SCIENTIFIC WORKING GROUP FOR
MEDICOLEGAL DEATH INVESTIGATION

A Report Prepared by the System Infrastructure Committee of the Scientific Working Group for Medicolegal Death Investigation

Workplace Locations of Board Certified Forensic Pathologists in the United States who Perform Medicolegal Autopsies for Medical Examiner/Coroner Systems: 2012

Executive Summary

In follow up to the previous reports and recommendations, the Scientific Working Group for Medicolegal Death Investigation (SWGMDI) concluded it would be helpful to document the workplace locations of board certified forensic pathologists who conduct or oversee medicolegal autopsies for medical examiner or coroner systems in the United States. This documentation is done in two ways. First, tables and dot maps of work locations are provided and plotted. Second, areas are identified that are possibly underserved by board certified forensic pathologists and/or in which regional medicolegal death investigation centers might be of help to improve medicolegal death investigation services. The overarching goal is to produce information that could be useful for improving medicolegal death investigation in the United States.

Based on data collected, some general observations can be made.

- Overall, at least 502 board certified forensic pathologists are performing or overseeing official medicolegal autopsies in the United States and Puerto Rico, and these pathologists are based in approximately 218 of the 3145 county equivalents in the United States.
- The Northeast, East, Upper Midwest, and Southeast portions of the United States have workplace locations that, considering the 150 mile radius around them, substantially overlap, with most or all areas being within 150 miles of a forensic pathologist workplace.
- The Upper Central, Northwest, Southwest, and Mountain areas have more areas that are further than 150 miles from a forensic pathologist workplace.
- Although many areas of the country are within 150 miles of a forensic pathologist workplace, more state-specific information is needed to determine which work places are actually providing forensic pathology services areas within the 150 mile radius, and which ones might be suitable for evolving to a regional center if not serving as one currently.
- For the areas not within 150 miles of a forensic pathologist workplace, more information is needed to determine medicolegal autopsy caseload originating in those areas, and whether the caseload warrants a medicolegal autopsy center closer to the area.
- SWGMDI is aware that some data are missing in some states, but believes that the missing data do not dramatically impact on the general conclusions drawn.

Workplace Locations of Board Certified Forensic Pathologists in the United States who Perform Medicolegal Autopsies for Medical Examiner/Coroner Systems: 2012

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INTRODUCTION

There was a time—not too long ago, in fact—when the non-physician medical examiner for the State of Georgia would fly a plane to remote areas of the state, land the plane in a field, and conduct an autopsy in a garage or even outside (if the weather was good) on a piece of plywood placed upon sawhorses. Undoubtedly, in many other states, peripatetic prosectors or pathologists would travel long distances to underserved areas to conduct autopsies in makeshift settings or to appear for trial in somewhat remote county courthouses. The performance of autopsies by non-physicians has pretty much come to an end, but to this day, there are still places in the United States in which bodies must be transported very long distances for medicolegal autopsy, or in which pathologists must travel a considerable way to perform an autopsy and/or testify in court for a local jurisdiction lacking its own local forensic pathologist.

In addition, there are numerous jurisdictions that lack not only a Board-certified forensic pathologist, but a Board-certified pathologist, such that medicolegal autopsies are being performed by individuals lacking some of the most basic certification requirements for autopsy performance.

The System Infrastructure Committee of the Scientific Working Group for Medicolegal Death Investigation (SWGMDI) has been charged with studying and making recommendations to address infrastructure and systems problems involving medicolegal death investigations conducted by medical examiners, coroners, and in some areas of the country, justices of the peace. Along those lines, the Committee has tabulated medicolegal autopsy facilities in the United States, made recommendations to increase the supply of forensic pathologists, and reported the perceived need for regional medicolegal death investigation centers in the United States (1-3).

In follow up to the previous reports and recommendations, the SWGMDI concluded it would be helpful to document the workplace locations of board certified forensic pathologists who conduct or oversee medicolegal autopsies for medical examiner or coroner systems in the United States. This documentation is done in two ways. First, tables and dot maps of work locations are provided and plotted. Second, areas are identified that are possibly underserved by forensic pathologists and/or in which regional medicolegal death investigation centers might be of help to improve medicolegal death investigation services. The overarching goal is to produce information that could be useful for improving medicolegal death investigation in the United States.

METHODS

To conduct this study, the SWGMDI solicited the assistance of the National Association of Medical Examiners' (NAME) ad hoc data committee. On December 2, 2012, an online survey was launched that requested the following information:

- Zip Code of primary work location
- Whether the primary location is full-time or part-time work
- Zip Code of any other work locations and whether those work settings involved full-time or part-time work
- Whether the responder planned to still be practicing forensic pathology in the year 2020 (Yes, No, Not Sure)
- The responder's email address (to facilitate follow up and elimination of duplicate entries)
- Miscellaneous or explanatory comments

Board certified forensic pathologists were asked to complete the survey ONLY if their job included the performance or oversight of official medicolegal autopsies for a medical examiner, coroner, or Justice of the Peace.

Email notification was sent to all subscribers of NAME's listerv (NAME-L) and also to all board certified forensic pathologist NAME members (n-415) using NAME's AVECTRA membership data system. Notification was also sent to members of the American Academy of Forensic Sciences (AFFS) Pathology/Biology Section membership. Efforts were also made to disseminate notice to the membership of the College of American Pathologists (CAP), The United States and Canadian Academy of Pathology (USCAP), and the American Society of Clinical Pathology (ASCP). These latter organizations declined to participate because such global notification of members lay outside their usual procedures. The American Board of Pathology (ABP) provided names of board certified forensic pathologists, but its data system does not include email addresses or locations of all diplomats, especially those who were certified long ago. The American Board of Medical Specialties also lacked the ability to provide the specific information needed to contact currently practicing board certified forensic pathologists.

The survey was available on-line for 60 days. During that period, lists of responders-to-date were sent out two times via NAME-L and AVECTRA, with a specific request to respond if previous response was lacking, and to notify board certified forensic pathologists who were not NAME members, requesting that they complete the survey. In its database, NAME also had email addresses of former members who had dropped their membership (n=119), and those people were also alerted to the survey by email.

Data could be entered by proxy if a responder knew of another board certified forensic pathologist who may not have been aware of the survey. Thus, the data include persons who may not, themselves, have responded to the survey. Approximately 20 entries were made by proxy. Before data tabulation, duplicate entries were eliminated using email address to detect duplicates.

When notification of potential responders was exhausted through routine NAME channels, a final email was sent to 275 board certified forensic pathologists who had not responded to the survey. 26 delivery errors were received, and ultimately 27 additional responses were received.

Additional information for some board certified forensic pathologists was received during the public review and comment period for this document and via follow up with specific offices based on information offered in public review and comment. Some offices reported that they anticipate having additional board certified forensic pathologists after the September, 2013 forensic pathology board certification examination results are released. However, to keep the time frame our study consistent across offices, we have included information only for forensic pathologists who became board certified in 2012 or earlier years.

RESULTS

As of January 31, 2013, 457 people replied to the survey. 48 states and Puerto Rico were represented. 399 (87%) indicated that they practiced full-time while 53 (12%) do part-time work. 84 (18%) indicated that they also did forensic pathology work at a second location outside of the primary work area and 48 (11%) indicated that they also worked at a third location. Following public review and comment, additional board certified forensic pathologists were identified bringing the total number to 499 in the 50 states and three more in Puerto Rico for a total of 502.

Table 1 shows, for each state, the number of board certified forensic pathologists per million population and per 1000 injury deaths. These data may be somewhat informative about the ability or inability of certain systems to perform complete autopsies in certain types of deaths such as motor vehicle fatalities, well documented suicides, and apparent natural deaths that are sudden, unexpected, and not well explained. Table 2 lists the general community area, state, and counties in which the forensic pathologist workplaces are located. Appendix 1 shows the state and zip code for each board certified forensic pathologist and Appendix 2 shows the number of board certified forensic pathologists in each of 218 counties where a board certified forensic pathologist is located. Figures 1 and 2 are graphic representations of the workplace locations and Figures 3- 9 show locations of board certified forensic pathologists with 150 mile radius areas superimposed in different parts of the United States. Figure 10 compares U.S. population density with the geographic distribution of board certified forensic pathologists, which, in general, shows good correlations.

Of 427 responders who responded to a question about future practice, 279 (65%) indicated that they still plan to be practicing in the year 2020. 67 (16%) indicated they did not plan to be practicing in 2020. 81 (19%) indicated that they were not sure. Thus, up to 35% of the current workforce may no longer be practicing in 2020.

DISCUSSION

We interpret the data to essentially indicate where primary forensic pathology jobs exist. As expected, for the most part, these are located in metropolitan areas or in county seats, which tend to be the most populous area within a county. Of the approximately 40,000 zip code areas in the United States, the primary workplace of board certified forensic pathologists includes 266

different zip codes. Those zip codes of forensic pathologists represent 218 counties of the 3145 counties or county-equivalents in the United States. This situation may not be as bad as the numbers make it look, because many states have a single centralized office or a few regional offices that serve numerous counties. But the numbers do point out that the actual workplaces of forensic pathologists are somewhat focally distributed.

Between 1959 and 2012, 1491 persons have become board certified in forensic pathology by the American Board of Pathology. It is reasonable to assume that most people who obtained their board certification prior to 1973 (n=249) have died, retired, or are no longer practicing forensic pathology for a medical examiner or coroner system. That leaves an estimated maximum forensic pathologist working pool of approximately 1261 people. Previous studies have shown that in the long run, 21% of board certified forensic pathologists do not practice forensic pathology at all. Data from American Medical Association practitioner files indicates that there are 663 forensic pathologist practitioners, although questions arise about the completeness and accuracy of those data (see page 15). Those data do not indicate whether the person is actually performing official medicolegal autopsies for coroners or medical examiners. Some forensic pathologists limit their practice to consulting, while others have jobs that do not involve performance of, or responsibility for medicolegal autopsies, such as director of a hospital autopsy service or tissue bank, for example. Thus, our survey may have actually captured data for most board certified forensic pathologists who perform or oversee official medicolegal autopsies.

Data from the current survey show that 16% of board certified forensic pathologists do not plan to be practicing in 2020, while another 19% are not sure. Also, data have shown that the workforce decreases about 15% per seven years due to retirement, death, and other factors. Thus, 15% to 35% of the workforce could cease working by 2020. If we assume that the current workforce of 497 forensic pathologists is near accurate, we might anticipate a loss of 75 to 174 workers in the next 7 years. With an average of 35 persons becoming board certified in forensic pathology each year, approximately 245 new board certified forensic pathologists would be produced by 2020. Recalling that 21% of such people do not practice forensic pathology at all, approximately 194 new practitioners would be produced in the face of at least 75 persons leaving the field and possibly as many as 174. This would result in as little as a 5% increase in workforce over the next seven years and possibly up to 18%. This gain would not have major impact on increasing the supply of forensic pathologists in the United States (2).

The data in this report may be useful in further identifying where regional medicolegal death investigation and autopsy centers may be needed as well as areas that have good numbers of board certified forensic pathologists who work in offices that are not providing regional services, but that might be capable of serving in such a capacity. Further, it must be recognized that forensic pathology services can, assuming medical license issues are addressed, cross state lines into contiguous states, where needed and appropriate. Rural areas are difficult to address because of low population density and caseload, and even if rural centers were established, there still may be a need to transport bodies over fairly long distances. For example, it would be hard to justify a regional center in Glendive, Montana to serve only Montana, first because of low case load, and second, because transport distances from many areas would still be considerable. It might be

more feasible and practical, however, if such an office also served western North Dakota, which also lacks nearby board certified forensic pathologists.

Regarding need and possible locations of regional medicolegal death investigation centers, further study is needed of case load, transport distances, transport times, tax bases, revenue sources, and potential living locations that could attract and support forensic pathologists. There is a complex interplay between these variables that will require more state-specific and inter-state study. Finally, it must be recognized that some forensic pathologists may not be supportive of regional centers, especially if such centers were to adversely impact on case load or income. That potential problem needs to be considered and addressed.

Table 1. State data regarding board certified forensic pathologists per million population and per 1000 injury deaths. Data for Puerto Rico are not included in this Table.

State	Population (2010)	Deaths (2010)	Injury Deaths	% deaths due to injury	Number BCFPs (2012)	BCFPs per million pop.	BCFPs per 1,000 injury deaths
Alabama	4,779,736	48,038	3,524	7%	11	2.3	3.1
Alaska	710,231	3,728	594	16%	2	2.8	3.4
Arizona	6,392,017	46,762	4,705	10%	20	3.1	1.7
Arkansas	2,915,918	28,916	2,197	8%	2	0.7	0.9
California	37,253,956	234,012	16,703	7%	35	0.9	2.0
Colorado	5,029,196	31,465	3,243	10%	11	2.2	3.4
Connecticut	3,574,097	28,692	1,867	7%	4	1.1	2.1
Delaware	897,934	7,706	540	7%	4	4.5	7.4
Dist. Of Columbia	601,723	4,672	394	8%	0	0.0	0.0
Florida	18,801,310	173,791	12,968	7%	41	2.2	3.2
Georgia	9,687,653	71,263	5,625	8%	24	2.5	4.2
Hawaii	1,360,301	9,617	720	7%	2	0.7	1.4
Idaho	1,567,582	11,429	1,001	9%	1	0.6	1.0
Illinois	12,830,632	99,931	6,109	6%	12	0.9	2.0
Indiana	6,483,802	56,743	3,877	7%	9	1.4	2.3
Iowa	3,046,355	27,745	1,732	6%	8	2.6	4.6
Kansas	2,853,118	24,502	1,891	8%	2	0.7	1.1
Kentucky	4,339,367	41,983	3,567	8%	10	2.3	2.8
Louisiana	4,533,372	40,667	3,203	8%	8	1.8	2.5
Maine	1,328,361	12,750	764	6%	3	2.3	3.9
Maryland	5,773,552	43,325	2,958	7%	12	2.1	4.1
Massachusetts	6,547,629	52,583	2,962	6%	4	0.6	1.4
Michigan	9,883,640	88,021	5,937	7%	18	1.8	3.0
Minnesota	5,303,925	38,972	2,898	7%	14	2.6	4.8
Mississippi	2,967,297	28,965	2,414	8%	2	0.7	0.8
Missouri	5,988,927	55,281	4,387	8%	10	1.7	2.2
Montana	989,415	8,827	840	10%	2	2.0	2.4
Nebraska	1,826,341	15,171	973	6%	2	1.1	2.1
Nevada	2,700,551	19,623	1,845	9%	4	1.5	2.2
New Hampshire	1,316,470	10,201	755	7%	2	1.5	2.6
New Jersey	8,791,894	69,495	3,652	5%	10	1.1	2.7
New Mexico	2,059,179	15,931	1,848	12%	9	4.4	4.9
New York	19,378,102	146,432	7,725	5%	28	1.4	3.6
North Carolina	9,535,483	78,773	5,930	8%	11	1.2	1.9
North Dakota	672,591	5,944	412	7%	4	5.9	9.7
Ohio	11,536,504	108,711	7,288	7%	21	1.8	2.9
Oklahoma	3,751,351	36,529	3,225	9%	7	2.0	2.0
Oregon	3,831,074	31,890	2,493	8%	4	1.0	1.6
Pennsylvania	12,702,379	124,596	8,192	7%	19	1.5	2.3
Rhode Island	1,052,567	9,579	637	7%	4	3.8	6.3
South Carolina	4,625,364	41,614	3,286	8%	11	2.4	3.3
South Dakota	814,180	7,100	571	8%	2	2.5	3.5
Tennessee	6,346,105	59,578	5,014	8%	12	1.9	2.4
Texas	25,145,561	166,527	13,736	8%	34	1.2	2.2
Utah	2,763,885	14,776	1,655	11%	5	1.8	3.0
Vermont	625,741	5,380	424	8%	2	3.2	4.7
Virginia	8,001,024	59,032	3,929	7%	11	1.4	2.8
Washington	6,724,540	48,146	3,869	8%	10	1.5	2.6
West Virginia	1,852,994	21,275	1,680	8%	7	3.8	4.1
Wisconsin	5,686,986	47,308	3,561	8%	9	1.6	2.5
Wyoming	563,626	4,438	491	11%	0	0.0	0.0
Total	308,745,538	2,468,435	180,811	7%	499	1.6	2.7

Abbreviations: BCFP = Board-certified forensic pathologist; pop. = population
Source of population and mortality data: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File 1999-2010 on CDC WONDER Online Database, released January 2013. Data are compiled from Compressed Mortality File 1999-2010 Series 20 No. 2P, 2013. Accessed at http://wonder.cdc.gov/cmf-icd10.html on Feb 17, 2013 11:58:31 AM. (4)

Table 2. General city areas and corresponding counties in which *board certified forensic pathologist* primary workplaces are located.

General Area	State	County
ANCHORAGE	AK	ANCHORAGE
BIRMINGHAM	AL	JEFFERSON
HUNTSVILLE	AL	MADISON
MONTGOMERY	AL	MONTGOMERY
MOBILE	AL	MOBILE
LITTLE ROCK	AR	PULASKI
PHOENIX	AZ	MARICOPA
TUCSON	AZ	PIMA
PRESCOTT VALLEY	AZ	YAVAPAI
FLAGSTAFF	AZ	COCONINO
LOS ANGELES	CA	LOS ANGELES
SAN DIEGO	CA	SAN DIEGO
SAN BERNARDINO	CA	SAN BERNARDINO
VENTURA	CA	VENTURA
TULARE	CA	TULARE
SALINAS	CA	MONTEREY
SAN FRANCISCO	CA	SAN FRANCISCO
FAIRFIELD	CA	SOLANO
SAN RAFAEL	CA	MARIN
SAN JOSE	CA	SANTA CLARA
STOCKTON	CA	SAN JOAQUIN
MERCED	CA	MERCED
SANTA ROSA	CA	SONOMA
AUBURN	CA	PLACER
SACRAMENTO	CA	SACRAMENTO
CHICO	CA	BUTTE
ENGLEWOOD	CO	ARAPAHOE
DENVER	CO	DENVER
LOVELAND	CO	LARIMER
BRIGHTON	CO	ADAMS
COLORADO SPRINGS	CO	EL PASO
GRAND JUNCTION	CO	MESA
FARMINGTION	CT	HARTFORD
WILMINGTON	DE	NEW CASTLE
DOVER AFB	DE	KENT
GEORGETOWN	DE	SUSSEX
SAINT AUGUSTINE	FL	SAINT JOHNS
DAYTONA BEACH	FL	VOLUSIA
JACKSONVILLE	FL	DUVAL
TALLAHASSEE	FL	LEON
PANAMA CITY	FL	BAY
PENSACOLA	FL	ESCAMBIA
GAINESVILLE	FL	ALACHUA
ORLANDO	FL	ORANGE

MELBOURNE	FL	BREVARD
MARATHON	FL	MONROE
MIAMI	FL	MIAMI-DADE
FORT LAUDERDALE	FL	BROWARD
WEST PALM BEACH	FL	PALM BEACH
TAMPA	FL	HILLSBOROUGH
LARGO	FL	PINELLAS
FORT MYERS	FL	LEE
SARASOTA	FL	SARASOTA
LEESBURG	FL	LAKE
LEESBURG	FL	LAKE
DECATUR	GA	DEKALB
LAWRENCEVILLE	GA	GWINNETT
ATLANTA	GA	FULTON
WARNER ROBINS	GA	HOUSTON
MACON	GA	BIBB
SAVANNAH	GA	CHATHAM
CATAULA	GA	HARRIS
HONOLULU	HI	HONOLULU
WAILUKU	HI	MAUI
DES MOINES	IA	POLK
IOWA CITY	IA	JOHNSON
FORT MADISON	IA	LEE
BOISE	ID	ADA
WOODSTOCK	IL	MCHENRY
GENEVA	IL	KANE
SYCAMORE	IL	DE KALB
WHEATON	IL	DU PAGE
CHICAGO	IL	COOK
BLOOMINGTON	IL	MCLEAN
CARMI	IL	WHITE
INDIANAPOLIS	IN	MARION
CROWN POINT	IN	LAKE
SOUTH BEND	IN	ST JOSEPH
MUNCIE	IN	DELAWARE
TERRE HAUTE	IN	VIGO
CROWN POINT	IN	LAKE
FORT WAYNE	IN	ALLEN
LOUISVILLE	KY	JEFFERSON
LEXINGTON	KY	FAYETTE
FRANKFORT	KY	FRANKLIN
FORT THOMAS	KY	CAMPBELL
FORT CAMPBELL	KY	CHRISTIAN
MADISONVILLE	KY	HOPKINS
KANSAS CITY	KS	JOHNSON
WICHITA	KS	SEDGWICK
BATON ROUGE	LA	EAST BATON ROUGE
HARVEY	LA	JEFFERSON
NEW ORLEANS	LA	ORLEANS
SHREVEPORT	LA	CADDO

BOSTON	MA	SUFFOLK
MONKTON	MD	BALTIMORE
BALTIMORE	MD	BALTIMORE CITY
ANNAPOLIS	MD	ANNE ARUNDEL
AUGUSTA	ME	KENNEBEC
MOUNT CLEMENS	MI	MACOMB
ANN ARBOR	MI	WASHTENAW
DETROIT	MI	WAYNE
LANSING	MI	INGHAM
GRAND RAPIDS	MI	KENT
PONTIAC	MI	OAKLAND
FLINT	MI	GENESEE
LANSING	MI	INGHAM
SAINT PAUL	MN	RAMSEY
ANOKA	MN	ANOKA
MINNEAPOLIS	MN	HENNEPIN
HIBBING	MN	SAINT LOUIS
ROCHESTER	MN	OLMSTED
SAINT LOUIS	MO	SAINT LOUIS CITY
SAINT LOUIS	MO	SAINT LOUIS
KANSAS CITY	MO	JACKSON
COLUMBIA	MO	BOONE
SPRINGFIELD	MO	GREENE
JACKSON	MS	HINDS
MISSOULA	MT	MISSOULA
WINSTON SALEM	NC	FORSYTH
RALEIGH	NC	WAKE
GREENVILLE	NC	PITT
MACCLESFIELD	NC	EDGECOMBE
CHARLOTTE	NC	MECKLENBURG
GRAND FORKS	ND	GRAND FORKS
BISMARCK	ND	BURLEIGH
OMAHA	NE	DOUGLAS
SCOTTSBLUFF	NE	SCOTTS BLUFF
CONCORD	NH	MERRIMACK
NEWARK	NJ	ESSEX
PARAMUS	NJ	BERGEN
MOUNT HOLLY	NJ	BURLINGTON
NORTHFIELD	NJ	ATLANTIC
TRENTON	NJ	MERCER
NORTH BRUNSWICK	NJ	MIDDLESEX
ALBUQUERQUE	NM	BERNALILLO
LAS VEGAS	NV	CLARK
RENO	NV	WASHOE
NEW YORK	NY	NEW YORK
BRONX	NY	BRONX
VALHALLA	NY	WESTCHESTER
GOSHEN	NY	ORANGE
BROOKLYN	NY	KINGS
JAMAICA	NY	QUEENS

HAUPPAUGE	NY	SUFFOLK
ALBANY	NY	ALBANY
SYRACUSE	NY	ONONDAGA
WATERTOWN	NY	JEFFERSON
VESTAL	NY	BROOME
BUFFALO	NY	ERIE
ROCHESTER	NY	MONROE
COLUMBUS	OH	FRANKLIN
TOLEDO	OH	LUCAS
ELYRIA	OH	LORAIN
CLEVELAND	OH	CUYAHOGA
AKRON	OH	SUMMIT
WARREN	OH	TRUMBULL
YOUNGSTOWN	OH	MAHONING
CINCINNATI	OH	HAMILTON
DAYTON	OH	MONTGOMERY
OKLAHOMA CITY	OK	OKLAHOMA CTY
TULSA	OK	TULSA
CLACKAMAS	OR	CLACKAMAS
EUGENE	OR	LANE
PITTSBURGH	PA	ALLEGHENY
ERIE	PA	ERIE
BETHLEHEM	PA	NORTHAMPTON
ALLENTOWN	PA	LEHIGH
NORRISTOWN	PA	MONTGOMERY
READING	PA	BERKS
PHILADELPHIA	PA	PHILADELPHIA
LIMA	PA	DELAWARE
WEST READING	PA	BERKS
NEW CUMBERLAND	PA	CUMBERLAND
CLARKS SUMMIT	PA	LACKAWANNA
UWCHLAND	PA	CHESTER
YARDLEY	PA	BUCKS
SAN JUAN	PR	SAN JUAN
PROVIDENCE	RI	PROVIDENCE
NEWBERRY	SC	NEWBERRY
COLUMBIA	SC	RICHLAND
CHARLESTON	SC	CHARLESTON
GREENVILLE	SC	GREENVILLE
SIOUX FALLS	SD	MINNEHAHA
RAPID CITY	SD	PENNINGTON
NASHVILLE	TN	DAVIDSON
JOHNSON CITY	TN	WASHINGTON
KNOXVILLE	TN	KNOX
ARLINGTON	TN	FAYETTE
MEMPHIS	TN	SHELBY
MC KINNEY	TX	COLLIN
DALLAS	TX	DALLAS
TYLER	TX	SMITH
FORT WORTH	TX	TARRANT

HOUSTON	TX	HARRIS
TEXAS CITY	TX	GALVESTON
SAN ANTONIO	TX	BEXAR
HARLINGEN	TX	CAMERON
AUSTIN	TX	TRAVIS
LUBBOCK	TX	LUBBOCK
SALT LAKE CITY	UT	SALT LAKE
MANASSAS	VA	MANASSAS CITY
RICHMOND	VA	RICHMOND CITY
NORFOLK	VA	NORFOLK CITY
PORTSMOUTH	VA	PORTSMOUTH CITY
ROANOKE	VA	BOTETOURT
BURLINGTON	VT	CHITTENDEN
SEATTLE	WA	KING
EVERETT	WA	SNOHOMISH
BARING	WA	KING
TACOMA	WA	PIERCE
VANCOUVER	WA	CLARK
SPOKANE	WA	SPOKANE
WAUKESHA	WI	WAUKESHA
MILWAUKEE	WI	MILWAUKEE
JANESVILLE	WI	ROCK
MADISON	WI	DANE
FOND DU LAC	WI	FOND DU LAC
CHARLESTON	WV	KANAWHA
MORGANTOWN	WV	MONONGALIA

FIGURE 1. Workplace locations of *board certified forensic pathologists* who perform official medicolegal autopsies in the continental United States.

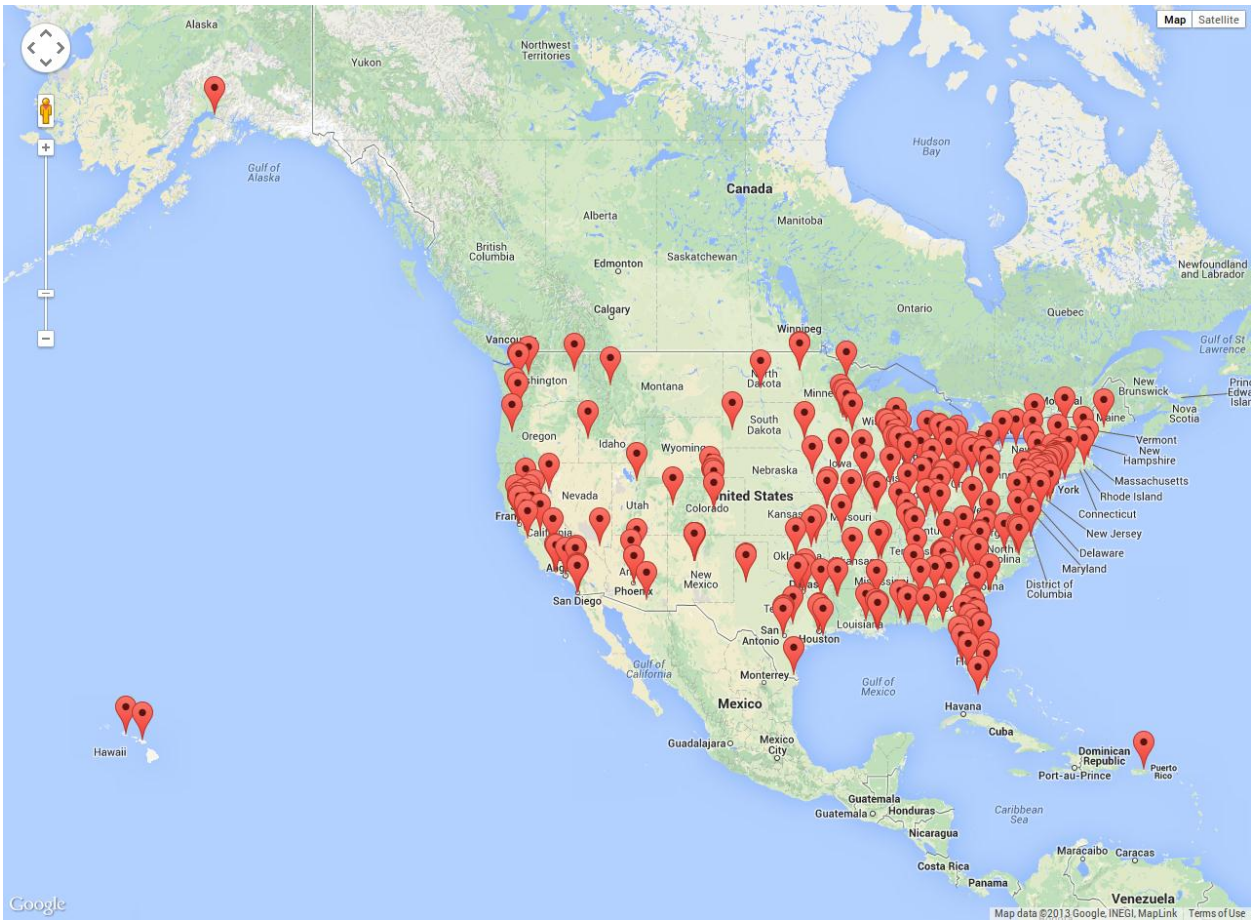

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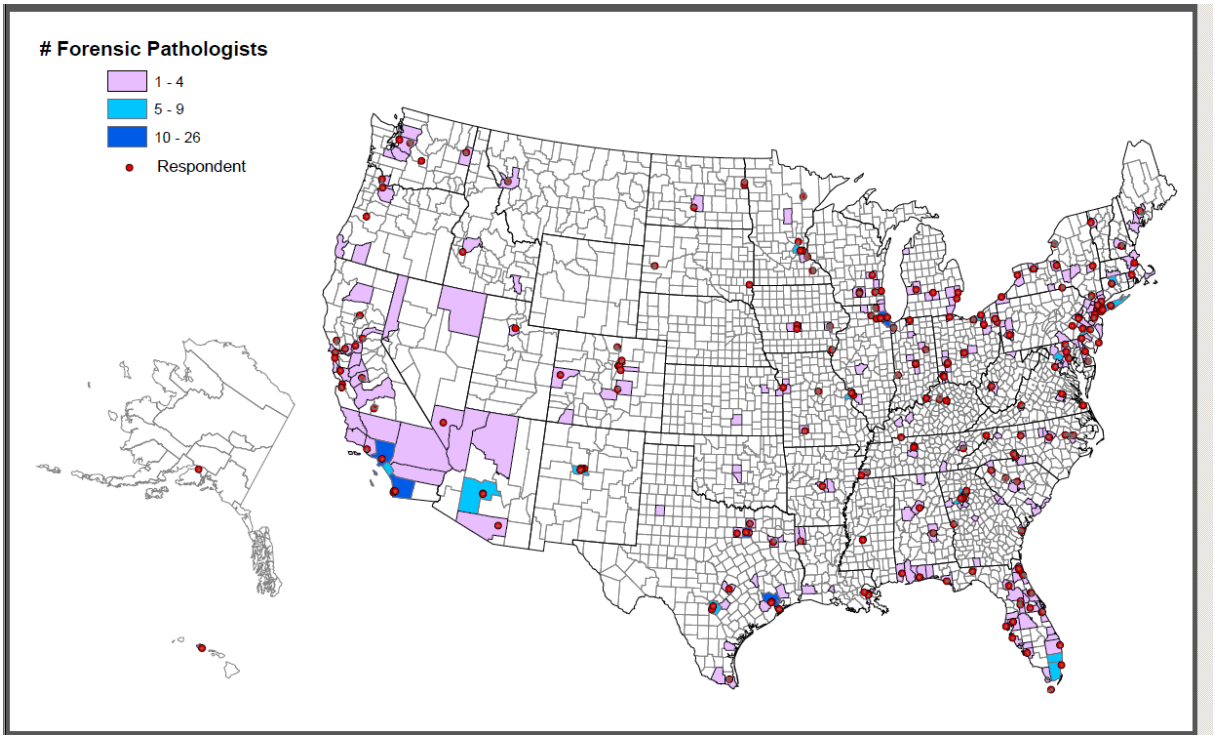
FIGURE 2. Number of board certified forensic pathologists per county based on AMA Physician Masterfile (5) (shown in lavender, light blue, and dark blue; 2007 data) overlaid by data obtained via on-line surveys (red dots). In most areas, there was good agreement.



The AMA data also showed the following:

Total number of Forensic Pathologists	663*
Total number of counties with Forensic pathologist(s)	275*

Number of FPs per county	Number of counties
Single per county	145
2-4 per county	104
5-9 per county	20
10-19 per county	5
26 per county	1

*The numbers immediately above probably overstate the actual number of board certified forensic pathologists, as a random check of some names failed to confirm that all were board certified in forensic pathology.

A previous SWGMDI publication made the recommendation that, where feasible, transport distances from location of death to an autopsy facility not exceed 150 miles, to limit transport driving times to approximately 3 hours maximum (3), recognizing that driving 150 miles in 3 hours may not be possible in all areas.
Figures 3-9 below include circles of 150 mile radius around the locations of currently practicing forensic pathologists.

FIGURE 3. Northwest United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

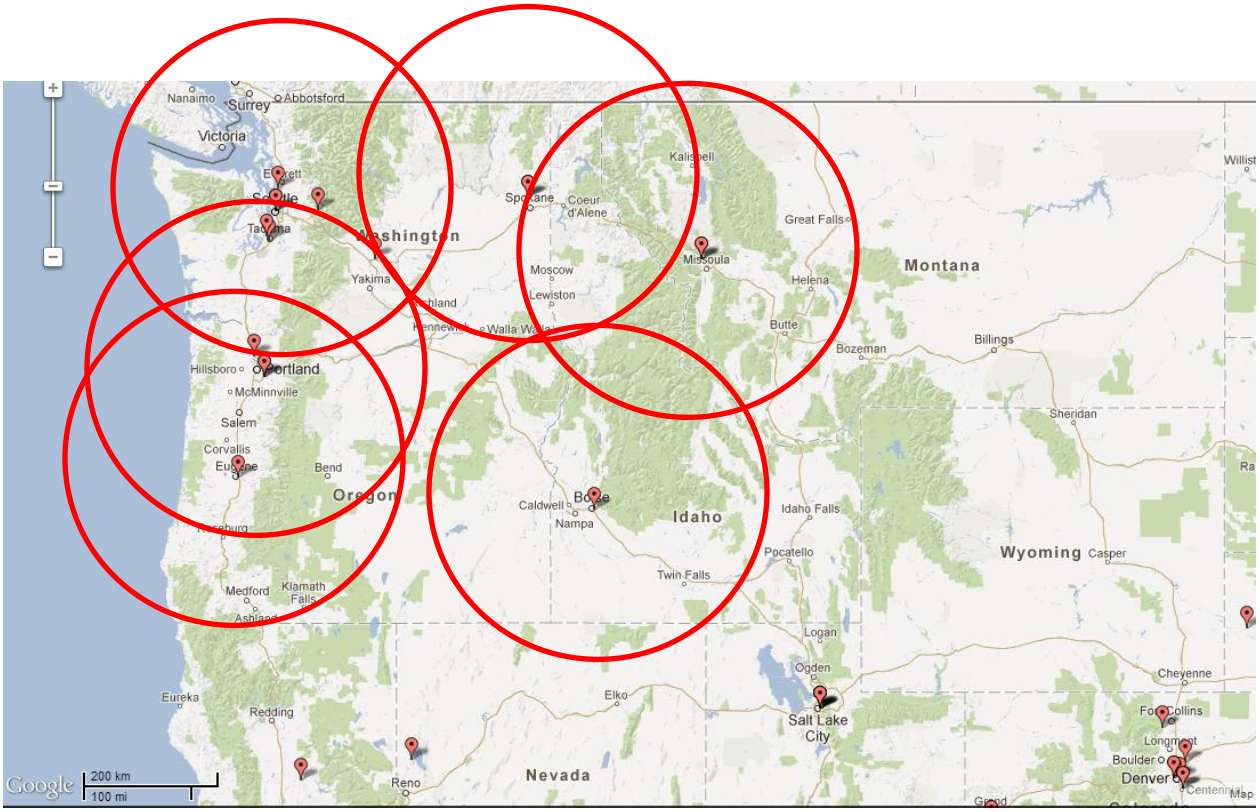


FIGURE 4. North Central United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

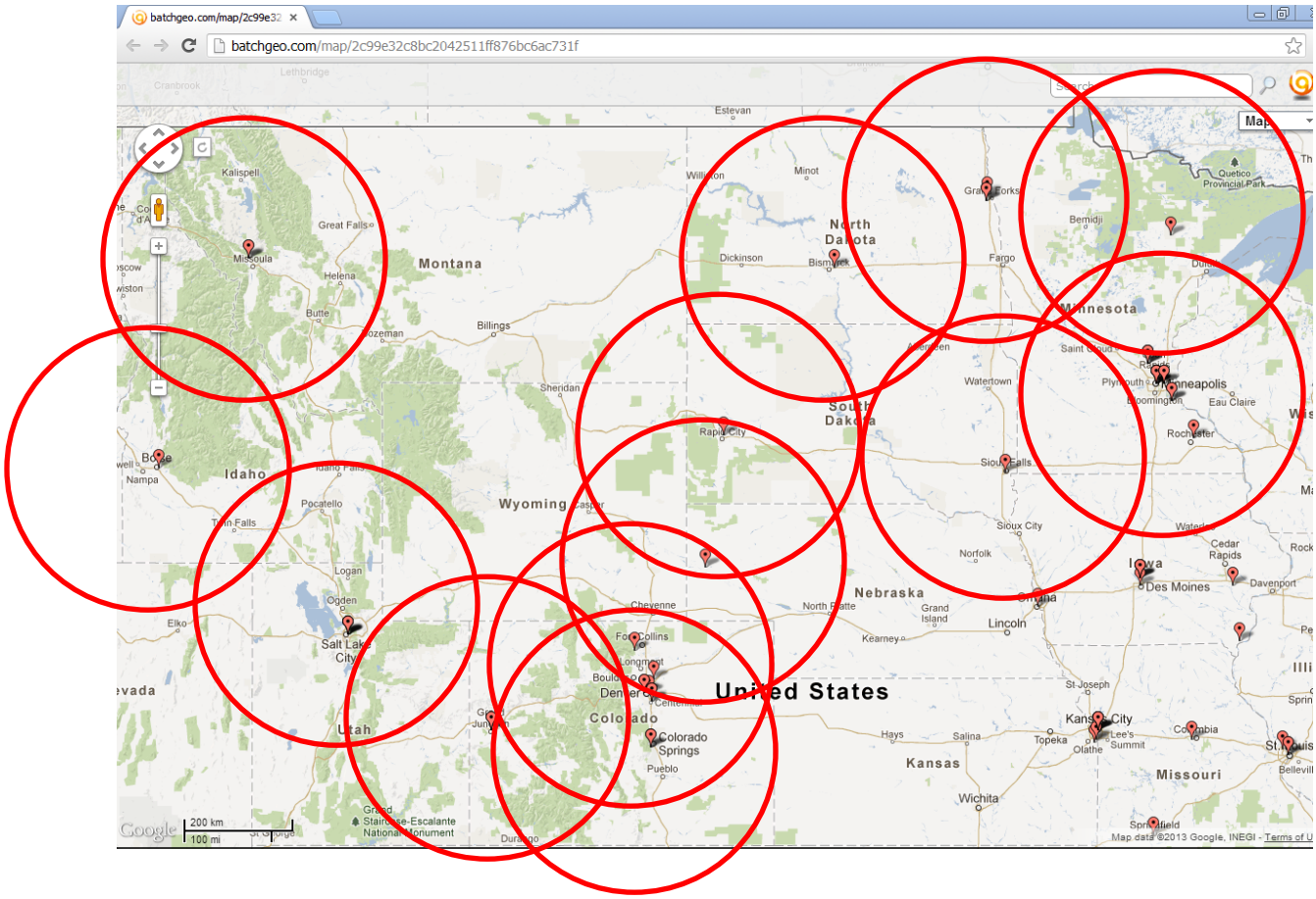


FIGURE 5. West, Southwest, and Mountain regions of the United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

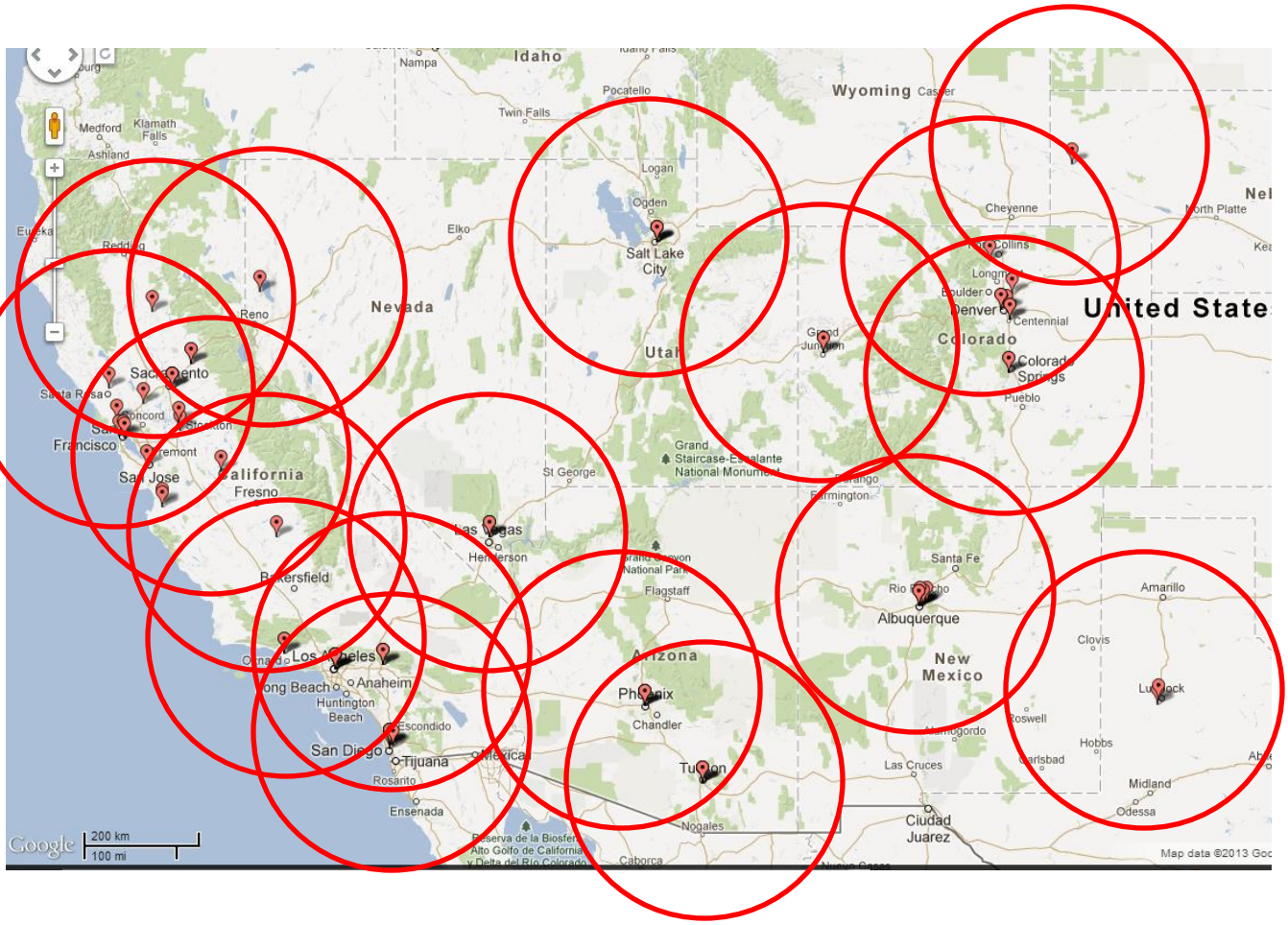


FIGURE 6. South Central United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

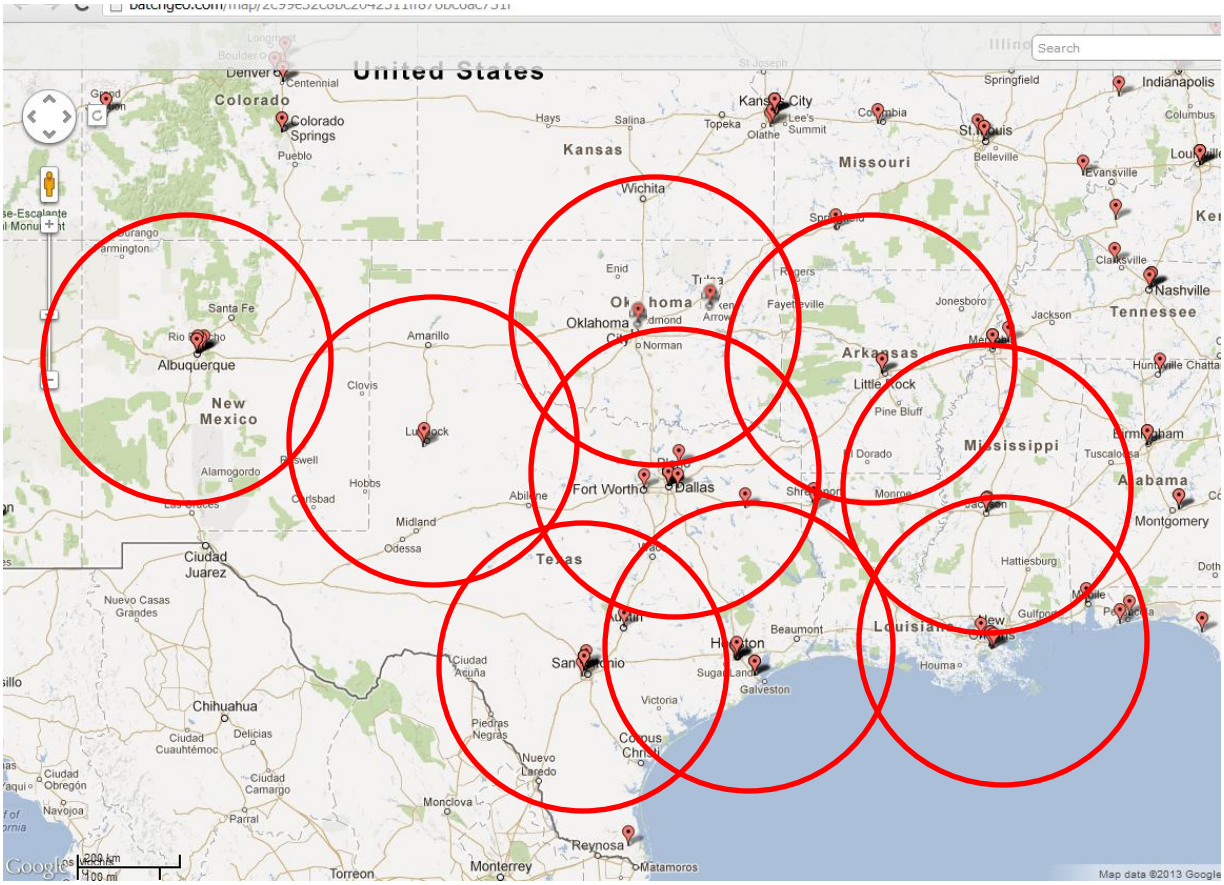


FIGURE 7. Southeast United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

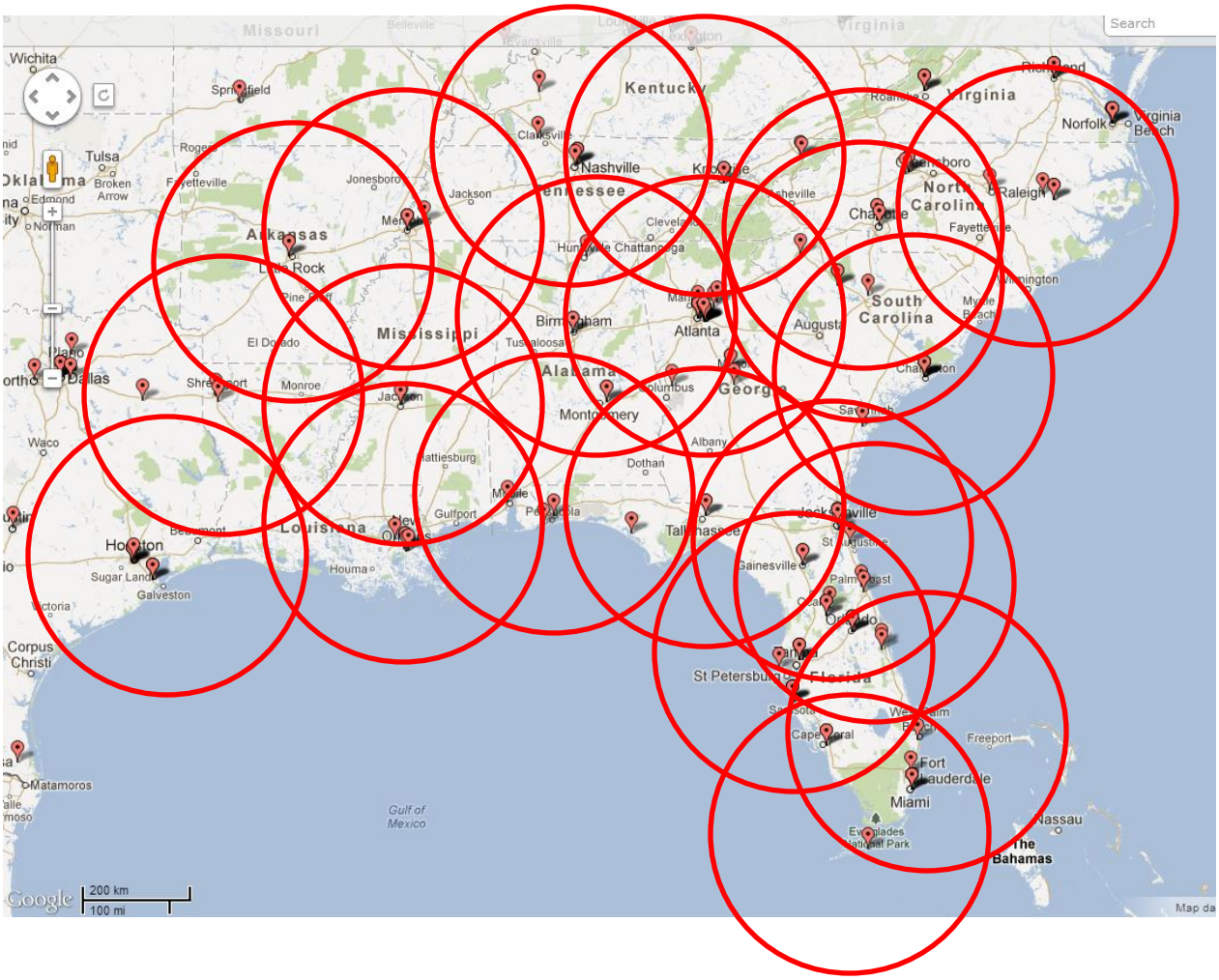


FIGURE 8. Upper Midwest United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

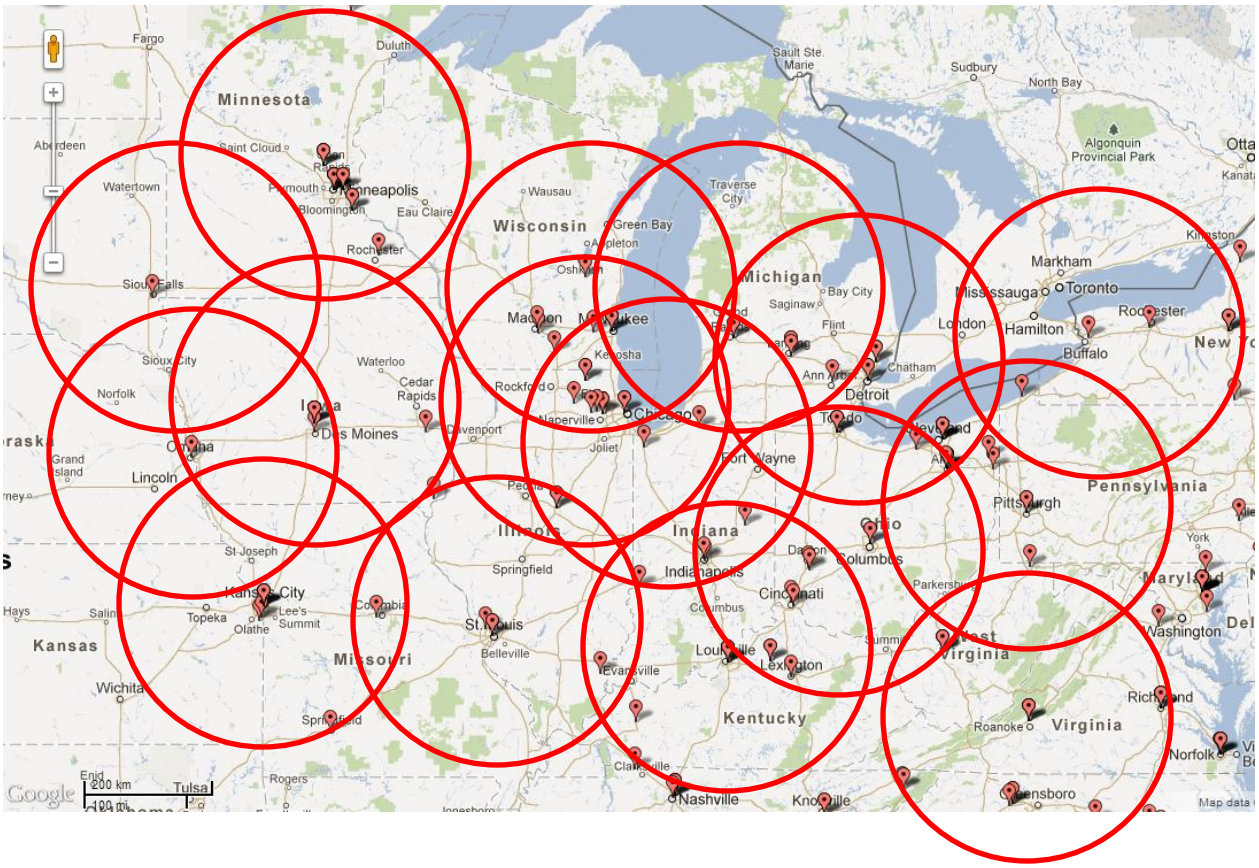
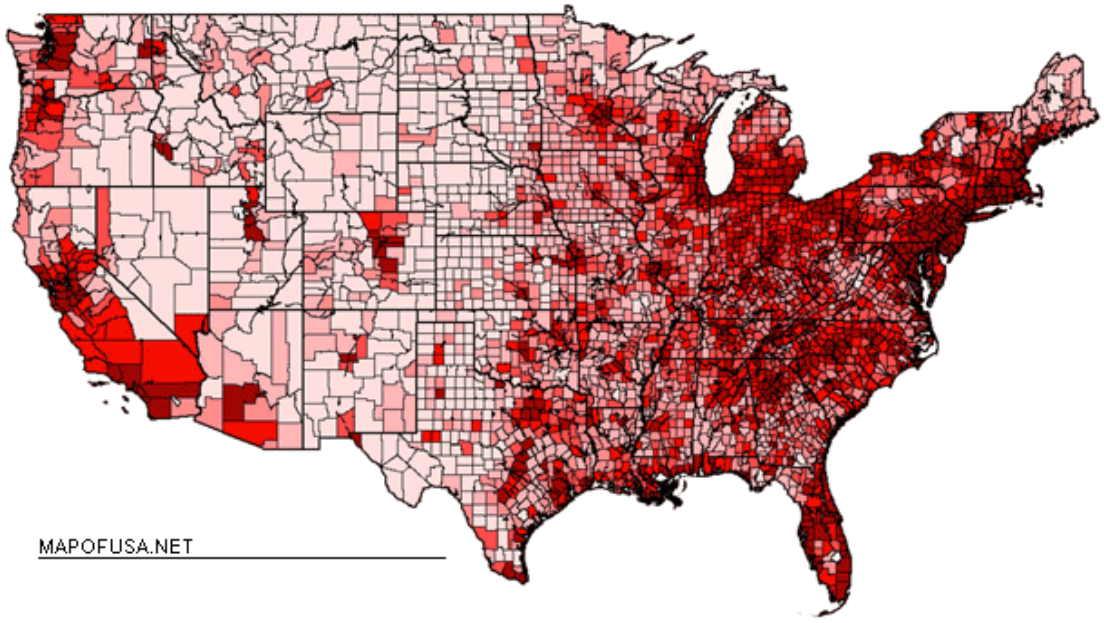


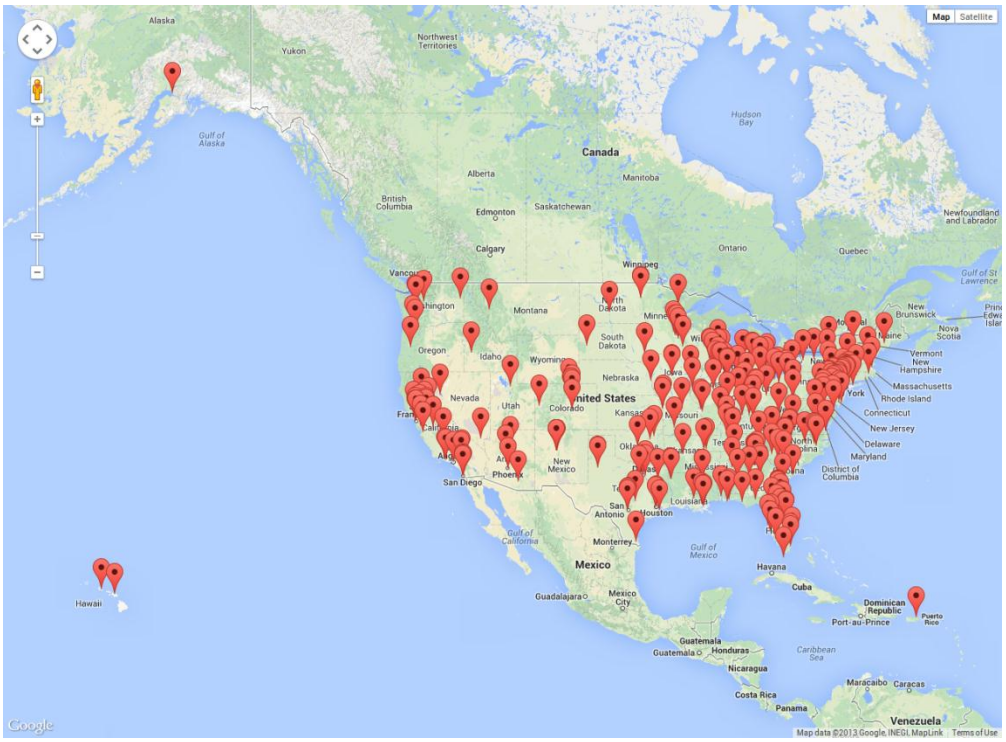
FIGURE 9. East and Northeast United States showing, within circles, areas within 150 miles radius of forensic pathologist work locations.

Based upon Figures 1- 8, some general observations can be made.

- The Northeast, East, Upper Midwest, and Southeast portions of the United States have workplace locations that, considering the 150 mile radius around them, substantially overlap with most or all areas being within 150 miles of a forensic pathologist workplace.
- The Upper Central, Northwest, Southwest, and Mountain areas have more areas that are further than 150 miles from a forensic pathologist workplace.
- Although many areas of the country are within 150 miles of a forensic pathologist workplace, more state-specific information is needed to determine which work places are actually providing forensic pathology services areas within the 150 mile radius, and which ones might be suitable for evolving to a regional center if not serving as one currently.
- For the areas not within 150 miles of a forensic pathologist workplace, more information is needed to determine medicolegal autopsy caseload originating in those areas, and whether the caseload warrants a medicolegal center closer to the area.

Figure 10. Comparison of U.S. Population Density Map (top) and distribution of board certified forensic pathologists (bottom).





APPENDIX 1. States and Zip Code for Work Locations for each Board Certified Forensic Pathologist documented in this report.

STATE	ZIP
PR	00921
PR	00921
PR	00921
MA	02118
MA	02118
MA	02118
MA	02118
RI	02904
RI	02904
RI	02904
RI	02904
NH	03301
NH	03301
ME	04330
ME	04330
ME	04330
VT	05401
VT	05401
CT	06032
CT	06032
CT	06032
CT	06032
NJ	07103
NJ	07103
NJ	07103
NJ	07652
NJ	08060
NJ	08225
NJ	08330
NJ	08638
NJ	08820
NJ	08902
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10016
NY	10461
NY	10461
NY	10595
NY	10595
NY	10924
NY	11203
NY	11432
NY	11432
NY	11432
NY	11432
NY	11788
NY	12208
NY	13210
NY	13210
NY	13210
NY	13601
NY	13850
NY	14215
NY	14623
PA	15222
PA	15222
PA	16501
PA	17070
PA	18018
PA	18103
PA	18103
PA	18411
PA	19037
PA	19066
PA	19067
PA	19103
PA	19104
PA	19104
PA	19104
PA	19404
PA	19480
PA	19611
DE	19612
DE	19801
DE	19902
DE	19902
VA	19947
MD	20110
MD	21111
MD	21223
MD	21223
MD	21223
MD	21223
MD	21223
MD	21223
MD	21223
MD	21223
MD	21223
VA	21401
VA	23219
VA	23219
VA	23219
VA	23510
VA	23510
VA	23510
VA	23708
VA	24019
VA	24019
WV	24019
WV	25302
WV	25302
WV	25302
WV	25302
WV	26505
NC	26505
NC	27103
NC	27157
NC	27157

NC	27607	FL	31804	AL	35233
NC	27834	FL	32095	AL	35233
NC	27834	FL	32124	AL	35233
NC	27852	FL	32174	AL	35801
NC	27858	FL	32202	AL	35801
NC	28202	FL	32206	AL	36117
NC	28216	FL	32217	AL	36117
SC	28216	FL	32308	AL	36117
SC	29108	FL	32308	AL	36617
SC	29108	FL	32405	AL	36617
SC	29203	FL	32504	TN	36617
SC	29425	FL	32507	TN	37201
SC	29425	FL	32601	TN	37216
SC	29425	FL	32601	TN	37216
SC	29425	FL	32806	TN	37216
SC	29425	FL	32806	TN	37614
SC	29425	FL	32806	TN	37684
SC	29425	FL	32806	TN	37920
GA	29605	FL	32806	TN	37920
GA	30032	FL	32940	TN	38002
GA	30034	FL	32955	TN	38105
GA	30034	FL	33050	TN	38105
GA	30034	FL	33136	MS	38105
GA	30034	FL	33136	MS	39202
GA	30034	FL	33136	KY	39216
GA	30034	FL	33136	KY	40204
GA	30034	FL	33314	KY	40204
GA	30034	FL	33406	KY	40204
GA	30034	FL	33617	KY	40204
GA	30037	FL	33617	KY	40506
GA	30043	FL	33617	KY	40601
GA	30312	FL	33778	KY	40601
GA	30312	FL	33907	KY	41075
GA	30312	FL	33907	KY	42223
GA	30312	FL	33907	OH	42431
GA	30312	FL	34239	OH	43201
GA	30332	FL	34239	OH	43201
GA	31093	FL	34239	OH	43614
GA	31210	FL	34239	OH	43614
GA	31210	FL	34748	OH	43614
GA	31419	FL	34748	OH	43614
GA	31419	AL	34788	OH	44035

OH	44106	IA	50023	IL	60187
OH	44106	IA	50023	IL	60612
OH	44106	IA	50023	IL	60612
OH	44106	IA	50314	IL	60612
OH	44106	IA	52242	IL	60612
OH	44303	IA	52242	IL	61702
OH	44308	WI	52627	IL	61702
OH	44308	WI	53188	MO	62821
OH	44308	WI	53233	MO	63103
OH	44484	WI	53233	MO	63103
OH	44502	WI	53233	MO	63134
OH	45219	WI	53233	MO	63134
OH	45458	WI	53545	MO	64108
IN	45459	WI	53703	MO	64108
IN	46202	WI	53711	MO	64108
IN	46307	MN	54935	MO	64108
IN	46308	MN	55033	MO	65203
IN	46601	MN	55130	KS	65807
IN	46601	MN	55130	KS	66209
IN	46802	MN	55303	NE	66283
IN	47303	MN	55303	NE	68105
IN	47303	MN	55303	LA	69361
MI	47802	MN	55415	LA	70056
MI	48043	MN	55415	LA	70058
MI	48043	MN	55415	LA	70065
MI	48105	MN	55415	LA	70113
MI	48109	MN	55415	LA	70113
MI	48207	MN	55415	LA	70807
MI	48207	MN	55746	LA	71106
MI	48207	SD	55906	AR	71130
MI	48341	SD	57105	AR	72205
MI	48341	ND	57701	OK	72205
MI	48341	ND	58201	OK	73117
MI	48341	ND	58201	OK	73117
MI	48502	ND	58203	OK	73117
MI	48909	MT	58501	OK	73117
MI	48912	MT	59808	OK	73117
MI	48912	IL	59808	OK	74017
MI	48912	IL	60098	TX	74107
MI	49506	IL	60134	TX	75069
IA	49506	IL	60178	TX	75149
IA	50023	IL	60187	TX	75207

TX	75207	UT	83706	CA	90033
TX	75207	UT	84113	CA	90033
TX	75207	UT	84113	CA	92120
TX	75207	UT	84113	CA	92123
TX	75207	UT	84113	CA	92123
TX	75708	AZ	84113	CA	92123
TX	76104	AZ	85003	CA	92123
TX	77006	AZ	85007	CA	92134
TX	77054	AZ	85007	CA	92415
TX	77054	AZ	85007	CA	92415
TX	77054	AZ	85007	CA	92415
TX	77054	AZ	85007	CA	92501
TX	77054	AZ	85007	CA	93003
TX	77504	AZ	85007	CA	93003
TX	77504	AZ	85007	CA	93010
TX	77054	AZ	85007	CA	93274
TX	77054	AZ	85007	CA	93906
TX	77054	AZ	85007	CA	94107
TX	77591	AZ	85714	CA	94120
TX	77591	AZ	85714	CA	94121
TX	77591	AZ	85714	CA	94533
TX	78229	AZ	85714	CA	94903
TX	78229	AZ	85714	CA	95128
TX	78229	AZ	85714	CA	95207
TX	78229	AZ	86001	CA	95231
TX	78236	NM	86314	CA	95341
TX	78248	NM	87102	CA	95404
TX	78550	NM	87102	CA	95603
TX	78701	NM	87102	CA	95820
TX	79414	NM	87107	CA	95820
CO	79424	NM	87110	CA	95820
CO	80112	NM	87111	HI	95928
CO	80112	NM	87131	HI	96768
CO	80204	NM	87131	OR	96817
CO	80204	NV	87131	OR	97015
CO	80220	NV	89106	OR	97015
CO	80538	NV	89106	OR	97015
CO	80601	NV	89106	WA	97403
CO	80906	CA	89510	WA	98104
CO	80906	CA	90033	WA	98104
CO	81501	CA	90033	WA	98104
ID	81501	CA	90033	WA	98204

WA	98224	WA	99208
WA	98417		
WA	98418	AK	99515
WA	98660	AK	99515

APPENDIX 2. Number of Board Certified Forensic Pathologists in each of 217 counties in the United States where board certified forensic pathologists are based.

State	County	#BCFPs
AK	ANCHORAGE	2
AL	JEFFERSON	3
AL	MADISON	2
AL	MOBILE	3
AL	MONTGOMERY	3
AR	PULASKI	2
AZ	COCONINO	1
AZ	MARICOPA	12
AZ	PIMA	6
AZ	YAVAPAI	1
CA	BUTTE	1
CA	LOS ANGELES	5
CA	MARIN	1
CA	MERCED	1
CA	MONTEREY	1
CA	PLACER	1
CA	RIVERSIDE	1
CA	SACRAMENTO	3
CA	SAN BERNARDINO	3
CA	SAN DIEGO	6
CA	SAN FRANCISCO	3
CA	SAN JOAQUIN	2
CA	SANTA CLARA	1
CA	SOLANO	1
CA	SONOMA	1
CA	TULARE	1
CA	VENTURA	3
CO	ADAMS	1
CO	ARAPAHOE	2
CO	DENVER	3
CO	EL PASO	2
CO	LARIMER	1
CO	MESA	2
CT	HARTFORD	4
DE	KENT	2
DE	NEW CASTLE	1
DE	SUSSEX	1
FL	ALACHUA	2
FL	BAY	1
FL	BREVARD	2
FL	BROWARD	1
FL	DUVAL	3
FL	ESCAMBIA	2
FL	HILLSBOROUGH	3
FL	LAKE	3
FL	LEE	3
FL	MIAMI-DADE	4
FL	MONROE	1
FL	ORANGE	5
FL	PALM BEACH	1
FL	PINELLAS	1
FL	SAINT JOHNS	1
FL	SARASOTA	4
FL	VOLUSIA	2
GA	BIBB	2
GA	CHATHAM	2
GA	DEKALB	11
GA	FULTON	6
GA	GWINNETT	1
GA	HARRIS	1
GA	HOUSTON	1
HI	HONOLULU	1
HI	MAUI	1
IA	JOHNSON	2
IA	LEE	1
IA	POLK	5
ID	ADA	1
IL	COOK	4
IL	DE KALB	1
IL	DU PAGE	2
IL	KANE	1
IL	MCHENRY	1
IL	MCLEAN	2
IL	WHITE	1
IN	ALLEN	1
IN	DELAWARE	2
IN	LAKE	2
IN	MARION	1
IN	ST JOSEPH	2
IN	VIGO	1
KS	JOHNSON	1
KS	SEDGWICK	1
KY	CAMPBELL	1
KY	CHRISTIAN	1
KY	FAYETTE	1
KY	FRANKLIN	2
KY	HOPKINS	1
KY	JEFFERSON	4
LA	CADDO	2
LA	EAST BATON ROUGE	1
LA	JEFFERSON	3

LA	ORLEANS	2
MA	SUFFOLK	4
MD	ANNE ARUNDEL	1
MD	BALTIMORE	1
MD	BALTIMORE CITY	10
ME	KENNEBEC	3
MI	GENESEE	1
MI	INGHAM	4
MI	KENT	2
MI	MACOMB	2
MI	OAKLAND	4
MI	WASHTENAW	2
MI	WAYNE	3
MN	ANOKA	3
MN	DAKOTA	1
MN	HENNEPIN	6
MN	OLMSTED	1
MN	RAMSEY	2
MN	SAINT LOUIS	1
MO	BOONE	1
MO	GREENE	1
MO	JACKSON	4
MO	SAINT LOUIS	2
MO	SAINT LOUIS CITY	2
MS	HINDS	2
MT	MISSOULA	2
NC	EDGECOMBE	1
NC	FORSYTH	3
NC	MECKLENBURG	3
NC	PITT	3
NC	WAKE	1
ND	BURLEIGH	1
ND	GRAND FORKS	3
NE	DOUGLAS	1
NE	SCOTTS BLUFF	1
NH	MERRIMACK	2
NJ	ATLANTIC	2
NJ	BERGEN	1
NJ	BURLINGTON	1
NJ	ESSEX	3
NJ	MERCER	1
NJ	MIDDLESEX	2
NM	BERNALILLO	9
NV	CLARK	3
NV	WASHOE	1
NY	ALBANY	1
NY	BRONX	2
NY	BROOME	1
NY	ERIE	1
NY	JEFFERSON	1
NY	KINGS	1
NY	MONROE	1
NY	NEW YORK	9
NY	ONONDAGA	3
NY	ORANGE	1
NY	QUEENS	4
NY	SUFFOLK	1
NY	WESTCHESTER	2
OH	CUYAHOGA	5
OH	FRANKLIN	2
OH	HAMILTON	1
OH	LORAIN	1
OH	LUCAS	4
OH	MAHONING	1
OH	MONTGOMERY	2
OH	SUMMIT	4
OH	TRUMBULL	1
OK	OKLAHOMA	5
OK	ROGERS	1
OK	TULSA	1
OR	CLACKAMAS	3
OR	LANE	1
PA	ALLEGHENY	2
PA	BERKS	2
PA	BUCKS	1
PA	CHESTER	1
PA	CUMBERLAND	1
PA	DELAWARE	1
PA	ERIE	1
PA	LACKAWANNA	1
PA	LEHIGH	2
PA	MONTGOMERY	2
PA	NORTHAMPTON	1
PA	PHILADELPHIA	4
PR	SAN JUAN	3
RI	PROVIDENCE	4
SC	CHARLESTON	7
SC	GREENVILLE	1
SC	NEWBERRY	2
SC	RICHLAND	1
SD	MINNEHAHA	1
SD	PENNINGTON	1
TN	DAVIDSON	4
TN	FAYETTE	1
TN	KNOX	2
TN	SHELBY	3
TN	WASHINGTON	2
TX	BEXAR	6
TX	CAMERON	1
TX	COLLIN	1
TX	DALLAS	7
TX	GALVESTON	3

TX	HARRIS	11
TX	LUBBOCK	2
TX	SMITH	1
TX	TARRANT	1
TX	TRAVIS	1
UT	SALT LAKE	5
VA	BOTETOURT	3
VA	MANASSAS CITY	1
VA	NORFOLK CITY	3
VA	PORTSMOUTH CITY	1
VA	RICHMOND CITY	3
VT	CHITTENDEN	2
WA	CLARK	1
WA	KING	4
WA	PIERCE	2
WA	SNOHOMISH	1
WA	SPOKANE	2
WI	DANE	2
WI	FOND DU LAC	1
WI	MILWAUKEE	4
WI	ROCK	1
WI	WAUKESHA	1
WV	KANAWHA	5
WV	MONONGALIA	2
		502

References

1) Scientific Working Group for Medicolegal Death Investigation. Medicolegal Autopsy Facilities in the United States, 2001. Available at: http://www.swgmdi.org/images/iscomrpt3-facilities2011.pdf Accessed September 3, 2013.

2) Scientific Working Group for Medicolegal Death Investigation. Increasing the Supply of Forensic Pathologists in the Units States: A Report and Recommendations. Available at: http://www.swgmdi.org/images/si4.fpsupplyreportpublisheddecember2012.pdf Accessed September 3, 2013.

3) Scientific Working Group for Medicolegal Death Investigation Status of and Perceived Need for Regional Medicolegal Death Investigation Centers in the United States: A Report and Recommendations. Available at: http://www.swgmdi.org/images/si4.fpsupplyreportpublisheddecember2012.pdf Accessed September 3, 2013.

4) Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File 1999-2010 on CDC WONDER Online Database, released January 2013. Data are compiled from Compressed Mortality File 1999-2010 Series 20 No. 2P, 2013. Accessed at http://wonder.cdc.gov/cmf-icd10.html on February 17, 2013.

5) AMA Masterfile (2006) Component of the Area Health Resources Files (AHRF). 2007. US Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD. http://arf.hrsa.gov/download.htm

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