Presentation to the Forensic Committee of the National Academy of Sciences

1) Present and future resource needs
2) Maximize technologies and techniques
3) Potential applicability of scientific advances
4) Increase available practitioners
5) Disseminate best practices - quality & consistency
6) Homeland security mission

J.C. Upshaw Downs, MD
NAME Board of Directors
Vice-Chair, CFSO Board
“Show me the manner in which a nation cares for its dead and I will measure with mathematical exactness the tender mercies of its people, their respect for the laws of the land, and their loyalty to high ideals.”

- Sir William Gladstone
"CONCLUSIONS: The role of medical examiners and coroners has evolved from a criminal justice service focus to a broader involvement that now significantly benefits the public safety, medical, and public health communities. It is foreseeable that the public health role of medical examiners and coroners may continue to grow and that, perhaps in the not-too-distant future, public health impact will surpass criminal justice as the major focus of medicolegal death investigation in the United States."
1) Present and Future Resource Needs

- ~1% population dies per year
- ~20% require investigation
- Types
  - Unnatural (violence)
    - homicide
    - suicide
    - accident
  - Natural
    - sudden/unexpected
    - unattended
  - Miscellaneous
    - public health contagious
    - work-related cremation
    - iatrogenic custody/law-enforcement
### Medicolegal Workload

#### CASES
- Natural: 156,000
- SIDS: 2,000
- Accident: 102,000
- Suicide: 30,000
- Homicide: 17,000
- Undet.: 4,500
- Other: 500

**TOTAL:** 312,000

#### AUTOPSIES
- Trauma (90% rate): 156,000
- Natural (33% rate): 55,000

**TOTAL:** 195,000

300,000,000 POP = 600,000 CASES
Federal Studies


• Bureau of Justice Statistics. *Census of Medical Examiner and Coroner Offices. Washington DC: 2005 – In progress*
“Substantial public need for accurate death info”

• Criminal adjudication (COD & MOD)
• Public health
documenting medical errors
promote quality & trust
• Civil adjudication
• Victim identification
• Prevention (through surveillance)
  injury
  infection - bioterrorism
“All those public needs are national needs. For many historical reasons, the responsibility for death investigation is rooted largely, although not entirely, at the state and local level, particularly at the county level. Yet over time, the national need has become increasingly apparent. Consequently, there has to be greater priority at the national level.”
Significant weaknesses in the “system”

• Budget overriding determinant of number of autopsies
  types of tests conducted

• Greatest apparent deficit
  *hospitals*
  *hospices*
  *nursing homes*

• Only area working – mass disaster gaps even at federal level (bio/infectious)
(In)adequacy of information

- Continuum
  sparsely populated county (coroner)
  well-endowed medical examiner

- Determinants
  resources
  quality (expertise & professionalism)
  legal structure
Impediments to change

Concerns for almost a century

• Lack of prestige
• Lack of advocacy
• Lack political support
Census of Medical Examiners/Coroners and Inventory of Unidentified Remains

- *Bureau of Justice Statistics – 2005 B*
- First BJS for medico-legal death investigation
- ~3,200 medical examiner/coroner offices
- National picture
  - personnel expenditures
  - functions workload
  - resource needs
- Data on unidentified remains
Deficiencies in ME/Coroner system

- Inadequate resources
- Inadequate expertise
- Imperfect legal structure
- Inadequate facilities
- Inadequate technical infrastructure (esp. infectious)
- Inadequate training disciplines involved
- Lack practice & info standards
- Lack quality measures & controls
- Lack information systems
- Lack research
COMPARING SYSTEMS
MEDICAL EXAMINER/CORONER

• Quality
• Independence
  population size
county budget variation
politics
• Professional
  medical
highly trained
integration scene & lab
investigation
  history
witness interviews
physical examination
“The Gold Standard”

“...a highly professional, well-endowed medical examiner office with access to all necessary technical expertise.”
1928 NRC in 2003 IOM

“...the coroner system should be replaced by the medical examiner system. The coroner system lacks proper training and is fraught with potential conflicts of interest, particularly when coroners are funeral home directors, as they often are, for whom publicity affects business.”
2) Maximize Technology & Techniques

• Support laboratories
  Toxicology
  Other support
• Computerization/LIMS
• Imaging equipment
  photography
  CT
  MRI
  fluoroscopy
• Virtual autopsy
Toxicology Lab

Current
• In-house (37%)*
• State/police laboratory
• Hospital /clinical laboratory
• Private toxicology laboratory

Recommended
• In-house toxicology laboratory

* awaiting NIJ 2005
Equipment and Facilities B

• Inadequate size
• Outdated
  physical plant (avg ~20 years)
  technology
  safety
  infectious diseases
  >1/3 lack design/airflow control pathogens
  many not bio-safety level 3
• Under-equipped
  computers/LIMS
  microscopes
3) Potential Applicability of Scientific Advances

- **Whole other level**
- **Resources to implement basics B**

- *American Journal of Forensic Medicine & Pathology*
4) Increase Available Practitioners

Medical Examiner Office Components

- Medical
- Investigative
- Administrative
- Technical support
- ± Laboratory
  - toxicology
  - other(s)
Medical Staffing

- Board certified forensic pathologist (FP)
- Board certified “hospital” pathologist
- Non-board certified pathologist
- Non-pathologist physician
- Physician’s assistant/other
Forensic Pathologists – Supply

Current
• 989 total FPs
  600 part-time & full-time
  350-400 full time
• Mean 225 autopsies/year
• Mode 200 autopsies/year
• 40% perform >250 autopsies/year
• 9% perform >350 autopsies/year

Needed
• ~800 full-time FPs @ 250 autopsies/year
• ~980 full-time FPs @ 200 autopsies/year
Challenges
Forensic Pathologists – Supply

- Inadequate training exposure setting priority
- Salary
  - “Hospital” pathologist – $270,000
  - Medical Examiner –
    - Chief <$150,000
    - Other <$120,000
- Retention
  - 30 new/year (16 in 2006)
  - 1/3 part-time FP (“hospital” pathology)
  - 1/3 leave within 10 years
Professionalism – Forensic Pathologists

• Basic competency and adequate practice
• Board certification
• Professional performance parameters
• Continuing education

• Availability
• Cost
Professionalism – Death Investigators

• Basic competency
• Required training
  *National Forensic Academy* – law enforcement
• Death scene investigation guidelines (NIJ 1998) B
• ABMDI certification B
  ~800 registered
  continuing education

• Availability
• Cost
5) Best Practices

- Certification B
- Practice standards B
- Lab accreditation
Sample Forensic Autopsy Quality Improvement Program

- Autopsy service
  - overall operation
  - product
- Toxicology
  - selected workups reviewed
  - unusual/difficult toxicological problems.
- Neuropathology
- Photography
  - reviewed & critique
  - interesting/challenging cases
- Autopsy reports
  - random selection and detailed review
  - written evaluation quality assurance file
- Intradepartmental microscopic consultations
- Solo practitioners - reports & other work
Death Investigators

• Almost always non-physician
  + Medical background
  + Law enforcement
  Other background

• Training
  In-house (OTJ)
  didactic courses
Accreditation – NAME (1975)

- ME facility’s operation & practice
- Total ME facilities – ~465*
- Accredited ME facilities – 60*
- Population served – ~25-30%*

* awaiting NIJ 2005
Accreditation – Challenges

- Inadequacies
  - staff
  - facility
  - equipment
  - operation
  - resources
- Time consuming

- Potentially costly
- Lack incentive
  - voluntary
  - difficult
  - + tangible benefits
  - + repercussions
6) Homeland security mission

“The emerging emphasis on mass disasters and bioterrorism has illuminated *longstanding neglect* of death investigations by the federal government despite the broad public need that has been highlighted by this workshop.”
Anecdotal evidence

- D-MORT
- Tri-state crematory (N. Georgia)
  ~335 sets decomposed remains
- Hurricane Katrina (…and Andrew… and Hugo)
- Pandemic influenza
- Bioterrorism
  inhalational anthrax
- 9/11 – NYC ME office
  ~3000 dead
  ~20,000 remains
NAME Suggestions for Federal Government

- Fully **fund & facilitate** Coverdell NFSIA
- **Active interest** in medicolegal death investigation
designate lead agency assignment
- Ensure **quality** medicolegal death investigation
  support & staff **FP-based** systems
- Establish policies and programs (through DHHS)
  encourage & enable **more physicians** to enter field
  retain currently practicing FPs
- Support NAME **accreditation**
- Continued support for established practice **standards**
- MEs as homeland security “**first responders**” (funds)
- **DHS-ME** liaison office
- **Information-sharing** (MEs & relevant federal agencies)
- Sponsor **research and policy** discussions
“Injustice anywhere is a threat to justice everywhere.”

- Dr. Martin Luther King Jr.

Letter from Birmingham Jail, April 16, 1963