N.C. Department of Health and Human Services

Overview of North Carolina's Statewide Medical Examiner System Structure, Operations and Funding

Joint Legislative Oversight Committee on Health and Human Services

Medical Examiner Subcommittee

September 29, 2014

Lou Turner, DrPH, CPM, HCLD (ABB)

Section Chief, Office of Chief Medical Examiner and State Laboratory of Public Health

Current Structure and Operations of the NC Medical Examiner System

- NC Department of Health and Human Services, Division of Public Health
- Central Office of the Chief Medical Examiner (OCME) in Raleigh
- 3 Regional Autopsy Centers (contracted) & other providers
- 447 active Medical Examiners (MEs) statewide; appointed by OCME
- 14 full-time, board-certified, forensic pathologists; 2 retired, part-time, forensic pathologists; 14 of 16 filled forensic pathologist positions

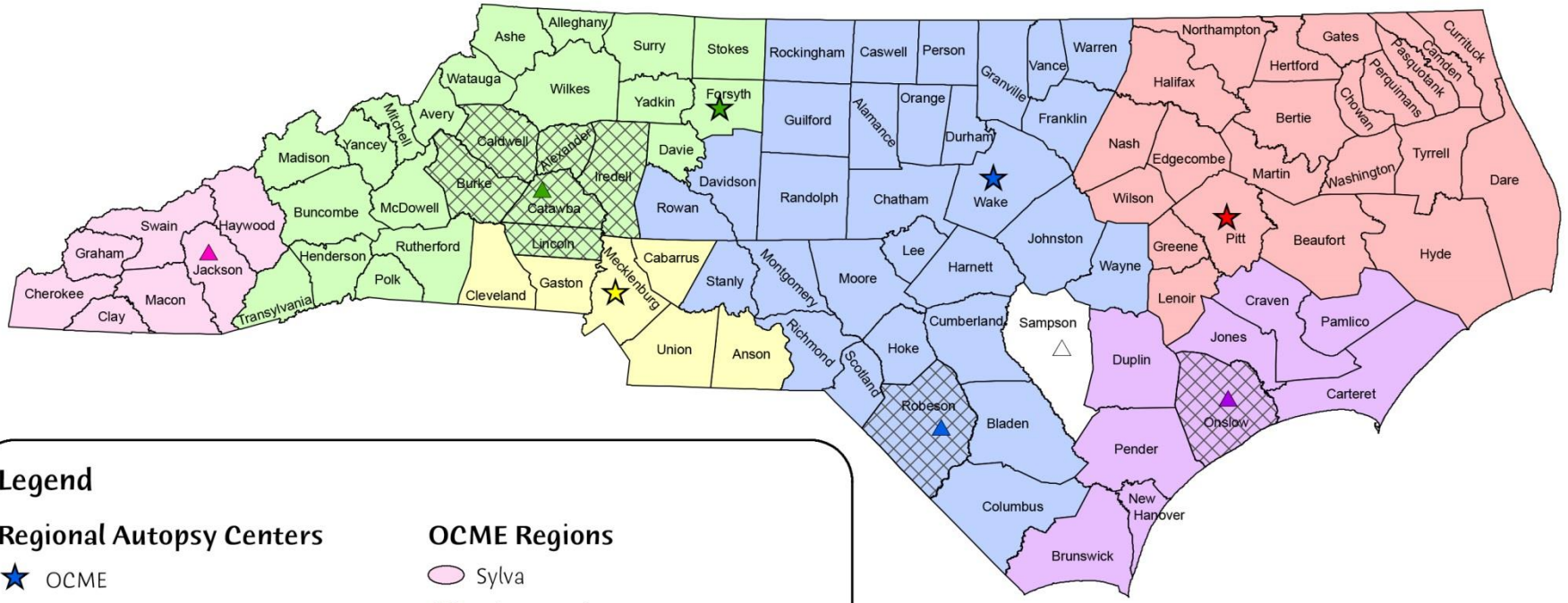
Board Certified Forensic Pathologists

- The **National Association of Medical Examiners (NAME)** is the only accrediting agency for ME systems in the country
- To meet full NAME accreditation standards, all autopsies must be performed by board-certified forensic pathologists
- **Approximately 19% of NC autopsies completed in SFY 12-13 (734 of 3,803) were performed by pathologists who are not board-certified in forensic pathology**
- There are approximately only 500 full-time practicing board-certified forensic pathologists nationwide
- It is not expected that the national supply of board-certified forensic pathologists will improve in the near future

3 Regional Autopsy Centers (contracts)

- East Carolina University (ECU) Brody School of Medicine
- Wake Forest University (WFU) Health Services
- Mecklenburg County ME Office

North Carolina Office of the Chief Medical Examiner
Regional Autopsy Center Catchment Areas



Legend

Regional Autopsy Centers

- OCME
- East Carolina University
- Wake Forest University
- Mecklenburg Medical Examiner

Other Providers

- WestCare - Harris Regional Hospital
- Piedmont Pathology Group
- Southeastern Regional Medical Center
- Sampson Regional Medical Center
- Onslow Memorial Hospital

OCME Regions

- Sylva
- Winston Salem
- Charlotte
- Raleigh
- Greenville
- Sampson
- Jacksonville
- Service Overlaps with Other Centers

NCPH North Carolina Public Health

schs State Center for Health Statistics

September 2014

Annual Medical Examiner Cases and Autopsies

3-year average

78,411 total deaths in NC

10,850 annual Medical Examiner cases
13.8% of total deaths

3,947 annual autopsies performed
5.0% of total deaths

Autopsies Completed in SFY 12-13

Location/Practice	# Autopsies Completed in SFY 12-13
OCME	1,254
ECU Brody School of Medicine	537
WFU	692
Mecklenburg Medical Examiner Office	586
Onslow Memorial Hospital*	337 **
Piedmont Pathology Associates*	108
Harris Regional Hospital*	106
Watauga Hospital*	98
Sampson Regional*	34
Southeastern Regional Med. Center*	39
Rex Hospital *	5
UNC Hospital *	7
TOTALS	**3,803**

* These facilities have non board-certified Forensic Pathologists

** For SFY 14-15, Onslow Memorial will divert certain homicide cases to ECU

Centralized Functions under Direction of the Office of Chief Medical Examiner

Body Transportation

Toxicology

Quality Assurance

ME Information System

Central Repository of ME Records

Centralized Body Transportation

- Funded by state through master agreement; cost is approximately $1M annually
- SFY 14-15 OCME budget expansion item of $1M will fill the gap for historical shortfalls in OCME transportation budget
- Transportation rates have not been adjusted since 2004 and have not kept pace with increased fuel costs
- OCME is developing a Request for Proposals (RFP) for new statewide transporter agreements

Centralized Toxicology Services

- Toxicology lab in Raleigh under direction of Chief Medical Examiner; managed by a board-certified Chief Toxicologist
- Ensures consistency, quality assurance and cost savings
- Increasing volume of toxicology samples and complexity of requests
  - OCME toxicology lab performed 32,170 tests on Medical Examiner cases in 2013
  - Number of tests increased 12% over the 5-year period of 2008-2013
  - Number of tests completed 2014 year-to-date is 4.4% higher than those completed as of Sept. 18, 2013

Centralized Quality Assurance

All autopsy and ME reports are reviewed on regional basis by the forensic pathologists at OCME since 1972

Current Funding of the North Carolina Medical Examiner System

OCME Certified State Budget SFY 14-15

Appropriations *	$5,394,503
Receipts **	$2,667,994
Total	**$8,062,497**

* Includes $1M expansion

** Includes autopsy and ME fees, federal grant

OCME Budget SFY 14-15

- Includes funding for current SFY 14-15 contracts with 3 Regional Autopsy Centers
- Contracts supplement the statutory autopsy fee of $1,250 / autopsy; fund each center an additional $400 / autopsy, but still do not cover self-reported costs of completing an autopsy
- ECU - $240,000 (600 autopsies/year)

  WFU - $330,400 (826 autopsies/year)

  Mecklenburg - $252,000 (630 autopsies/year)
- Includes ME and autopsy payments for out-of-county deaths

The OCME SFY 2014-15 Expansion Budget Will Stabilize the Medical Examiner System and Move it Forward

Annual County Investments in Medical Examiner Cases and Autopsies

- 6-year average (calendar years 2008-2013) of costs paid by counties for ME investigations is approximately $824,352 annually
- 6-year average (calendar years 2008-2013) of costs paid by counties for autopsies is approximately $3,030,298 annually

TOTAL AVERAGE ANNUAL COUNTY INVESTMENT = $3,854,650

Estimated Total Annual State and Local Funding to Support the ME System

- Using OCME's SFY 14-15 budget of $5,394,503 in State appropriations
- And factoring in a continued annual investment from Counties of approximately $3,854,650 (based on average of 6 calendar years, 2008-2013)
- A total annual investment in the ME system by State and County funding would be approximately $9,249,153
- Applied against the current population of 9,861,952 (Aug. 2014 provisional census data), **North Carolina will invest approximately $0.938 per capita using State and local funds**

Statutory Fees

Medical Examiner Investigation Fee
$100/case

Autopsy Fee
$1,250/case

Medical Examiner Investigation Statutory Fee: $100/case

- County pays fee if deceased is a resident of the county in which the death occurred ("in-county" death)
  - 6 calendar-year average is approximately 83% of annual cases
- State pays fee if deceased is not a resident of the county in which the death occurred ("out-of-county" deaths)
  - 6 calendar-year average is approximately 17% of annual cases

ME fee has not been updated since 2005, and has not kept pace with increased number of calls, complexity of cases, and increased fuel and supply costs

Medical Examiner Investigation Statutory Fee Annual Cost

6 calendar-year average

$994,687

Approximate cost of
all Statewide ME investigations
(paid by counties and state)

$170,335

Approximate cost of
State only (OCME)

Autopsy Statutory Fee: $1,250/case

- County pays the fee if the deceased is a resident of the county in which the death occurred ("in-county" deaths)
  - 6 calendar-year average is approximately 90% of annual cases
- State pays the fee if the deceased is not a resident of the county in which the injury or death occurred ("out-of-county" deaths)
  - 6 calendar-year average is approximately 10% of annual cases

Autopsy Statutory Fee Annual Cost
6 calendar-year average

$3,351,006
Approximate cost of
all Statewide autopsies
(paid by counties and state)

$320,708
Approximate cost of
State only (OCME)

Reforming NC's Medical Examiner System: DHHS Efforts Initiated in 2013

DHHS Reform Efforts

1. Stabilize the existing regional ME system and reduce high caseloads for OCME forensic pathologists
2. Move toward having all autopsies performed by a board-certified forensic pathologist
3. OCME Quality Improvement and Assurance Efforts
4. Identify and directed internal existing resources to enhance OCME
5. Improve quality of Medical Examiners through training and selection criteria

DHHS Reform Efforts

1 **Stabilize the existing regional ME system and reduce high caseloads for OCME forensic pathologists**

- **June 2013** - DHHS Secretary Aldona Wos requested and received approval to increase the salary ranges for vacant forensic pathologist positions
- **November 2013** - Secretary Wos supported hiring temporary forensic pathologists for weekend and holiday coverage at the OCME until OCME could be fully staffed

DHHS Reform Efforts

1 **Stabilize the existing regional ME system and reduce high caseloads for OCME forensic pathologists**

- 5 of 6 permanent forensic pathologist positions filled, including Chief ME (forensic pathologist)
- Interviewing for Deputy Chief (forensic pathologist) position
- A vacant forensic pathologist fellow (training) position (to be filled June 2015)

DHHS Reform Efforts

1 **Stabilize the existing regional ME system and reduce high caseloads for OCME forensic pathologists**

- National accreditation standard is < 250 autopsies completed annually per forensic pathologist (FP)
- OCME is currently tracking at 270 cases/FP annually and down from a five-year average of 379 cases FP per year

DHHS Reform Efforts

1 **Stabilize the existing regional ME system and reduce high caseloads for OCME forensic pathologists**

- **August 28, 2013** - DHHS/OCME hosted its partner regional pathology centers at a strategic planning session, presented DHHS/OCME ME system reform ideas to partners, and solicited additional reform recommendations from partners
- All partners agreed the ultimate goal for NC's statewide Medical Examiner system is for all medicolegal autopsies in the state to be performed by American Board of Pathology certified forensic pathologists

DHHS Reform Efforts

2 **Move toward having all autopsies performed by a board-certified forensic pathologist**

- OCME sought enhanced geographical coverage by the 3 existing regional centers
- ECU has accepted additional cases previously served by Onslow Memorial Hospital
- WFU has also accepted additional cases from Watauga County and Piedmont Pathology
- Both ECU and WFU now perform autopsies on decomposed human remains

DHHS Reform Efforts

2 **Move toward having all autopsies performed by a board-certified forensic pathologist**

- DHHS/OCME has attempted to develop additional regional partners to provide autopsy services
- Presently, DHHS/OCME has not identified any organization interested in and capable of serving as a regional autopsy center in the near future
  - As of July 2014, Mission Hospital is not interested in pursuing establishing a regional autopsy center
  - OCME is continuing discussions with Campbell University School of Osteopathic Medicine

DHHS Reform Efforts

3 **OCME Quality Improvement and Assurance Efforts**

- Completed toxicology laboratory manual standard operating procedures and policies in anticipation of accreditation application
- OCME developing, reviewing and disseminating written policies and procedures

DHHS Reform Efforts

4 Identify and Direct Internal Existing Resources to Enhance OCME

DHHS has identified internal existing resources to support 10 FTEs for OCME in SFY 14-15 and 1 additional FTE in SFY 15-16:

- 1 forensic pathologist
- 1 autopsy technician
- 2 chemist positions in the toxicology laboratory
- 1 training coordinator (for standardized statewide ME training)
- 1 processing assistant (support staff)
- 2 IT positions to support the ME Information System
- 1 epidemiologist to mine, analyze and report data
- 1 legal specialist to manage the volume of information requests received from multiple partners and citizens
- 1 forensic pathologist fellow

DHHS Reform Efforts

5 Improving Quality of Medical Examiners through Training and Selection Criteria

- DHHS/OCME recommended changes to General Statute 130A-382, which addresses county medical examiner appointments (Session Law 2014-100)
- These changes simplified and clarified the appointment process to reflect actual practice since 2008

DHHS Reform Efforts

5 Improving Quality of Medical Examiners through Training and Selection Criteria

- Working with regional pathology centers and local health agencies to **identify qualified candidates to serve as MEs.**
- Investigated innovative approaches such as identifying local emergency medical service providers (EMS) to serve in the role of MEs. Surry County's use of local EMS staff has been reviewed and could serve as a model.
- DHHS' Office of Emergency Medical Services' staffs have been consulted for ideas to improve recruitment of EMS staff. Local EMS providers and EMS organizations have been consulted for assistance in such recruitment.
- Net reduction in MEs over last year: Since Sept. 2013, 56 medical examiners have been added statewide; but 63 medical examiners are no longer active.

DHHS Reform Efforts

5 Improving Quality of Medical Examiners through Training and Selection Criteria

- The OCME is **establishing a training coordinator position (using internal DHHS resources)** to develop, coordinate, evaluate and track compliance with proposed training requirements.
- Training will be developed for delivery as a combination of face-to-face and on-line products. We have reached out to potential training partners, including AHEC.
- Training opportunities will be available locally and regionally to ensure easy access and minimal cost to new MEs.
- Training also will build on the existing medicolegal seminars currently delivered by ECU and WFU staff, and also will revive an annual training seminar previously provided by the OCME.

Planning for Future Reforms

- To recommend updates, DHHS/OCME has completed a critical review of other state and current North Carolina general statutes affecting the statewide ME system
- From January 2014 to present - Division of Public Health Information Technology staff and Division of Information Resource Management staffs have:
  - Gathered from OCME staff the business requirements for desired functionality of the ME Information System (MEIS)
  - Assessed these requirements against existing MEIS capabilities to make improvement recommendations

NC Medical Examiner System compared with National Association of Medical Examiner Recommended Standards

Performance Benchmarks

National published standards for ME systems offer benchmarks for comparison:

- National Association of Medical Examiners (NAME)
  - NAME is the only accrediting body in our country
  - NAME accreditation standards define performance standards for any ME system, regardless of its structure
- American Board of Forensic Toxicology (ABFT)
  - ABFT accreditation standards define performance standards for postmortem forensic toxicology laboratories, regardless of its structure

Performance Benchmarks

- NC's ME System is not accredited by NAME
- NC's OCME applied for accreditation by ABFT on June 30, 2014 (expect site visit early 2015)

NC Medical Examiner System Compared with Other States

Comparison is Neither Simple nor Straightforward!

- **No single standard structure for ME systems in U.S.**
- Variations – Centralized models, county coroner systems, mixed county medical examiner and coroner systems, decentralized systems
- Variance among states in terminology to describe personnel
- Variance among states in funding the components and functions of their ME systems (death investigations, autopsies, body transportation)

Most Similar Structures to NC ME System and State Agency Governance

Virginia

Maryland

West Virginia

New Mexico

NC Medical Examiner System Compared with Other States (August 2013)

	North Carolina	Virginia (VA)	West Virginia (WV)	Maryland	New Mexico
Population *	9,535,483	8,001,024	1,852,994	5,773,553	2,059,179
NAME Accredited	No	Yes	No	Yes	Yes
Annual Deaths (3 year average)	78,411	59,181	21,385	43,556	15,834
Annual ME cases	10,850 (3 year average) 13.8% of total deaths	5,670 9.6% of total deaths	4,500 21.0% of total deaths	8,000 18.4% of total deaths	5,500 34.7% of total deaths
Annual Autopsies	3,947 (3 year average) 5.0% of total deaths	3,026 5.1% of total deaths	1,600 7.5% of total deaths	4,000 9.2% of total deaths	2,100 13.3% of total deaths
Number Forensic Pathologists	4 central office; 9 in regional centers (3 each)	14	6 in central office; 2 in satellite office (WVU)	14	8 (9 effective July 2013)

* 2013 census estimates as of August 27, 2013.

NC Medical Examiner System Compared with Other States (August 2013)

	North Carolina	Virginia (VA)	West Virginia (WV)	Maryland	New Mexico
Autopsy Rate/Forensic Pathologists	303	216	200	285	241
Criteria for Autopsy	Yes; http://www.ocme.dhhs.nc.gov/rules/guidelines/shtml	Yes; "professionally established guidelines" (NAME 2013 Guidelines)	No specific WV criteria; follow NAME Guidelines	Yes	Yes
Local Medical Examiner Training Program	Annual conference prior to 2012 (pay to attend)	Local Medical Examiner Training; annual statewide training (funded by state)	Annual course (pay to attend)	Provided by State	Office of Medical Investigation (ME) trains all Field Deputy Medical Investigators (funded by state)
Local MEs Connected to Statewide ME Database	OCME and 2 regional centers have direct access; local MEs and other pathologists send to OCME who enters into database	Virginia Medical Examiner Data System connects regional offices, not clear if all 210 local MEs can enter data	No; county MEs fax reports to investigators who enter into database	No, secondary to security issues; new system pending	Indirectly; field investigators use separate system; this data is transferred to central office and uploaded by staff after quality assurance is performed
Where are Autopsies Conducted	Central office; 3 designated regional centers; 6 additional sites (hospital)	Regionalized state system with 4 sites	Central office and at satellite site at West Virginia University	Only one central office (built to accommodate workload)	Only one central office (built to accommodate workload)

NC Medical Examiner System Compared with Other States (August 2013)

	North Carolina	Virginia (VA)	West Virginia (WV)	Maryland	New Mexico
Autopsy Fee Amount	$1,250	None	None	None	None
Autopsy Fee Payment Responsibility	County (for county residents); state (for non-residents of county of death)	State budget	State budget	State budget	State budget
Average Transportation Costs per body	$90 for 1st 40 miles; $1.00/mile > 40 miles; Round trip	$100/1st 25 miles and $1.50/mile >25 miles; paid for one-way trip to facility	$2.25/mile or flat $75 if local	$3.30 mile	$2.00/loaded mile 1st decedent; $1.00/loaded mile 2nd decedent; Minimum payment of $75 for Bernalillo Co. cases (local to central office)
Transportation Cost Responsibility (county or state)	State appropriations	State appropriations	State appropriations (WV statute)	State appropriations	State pays the initial transport; families pay to have decedent returned
Toxicology	Centralized at OCME for entire state	Centralized for entire state in VA Department of Forensic Science (separate agency)	Centralized for entire state	Centralized at OCME for entire state/ABFT Accredited	Referred to outside labs accredited by the American Board of Forensic Toxicology (ABFT)
Toxicology Costs	Funded by state	Funded by state and budgeted in VA Dept of Forensic Science	Funded by state and some receipts/grants	Funded by state	Funded by state approx.$200,000/year for contract (70%); State Laboratory of Public Health (SLPH) toxicology lab conducts 30% of testing and those funds are in SLPH budget

NC Medical Examiner System Compared with Other States (August 2013)

	North Carolina	Virginia (VA)	West Virginia (WV)	Maryland	New Mexico
State Funding for ME System	SFY 13-14 appropriations of $4,394,503, or $0.46/capita **	Appropriations of $9,428,641 or $1.18/capita	Appropriations of approximately $5M or $2.70/capita	Appropriations of approximately $10.4 M or $1.80/capita	Appropriations of approximately $4.8 M or $2.33/capita

** Uses SFY 13-14 certified budget. $1M in state expansion funds were received for SFY 14-15; total state appropriations SFY 14-15 = $5,394,503. Using August 2014 OSBM website's provisional census data of 9,861,952 yields state funding of $0.547/capita for SFY 14-15. **Per capita calculation uses North Carolina state appropriations only for the purposes of comparison to other states' investments of state appropriations. Excludes North Carolina county investments of approximately $3,854,650/year using a 6 year (calendar year 2008-2013) average of costs paid by counties for ME investigations and autopsies.** Applied against the current population of 9,861,952 (August 2014 provisional census data), North Carolina will invest approximately $0.938 per capita using state and local funds.

ME Fees Compared with Other States

VIRGINIA

- Local ME is a physician
- Fee is $150/case, plus $50 if scene is visited; uncertain how they verify scene visits

WEST VIRGINIA

- $125/case; $200 if scene visited
- If ME called and declines death as ME case, paid $25 for taking a call
- If ME completes a long form on an infant death case, paid $350
- If ME completes a report on a case that is already buried or cremated (no scene, no body), paid $125

MARYLAND

- ME is paid $80/case
- If ME is called but the case is not taken as a ME case, the ME is paid $10
- District medical examiner, an MD, is paid an additional $25 to certify the death/sign the death certificate

N.C. Department of Health and Human Services

North Carolina's Statewide Medical Examiner System

Joint Legislative Oversight Committee on Health and Human Services

Medical Examiner Subcommittee

September 29, 2014

Reese Edgington

Director, CIO Project Management Office

Medical Examiners Information System (MEIS) Defined

- **Purpose:** System is comprised of multiple applications utilizing a variety of technologies supporting the Office of the Chief Medical Examiner (OCME) in developing reports of investigation, autopsy reports and toxicology reports
- **Background:** Evolved system developed over time by UNC Chapel Hill Medical and IT staff
  - Current system uses disparate and obsolete (hardware and software) technology
  - No consistent IT strategic approach used

Current MEIS Issues from ME Perspective

- All information is documented manually on paper by ME, then entered by staff into MEIS
  - Staff still using typewriters to complete death certificates
- System requires time-intensive manual review for duplicate entries between MEIS modules
- Consistent backlog of ME cases needing to be manually entered into MEIS by OCME staff
- Inefficient document workflow between approving offices currently done via postal mail, in some cases impacting delivery within required timeframe
- Inadequate data capture provided for comprehensive statewide analytics
  - Required for National Association of Medical Examiners (NAME) accreditation

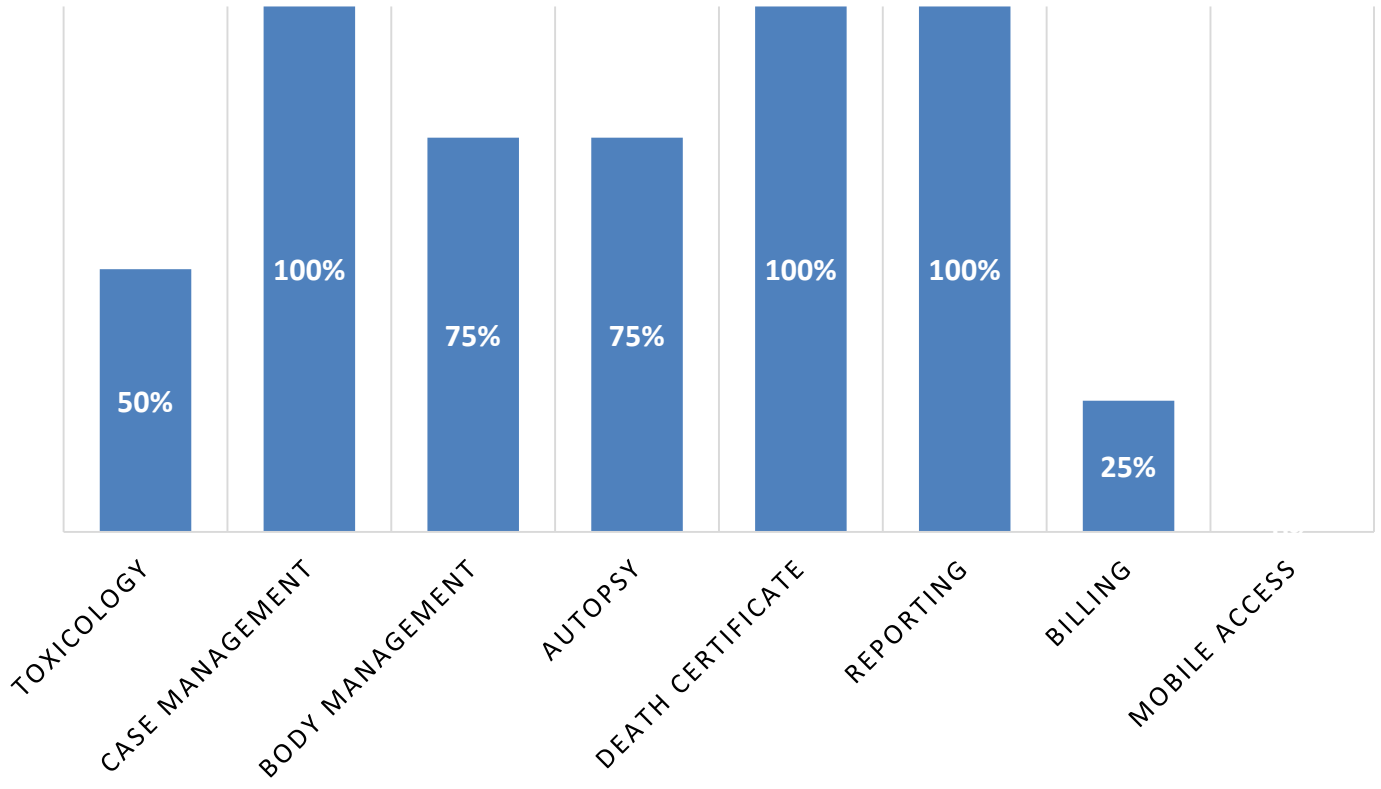
Current MEIS Issues from Technical Perspective

- Difficult to maintain existing legacy infrastructure
  - MEIS currently operating on 15-year-old technology
- Limited remote access and no mobile capabilities
- Limited resource knowledge available to support legacy system
- Incomplete data spread across disparate applications makes it too difficult to deliver decision support information

Actions to Date

- OCME system requirements and use cases being documented
- Preliminary research comparing required capability to industry offerings
- High-level cost estimate for an in-house technology upgrade
- RFI in development to assess industry offerings

ME Software Preliminary Research



Caveat

1. Only high-level research has been conducted on provider capabilities, the information depicted in the chart above is based on advertised data and has not been definitively determined to meet MEIS requirements
2. Percentages derived from a sampling of industry vendors

Preliminary In-House Technology Upgrade Cost Estimate

Non-Recurring

Technical Resources (4 FTEs total)	$700K/year for 2 years
Software, Hardware & Licensing	$105K*
Training	$150K
Total	$1.655M

Recurring

Software & Licensing	$20K

*Excludes $540K optional non-recurring mobile device cost

Benefits of In-House Upgrade

- Leverages extremely capable Public Health Information Network (PHIN) technical team to oversee upgrade efforts
- Minimizes impact to OCME subject matter experts due to the PHIN team's knowledge base
- PHIN is designed for emergency preparedness capabilities
- Less dependence on proprietary code and vendor support
- Increases possibility for reducing implementation schedule
- Ensures compatibility to the redundant, fault tolerant, highly available PHIN infrastructure
- Ensures OCME business requirements are met within MEIS