legislation, MEs released all organs for recovery during the survey period in New Jersey. The Texas legislation

Table 7: Pediatric patients (aged 5 years): waiting list, transplant, deaths on the waiting list, and medical examiner/coroner denials†

Characteristic	Average per year (2000–2001)
Patients added to list each year	1131
Patients transplanted	697
Deaths on the waiting list	182
ME/C organs denied*	277

*From Table 3. In 2000–2002, the average medical examiner/coroner (ME/C) denials extended per year (154/2 = 77) times the previous mean national organ yield of 3.6 = 277.
†See reference 35.

is nearly identical to that of New Jersey. The law stipulates that if the ME decides that any specific organ may not be recovered for organ transplantation, because that organ may be relevant in determining cause of death, the ME has the obligation to make that determination when present in the operating room during the organ recovery surgery. The ME may request a biopsy of the recovered organ or deny its removal, but if removal is denied, the ME must explain the reason for denial in writing (29).

Although the above legislation was recently enacted, the historical background and legislative history of these laws are rooted firmly in the Uniform Anatomical Gift Act (UAGA), finalized in 1968. The Act offers the following stipulation: Subsection (d) is necessary to preclude the frustration of the important medical examiners' duties in cases of death by suspected crime or violence. However, as such cases often can provide transplants of value to living persons, it may prove desirable in many if not most states to reexamine and amend the medical examiner statutes to authorize and direct medical examiners to expedite their autopsy procedures in cases in which the public interest will not suffer (26).

The New Jersey and Texas legislatures effectively implemented the original intent of the UAGA when revising medical examiner statutes. These legislatures defined statutory procedures that would accommodate the legitimate interest of ME/Cs in death investigation and furthered the public policy of encouraging organ donations. The legislation was unanimously passed in both states. The New Jersey and Texas laws represent a reasoned balance between the societal needs for increased donor organs, and the legitimate law enforcement needs necessary to determine the cause and manner of death in suspicious cases. Since the passage of legislation by these two states, a comparative analysis reveals that ME/C denials decreased 83% in these two states from 1990-1993 to 2000-2001. If the percent of ME/C denials had remained at their 'prelegislative' level in the 2000–01-study period, then 37, not six, PODs would have been lost, and as many as 136 people would have been denied life-saving transplants in Texas and New Jersey alone.

On November 19, 2002, the Advisory Committee on Organ Transplantation, appointed by Tommy G. Thompson, Department of Health and Human Services, unanimously agreed on a series of recommendations concerning various aspects of organ donation and transplantation. One of the recommendations directs the Secretary to use his good standing with the National Governor's Association, the National Association of State Legislatures, the Uniform Commissioners of State Laws, and/or with individual states to amend the Uniform Anatomical Gift Act (UAGA) to add a new subsection that mirrors the Texas and New Jersey laws. The amendment, which would appear at the end of Section 4 of the Act, would insert language nearly identical to that of the Texas medical examiner law. Further, the Secretary has been asked to encourage individual states to adopt state laws to the same or similar effect (30). Colorado attempted unsuccessfully in 2000 to pass the Texas and New Jersey medical examiner laws while California, in 2003, passed ME/C legislation similar to Texas legistation through both houses (15,31).

Regulations and protocols

While legislation is being increasingly considered when other efforts fail, some localities and states have variously tried regulation and/or policy and protocol development. Localities such as Boston, MA, and others have established protocols and achieved cooperation resulting in ME release of 100% of PODs. The state of Florida recently adopted regulations that include: 'When permission is requested to proceed with a vascular organ donation, the paramount concern of the medical examiner must be to save the life of the intended recipient(s).' The Florida regulations further lists specific reasons that are generally not regarded as sufficient to deny permission for vascular organ explantation (36). Therefore it is important for all involved to carefully look at the structure, current practice and, above all, the single life or lives that could be saved in deciding how to achieve 100% organ release in all ME/C cases.

Clearly, vital steps have been taken to remedy situations in parts of the country where successful death investigations and organ recovery do not occur in tandem with one another each and every time such opportunities arise. However, serious concerns remain. For example, many ME/Cs fear the possibility that even one case of miscarried justice may result, despite the admonitions of their colleagues. The Chief Medical Examiner in Chicago, IL, has repeatedly noted, 'There has never been a homicide prosecution endangered by organ transplantation.' (32) Chicago had a single denial in the 2-year study period. Nonetheless, for some medical examiners, the improbable still appears to underscore the significance of the unacceptable: a botched death investigation. Because of this fear, it is a foregone conclusion in some ME/C jurisdictions that, in certain cases, such as homicides, or deaths involving child abuse, PODs will not be released.

Non-physician coroners and justices of the peace

More concerning are the denials from nonphysician elected officials (coroners or justices of the peace, JP), individuals with little or no medical background, in essence, making life and death decisions. Texas specifically addressed this possible occurrence during the 2003 legislative session with SB 1225, providing that the decision for release or nonrelease of organs in JP cases rests with the ME performing the autopsy. In those unusual cases in which a ME is not performing the autopsy, then the JP or his designee is required to attend the organ recovery surgery and view the organ in question if he is considering denying organ recovery (33).

As noted previously, denial data was not gathered in a manner to determine whether a medical examiner or a nonmedical coroner or justice of the peace made the denial. Hanzlick, in a 1998 review of ME/C systems, documented that only 48% of the U.S. is served by medical examiner systems, and that the type of system in place to perform medico-legal review of deaths varies from state-to-state, as well as from county-to-county (34).

Coroners and justices of the peace are often elected officials who serve a single county for one or more specified terms and need not be physicians. At any given time, there are approximately 2759 individuals serving as coroners. Nationwide, the number of newly elected or annually appointed coroners (and justices of the peace) ranges from 159 to 1546 (35).

Discussion

Given the large number, diverse educational backgrounds, variation in levels of training, and generally autonomous practice of the individuals who serve as coroners, justices of the peace, pathologists, and MEs, it is unlikely that a 'cooperative' system to reach the goal of 100% release of potential organ donors nationwide will be achieved. With few exceptions, when the issue of legislation is raised or proposed, ME/Cs voice concerns about intrusions into individual practice patterns, having their practice 'legislated.' As in all fields, practice patterns may be allowed to vary when the resulting differences are inconsequential relative to the public good. However, individual practice patterns that result in the nonrecovery of organs, given the dire consequences of the organ shortage, are harmful and outdated. Medical examiners/coroners are already advocating and/or achieving 100% release of organs in many parts of the country and should receive more credit for their lifesaving role than they have in the past. Clearly, successful death investigations and lifesaving organ transplantations can, and do, occur every day in this country.

Potential recipients currently depend on good working relationships between ME/Cs and OPOs. While such coordination should be the operational expectation of every OPO and every ME/C, the lack of it should not harm potential recipients. Instead, the public should expect definitive public policy: policy that makes certain that life-saving organs are recovered in all cases, while ensuring that death investigation is conducted competently and without untoward consequences for organ donation. Persons on organ transplant waiting lists, as well as the transplant professionals, are most grateful to ME/Cs who achieve 100% release, and thereby assist in making the gift of life available to individuals in dire need. Such ME/Cs demonstrate the leadership qualities that others should emulate in both word and deed. Whether the 100% release is achieved by policy, regulation, or by legislation, recognition for these life-saving efforts should be properly credited to medical examiners and coroners, whose role is vital to organ transplantation.

While death investigation remains their first priority, ultimately, ME/Cs assume a critical role in improving the health and welfare of communities. In the case of physician MEs, they in effect fulfill an ethical and a moral obligation every time they release an organ for transplantation (37). Investigating deaths can have a noble purpose for both the deceased, as well as living persons whose lives could be saved. The obvious is clear: in death there can be life.

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