Medical Examiner and Coroner Systems

History and Trends

Randy Hanzlick, MD; Debra Combs, MPH

Context.—Medical legal investigations in the United States (primarily unnatural or suspected unnatural deaths) are carried out by medical examiner or coroner systems. Medical examiners—usually physicians and generally with training in pathology, medicolegal death investigation, and performance of forensic autopsies—generally have greater expertise in unnatural death investigations than do coroners.

Objective.—To document the locations and implementation year for states and counties that have medical examiner systems that have replaced coroner systems or that are defined in statute and assist coroners in their investigations.


Setting.—United States.

Participants.—County medical examiners and state medical examiners or their administrators.

Main Outcome Measures.—The location of states and counties with medical examiner systems, the implementation year for each system, and the proportion of counties and population served by medical examiner systems.

Results.—A total of 79 of 91 county medical examiners responded. A total of 36 states have at least 1 medical examiner system at the county, district, or state level in which there is no coroner involved in the death investigation process. Only 22 states have medical examiner death investigation systems in place and have no coroner in the state. Among 13 states in which some counties have coroner systems and some have medical examiner systems, medical examiner systems exist in 8% of counties and serve 43% of the population. Medical examiner systems that operate without coroner involvement serve about 48% of the population nationwide. Few state or county medical examiner systems have been implemented since 1990.

Conclusions.—In this century, medical examiner systems have gradually replaced coroner systems, but such change has slowed in recent years, with medical examiner systems now serving about 48% of the national population.

MEDICO LEGAL DEATH investigations in the United States are those performed under the provisions of state law, with either a coroner or medical examiner as the official primarily responsible for each investigation in a given jurisdiction, most often on the county level. With few exceptions, coroners are elected lay individuals who rely on whatever medical personnel are available to assist in investigations and perform autopsies, while medical examiners are usually physicians and pathologists who are appointed and often have special training in medicolegal death investigations and forensic autopsies performance. The distribution of and qualifications for coroners in the United States have been previously reported. Since 1877, there has been a trend to replace coroner systems with medical examiner systems in the United States. In this article we report the temporal and geographic aspects of medical examiner system implementation in the United States.

METHODS

Definitions

A county medical examiner system has an appointed county medical examiner who is in charge of medicolegal death investigations for the county. No coroner is involved in the death investigation process. County medical examiner systems may exist in every county within a state or, in most cases, in only some counties within a state.

A district regional medical examiner system has an appointed medical examiner who oversees medicolegal death investigations for a group of counties. No coroner is involved in the death investigation process.

A state medical examiner system has an appointed medical examiner who oversees medicolegal death investigations for an entire state. No coroners are involved in the death investigation process. State medical examiner systems may operate from 1 centralized office or use regional or district offices that are branches of the state medical examiner office.

A referral-based medical examiner system has an appointed medical examiner formally defined in statute who has overseeing authority for medicolegal death investigations and who provides support services to coroners who are primarily responsible for death investigations in a given jurisdiction. Some referral-based systems are organized on a state level and some on the county level.

An ad hoc affiliate medical examiner system is one in which medical examiner services are available to coroners but are not formally established by statute. Information about ad hoc affiliate medical examiners is not included in this article because the system has not been formally established and therefore has not been systematically evaluated.
examiner systems is not included in this report because such systems vary in their scope and nature and are difficult to quantify and characterize. An autonomous, stand-alone medical examiner system has no coroner involved in the death investigation process.

Analysis

An available directory was reviewed to identify the location of county, district or regional, state, and referral-based medical examiner systems in the United States. For the county medical examiner systems, a survey form was designed and mailed to the current county medical examiner requesting information about the year in which the medical examiner system was implemented and whether legislation or referendum was required to implement the system. Information about states that have state medical examiner systems, district or regional systems, or county medical examiner systems in every county within the state was obtained via telephone interview with the state medical examiner (or administrator) or an individual who was directly involved in the legislative process when the state opted to implement medical examiner systems throughout the state.


RESULTS

Classification of States by Medical Examiner System Type

Based on various combinations of state medical examiners, county medical examiner systems, and county coroner systems, the 38 states with medical examiner systems of various types may be classified into 7 types (Table 1). The most common type (18 states) is a type 1 system, with a state medical examiner office, no county medical examiner systems, and no coroner systems. The second most common arrangement (10 states) is the type 7 system, in which there is no state medical examiner, some counties have medical examiner systems, while other counties have coroner systems. The other 5 types represent various hybrids (Table 1).

County Medical Examiner Systems in Type 3 and Type 7 States

Type 3 and type 7 states (Table 1) are considered together because in these 13 states some counties have county medical examiner systems while other counties have coroner systems. A total of 91 county medical examiner systems exist in the type 3 and type 7 states, and survey responses were received from 79 (87%) (Table 2). The 91 county medical examiner systems serve a total population of 58,482,965 people and are distributed among 1174 counties that have a total population of 135,606,619 people. Thus, county medical examiner systems serve 8% of the counties and 43% of the population in these states. In each of these 13 states, counties that do not have medical examiner systems have a county coroner or another elected official such as a sheriff or justice of the peace that serves as ex officio coroner.

The 91 counties in Table 1 are counties that abolished the office of coroner and established instead a county medical examiner system. To effect such change, 15 counties in 9 different states reported that state law changes were required; 30 counties among 9 states reported that county law changes were required (7 counties reported that state law changes were also required); 18 counties among 9 states reported that a county referendum was required; and 39 counties among 7 states reported that no law changes were required because enabling laws existed at the time of change to a medical examiner system.

The number of county medical examiner systems implemented since 1950 increased each decade until the 1990s.

States With County or District Medical Examiner Systems and No Coroners (Types 5 and 6)

A total of 3 states have medicolegal death investigation systems in which every county has a county medical examiner (Michigan in 1969 and Arizona in 1976) or is served by a district medical examiner (Florida in 1970). Traditional lay coroners existed only in Michigan; the systems in Florida and Arizona evolved from systems in which justices of the peace carried out coroner duties.

State Medical Examiner Systems That Lack Coroners

A total of 19 states have a state medical examiner system in which there are no coroners (Table 3). We opted to include North Carolina in Table 3 because the number of coroners there is very small, and they work closely with the state medical examiner. Sixteen of these systems were implemented before 1980. Lay county coroner systems existed as the immediately preceding, sole system type in only 7 of the 19 states.

State Medical Examiner Systems With County Coroners (Referral-Based Systems)

A total of 6 states have both a state medical examiner and county coroners in each county in the state. We opted to include Alabama and Georgia in this group because they have a state medical examiner system of sorts as well as coroners in nearly all counties. Each of these state medical examiner offices was implemented in 1990 or earlier (Kentucky and Alabama in 1977, Arkansas in 1979, Montana in 1980, Mississippi in 1986, and Georgia in 1990).

Overall Data

A total of 38 states have at least 1 statute-established medical examiner system at some level of government (county, district, or state). Only 22 states, however, have death investigation systems in place in which no coroners are involved at any level; such systems serve about 48% of the US population. A total of 35 counties (87.4%) with a county medical examiner system have populations in excess of 500,000 people, while 66 (72.5%) have populations of more than 100,000 people (Table 4).
COMMENT

Although Massachusetts replaced coroners statewide in 1877 with physicians known as medical examiners, physician coroners later emerged and were not replaced with the current state medical examiner system until 1983. Thus, the “modern era” of medical examiner systems really began in New York City in 1918 when it created its medical examiner system.

The geographic data indicate that state medical examiner systems exist in various locations throughout the United States but are concentrated in the Northeast. The temporal data indicate a flurry of medical examiner system implementations after 1950, with a relative stall in the emergence of medical examiner systems since the mid-1980s. We speculate that the earlier growth in medical examiner systems may have been related in part to the publication in 1954 of the Model Postmortem Examinations Act, which outlined model legislation for the development of medical examiner death investigation systems.

The stalled emergence of medical examiner systems may reflect both obstacles and indifference. Conceivable obstacles are many. First, there may not be a pressing need for a medical examiner system if the local coroner, in conjunction with the ad hoc affiliate or referral-based medical examiner, adequately meets local need. Second, the office of coroner may be a constitutional one that can only be eliminated by changing the state’s constitution, which may be a long and arduous task that involves statewide support even though the proposed changes affect only a given community within the state. Third, state law may allow for home rule, in which counties are free to make their own decisions regarding coroner or medical examiner systems, but the law may limit such home rule privileges to those counties that exceed a specified population. Fourth, state law may allow a county to hold a referendum to change their death investigation system, but the ultimate change may require approval from the state legislature. Fifth, the local nature of coroner systems brings the politics of death investigation systems to a local level, which may introduce personal issues into the decision-making process. Sixth, the abolition of an elected office may require the support and action of legislators who would be reluctant to abolish the offices of potential political supporters. Seventh, there may be indifference on the part of potentially interested medical examiners because they do not want to be an administrator or in charge of a system. Eighth, the
small population of some areas may not be able to support a medical examiner system in terms of caseload and finances, which would require the cooperation of multiple county governments, which is not easy and may pose turf battles. Ninth, geography may play some role in areas that are very large, remote, or sparsely populated, for which centralized medical examiner services may not be practical. Finally, the existing number of trained, full-time forensic pathologists will not cover anticipated needs if all death investigation systems were to be run by physicians who are medical examiners and have training in forensic pathology—only about 400 practice full-time in the United States, and only about 240 have completed training and become board certified each year.²

It is interesting that in many regions, medical examiner systems emerged from systems in which physicians already had some primary responsibility in death investigations as a county health officer, physician coroner, or some other physician role or from systems in which coroner duties had been performed by justices of the peace (Table 3). In the latter situation, an elected office would not need to be abolished. Coroner duties could simply be eliminated from the duties of the justices of the peace, who would continue to do their other duties, and the political problems of abolishing an office would not arise. This situation would perhaps facilitate the trend toward medical examiner system implementation.

Among the states that have some county coroner systems and some county medical examiner systems, Wisconsin and New York have had the largest proportion of counties undergoing conversion to medical examiner systems—14 Wisconsin counties (19.4%) and 16 counties in New York (25.8%) (Table 4). New York, Missouri, and Hawaii have the highest percentage of population served by medical examiner systems (excluding states that have medical examiner systems statewide, of course).

Local idiosyncrasies call into question how complete some conversions to medical examiner systems have been. For example, medical examiners in many areas of Wisconsin do not need to be physicians, and in other places, such as Michigan, they do not need to be pathologists.

The data in Table 2 also show that establishing a county medical examiner apparently has a facilitative effect on the emergence of subsequent county systems in the same state. A trickle-down effect seems to occur once enabling legislation exists, as demonstrated by the large proportion of counties that reported the existence of enabling legislation among counties that implemented medical examiner systems after 1980.

The extent of effort expended, if any, to establish medical examiner systems in some states or counties is not well documented or generally known. For example, how many times has legislation been introduced in South Carolina to establish a state medical examiner system? Who developed the legislation? Why has it failed? Has there ever been legislation in Wyoming to develop medical examiner systems? What procedures were followed in Mobile, Ala, to abolish
the office of coroner? How many attempts were made and over what period? Answers to such questions might be valuable to those who are trying to establish medical examiner systems, and an appropriate suggestion might be for the medical societies of each state to study and report on the issue.

This study has several limitations. First, the data for county medical examiner systems are not complete (12 of 91 counties did not respond). Second, data were obtained from the current medical examiner rather than from state statutory references. We are of the opinion, however, that most heads of death investigation systems are adequately familiar with the history and statutory basis of their system to provide accurate information. Third, data are not reported for death investigation systems such as those in Denver, Colo; Cleveland, Ohio; Cincinnati, Ohio; Charleston, SC, and other places in which there are combined or coexisting coroner and medical examiner systems in 1 or associated offices. We take the position that when a death investigation system does not have a medical examiner with statutory authority that replaces that of the coroner’s, when it is still the coroner who is primarily responsible for death investigations, such jurisdictions should not be classified among autonomous medical examiner systems.

In summary, the US political process seems to have come about halfway in establishing medical examiner systems throughout the United States in terms of population covered and the number of states that have gone to medical examiner services statewide. In recent years the trend has slowed down, however, and whether that observation reflects lack of effort, significant obstacles, a natural trend that has simply run its course, or a combination of factors is not well understood. Problems with coroner systems have received much media attention over the years, and the natural trend and public attitude seem to favor medical examiner systems over coroner systems. It is true, however, that in some recent cases coroner offices have received some support, which might signal decreasing support for medical examiner offices, a worrisome trend for advocates of the latter.

Physicians need to be concerned with the quality of medicolegal death investigations because physicians are involved in conducting them and because the nature and quality of patient management by physicians and health care workers often become an issue in medicolegal death investigations. The ongoing development of medicolegal death investigation guidelines and standards, such as those currently being undertaken by the National Institute of Justice (which has developed national medicolegal death investigation guidelines), Centers for Disease Control and Prevention (which has published guidelines for death scene investigations of sudden, unexplained infant deaths), National Association of Medical Examiners (which has developed inspection and accreditation standards and checklists), and the College of American Pathologists (which is developing practice guidelines for forensic pathology), may foster more physician involvement to comply with provisions of such guidelines and standards and to improve the quality of death investigation systems. We hope that this article is helpful through its reporting of the present status of medical examiner systems in the United States; we also hope the article will be useful to those who are pursuing medical examiner death investigation system implementation.

### Table 4.—Population and Geographical Data for 13 States That Have Some County-Based Medical Examiner Systems and Also Have Coroners in Some (or Most) Counties*

<table>
<thead>
<tr>
<th>State</th>
<th>Counties/Medical Examiners, No. (%)</th>
<th>Population Served by County Medical Examiner System, %</th>
<th>Mean Population of Medical Examiners, No.</th>
<th>Medical Examiner Counties With Population &lt;50 000, No.</th>
<th>Medical Examiner Counties With Population &lt;100 000, No.</th>
<th>Medical Examiner Counties With Population &lt;200 000, No.</th>
<th>Medical Examiner Counties With Population &lt;500 000, No.</th>
<th>Medical Examiner Counties With Population &lt;1 000 000, No.</th>
<th>Medical Examiner Counties With Population &gt;1 000 000, No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>67/3 (4)</td>
<td>13</td>
<td>403 401</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>California</td>
<td>58/5 (9)</td>
<td>40</td>
<td>2 955 303</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Georgia</td>
<td>159/4 (3)</td>
<td>31</td>
<td>552 818</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Hawaii</td>
<td>5/1 (20)</td>
<td>74</td>
<td>874 378</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Illinois</td>
<td>102/1 (1)</td>
<td>44</td>
<td>5 141 375</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Minnesota</td>
<td>87/13 (15)</td>
<td>51</td>
<td>162 265</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>...</td>
<td>1</td>
</tr>
<tr>
<td>Missouri</td>
<td>114/13 (11)</td>
<td>62</td>
<td>2 53 059</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>...</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>New York</td>
<td>62/16 (26)</td>
<td>80</td>
<td>1 032 932</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Ohio</td>
<td>88/1 (1)</td>
<td>5</td>
<td>527 920</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>67/2 (3)</td>
<td>17</td>
<td>1 036 352</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Texas</td>
<td>254/14 (6)</td>
<td>57</td>
<td>879 834</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>2</td>
<td>...</td>
</tr>
<tr>
<td>Washington</td>
<td>39/4 (10)</td>
<td>54</td>
<td>723 892</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>1</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>72/14 (19)</td>
<td>44</td>
<td>159 935</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>...</td>
</tr>
<tr>
<td>Total</td>
<td>1174/91 (8)</td>
<td>47</td>
<td>1 181 295</td>
<td>16</td>
<td>9</td>
<td>20</td>
<td>11</td>
<td>21</td>
<td>15</td>
</tr>
</tbody>
</table>

*Ellipses indicate data not available.

References