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Michael F. Easley, Governor

Carmen Hooker Buell, Secretary

October 10, 2001

Carmen Hooker Buell, Secretary
North Carolina Department of
Health and Human Services
2001 Mail Service Center
Raleigh, North Carolina 27699-2001

Dear Ms. Buell:

I am pleased to submit to you the final report of the Medical Examiner Study Group (MESG). As you are aware, the MESG has been working since March 2001 to evaluate North Carolina's system of death investigation and to recommend improvements. The group of volunteer professionals who agreed to undertake this task was quite broad both in terms of expertise they represented and in terms of a comprehensive approach to the assignment. I believe the final report is one you can be very proud of.

The report is organized to give the reader sufficient history to understand the evolution of the medical examiner (ME) system in North Carolina and background into the existing issues and challenges facing the ME system today. The MESG was adamant that the assets of the current system not be lost as the State moves forward in addressing the challenges. You will see the MESG's vision for a better system as well as twenty-three specific recommendations for how to achieve this vision.

Thank you for the opportunity to be a part of crafting the future direction of such an important State function. Please feel free to contact me if you have questions or concerns. I speak for the entire MESG when I say, we stand ready to help you in any way we can.

Sincerely,

Robert Farnham III, MD, Chair
Medical Examiner Study Group

Strategic Plan for Improving the Medical Examiner System

A report of the
North Carolina Medical Examiner Study Group
Dr. Robert Farnham, III, Chair

August 31, 2001

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I. Executive Summary

The Medical Examiner Study Group was formed to investigate the system of medicolegal death investigation in North Carolina and recommendations. The Medical Examiner Study Group (MESG) consisted of 26 individuals representing stakeholder groups such as medical examiners, pathologists, law enforcement, funeral homes, legal, state administrators, academic partners, advocacy groups and citizens at large. The MESG divided into five subcommittees each with its own study objectives. The MESG worked from March through August to understand the system in North Carolina, compare models of other states, and make recommendations for improvements. The first finding of the MESG was that the existing medical examiner (ME) system in North Carolina had many strengths. The ME System was fully implemented in NC in 1972 as an improvement over the previous coroner system. The coroner system depended heavily on lay individuals who were often not health professionals. The ME system significantly improved the quality of death investigations in NC by utilizing trained physicians wherever possible under the central coordinating authority of the Chief Medical Examiner. Changing demographics in NC, the difficulty recruiting and retaining trained physicians to serve as ME's, and increasing pressure on the ME system to conduct complex investigations in a timely manner are just a few of the concerns that suggest the need for further improvements to the system at this time.

The MESG adopted a new vision of an enhanced ME system in NC that builds upon the strengths of the existing system while increasing the capacity and the professionalism of death investigations statewide. Twenty-three specific recommendations were made around the following goals:

1) Enhanced Regionalization of ME Services
2) Establish the Medicolegal Death Investigator position on the ME Team
3) Improved Training and Certification of Death Investigation Personnel
4) Broaden the Mission and Optimize the Use of ME Data
5) Improved Internal Quality Assurance and Customer Service

6) Greater use of Information Technology
7) Strengthen the Statutory Authority of the ME System
8) Assure Adequate State and Local Resources to Operate the ME System

The findings and recommendations of the MESG were be submitted to the Secretary of the Department of Health and Human Services, Carmen Hooker Buell, and to various stakeholder groups. The report would also be shared with the North Carolina General Assembly through the proposed Legislative Medical Examiner Study Commission (House Bill 648).

II. Medical Examiner Study Group

On March 12, 2001, in response to concerns raised publicly regarding the quality of suspicious death investigations in North Carolina, the State Health Director under the authority of the North Carolina Secretary for the Health and Human Services invited prospective members to form a study group with the Department for the purpose of exploring opportunities and making recommendations for improvements in the Medical Examiner system in North Carolina.

The Medical Examiner Study Group was initially charged to address the following areas:

1. **Legal Structure** - Examine the legal authority of the Medical Examiner (ME) system based on current law, reporting responsibilities, and delegation of authority.
2. **Organization of Services** - Evaluate the volume and distribution of ME workloads, personnel requirements, job responsibilities, regionalization vs. centralization, and opportunities for team approaches.
3. **Training and Technical Assistance** - Recommend improvements to the quality assurance efforts in the ME system including information technology opportunities, training and certification needs, and communications needs.
4. **Resource Development** - Determine the human and financial resource needs adequate to establish and maintain a high quality ME system in NC.

The Medical Examiner Study Group (MESG) consisted of representatives from across the state who work within the ME system and external stakeholders/consumers who depend on the ME system. Members included the Chief Medical Examiner, local medical examiners, pathologists, and representatives from the funeral home directors, Board of Mortuary Sciences, law enforcement, legal services, and citizen consumers. The first full meeting of the MESG was held on March 23, 2001. The MESG divided into four subcommittees, each with assigned issues to address around the specific charges of the study. A fifth subcommittee was created during the first meeting to examine the mission of the Medical Examiner system beyond the individual death investigation to recognize the value of understanding death investigation data collectively. The chair and membership for this additional subcommittee were identified. The subcommittees worked independently throughout the summer, mainly through phone conferences and e-mail to accomplish their tasks. The MESG Chair, state representatives and subcommittee chairs met on July 20, 2001 to compile the work of the subcommittees and begin to draft a full report. The full MESG met again on August 17, 2001 to reach consensus on their final recommendations. These recommendations were incorporated into draft report and shared with the full MESG again.

MEDICAL EXAMINER STUDY GROUP
Committee Assignments

Dr. Robert Farnham, ME Study Group Chair

Department of Health and Human Services Staff
Dr. Steve Cline, ME Study Group Convener
Dr. John Butts, Chief Medical Examiner
Glenn Cutler, Administrative Assistant

Mission and Research Committee
Dr. Carol Runyan, Chair

Organization, Workforce, and Policy Committee
Dr. Ron Levine, Chair
Dr. Hervy Kornegay
Dr. B.W. Springs
Dr. Mike Sullivan
Dr. Roy Weaver

Training and Technology Committee
Dr. Mary Gilliland, Chair
Dr. Charles Blomeley
Joann Haggerty
Dr. Marcia Herman-Giddens
Patty Raper

Legal Issues Committee
Dr. Page Hudson, Chair
John Barkley, Esquire
Bobby Bonds
Dr. Harold Gollberg
Dennis Honeycutt
Steve Roberts
Judge Thomas Ross

Resource Development Committee
Dr. Buddy Garrett, Chair
Chris Hoke, Esquire
Andy Ritter
Larry Stegall

III. Background

A. History

The NC ME system was created by an act of the General Assembly in 1967. It was intended to replace a system of elected lay county coroners who were primarily charged with investigating deaths due to possible homicidal violence. The ME system of appointed medical doctors was designed to investigate all deaths due to injury, as well as those that occurred suddenly and unexpectedly in apparently healthy people or under suspicious circumstances. Prior to the passage of ME legislation in 1967, suspicious deaths were, for the most part, investigated by locally elected lay coroners. These county officials often lacked medical expertise and worked in isolation, dependent solely upon the resources within their individual counties to obtain medical input into death investigations. The enabling legislation was based on similar ME systems in such states as Maryland and Virginia.

The legislation provided for the appointment of local physicians at the county level to serve as

medical examiners and for an Office of the Chief Medical Examiner (OCME) to oversee the operation of the system, appoint the medical examiners, identify doctors to perform autopsies when required, as well as to provide other services that would be needed for the system overall. The operation of the chief medical examiners office is a state function. The first chief medical examiner was hired in 1968, but it was not until 1972 that all of the counties within the State came under the umbrella of the medical examiner system either by the appointment of local physicians to serve as county medical examiners, or the appointment of the coroner as "acting" medical examiner. By the early 1970's, the OCME was staffed to operate the ME toxicology laboratory and central record keeping.

Under the coroner system, all medical-legal death investigation functions were essentially county centered. Coroners were locally elected officials and the expenses incumbent in any medicolegal death investigation were included within the county budget. Coroners had to make all arrangements for autopsies and had to provide or identify places for the storage of bodies and for any examination that might be necessary. Bodies were taken to or stored generally at either a local funeral home - the coroner was often a funeral director, or in the morgue at the local hospital - most of which were county operations.

When the medical examiner system was instituted, the county responsibility for medicolegal death investigation, as spelled out in the statute, was limited solely to the payment of fees to medical examiners and designated pathologists when an individual died in their county of residence. While the medical examiner statutes provided language allowing the OCME to provide support services to the medical examiner system, it did not establish any specific local services as such. The OCME supported local services by providing a per case reimbursement to hospitals when their facilities had to be used by a medical examiner for the storage and/or inspection of a body that would not otherwise have been taken there. The OCME also devised a system whereby body transporters would be identified and reimbursed for the transport of deceased individuals for medical examiner inspection or autopsy, in order to spare families the necessity for making such arrangements and paying for them. Counties still retain the responsibility for paying ME and autopsy fees for the investigation of deaths occurring in the county of residence.

When first instituted, the medical examiner system caused rapid improvement in the overall quality of medical-legal death investigation by first replacing elected lay death investigators with appointed medical examiners who were usually medical doctors. Secondly, a standard medical examiner report form and death certificate were established bringing greater uniformity to the process of death investigation and its documentation. Thirdly, the Chief Medical Examiner designated competent pathologists to perform autopsies. Every county in the State then had access to such qualified individuals to perform autopsies when needed. The OCME promulgated guidelines in regard to which deaths were ME cases and which of those needed to be autopsied. The resultant requirements for autopsy were much broader than what had existed under the previous coroner system, ensuring that more deaths did come to autopsy and thus significantly decreasing the number of inaccurate death certifications. It should be pointed out that under the coroner system autopsies could only be ordered in instances of obvious foul play, i.e. homicide.

The OCME established a review process whereby death certificates, ME reports, and autopsy reports were reviewed by forensic pathologists at the OCME prior to finalization. This quality control process helped provide for a more accurate certification of deaths. The OCME provided 24 hour-a-day consultation services to any medical examiner, law enforcement agency, or other relevant party concerning a death investigation in this State. The inclusion of a toxicology laboratory within the OCME insured that adequate investigations of possible toxic deaths could now be pursued regardless of where in the State a death occurred. A database of all ME cases was set up at the OCME that allowed the rapid identification of cases and the tracking of cause and manner of death issues with much greater detail and accuracy than was possible using vital records data.

One significant difference between the old coroner system and the modern medical examiner system is that the latter has a much broader charge in regard to death investigation. The coroner's main concern was to "rule out foul play." This was usually construed to mean homicide. Medical Examiners are charged to uncover all forms of violence or trauma, homicidal or otherwise, and to be alert for all public health hazards. These were major and radical changes for North Carolina and the resulting death investigation system was viewed as a model for other states to emulate.

B. Evolution of the ME System in North Carolina

District Offices

It was recognized at the time the NCME system was created that future modifications would be needed. One such modification specifically provided for within the enabling legislation was the establishment of district offices for the performance of postmortem examinations. Virginia had already at that time established such offices in order to standardize the quality of autopsies across the state and this was envisioned as something that would probably be appropriate to pursue in North Carolina over time. In fact, an attempt was made to establish such an office in the Piedmont Triad area in the 1970's and an attempt to expand the Mecklenburg County medical examiners office into a regional facility was made in the mid 1980's. Neither of these efforts was successful at the time. Regionalization, however, has occurred defacto. While there are 100 counties in our State, autopsies are only performed at 24 locations. Even amongst these 24 sites, five sites including the OCME in Chapel Hill, the Mecklenburg County office in Charlotte, the Wake Forest School of Medicine in Winston-Salem, the Onslow County pathologist's office in Jacksonville, and East Carolina University School of Medicine in Greenville account for 3/4 of all the medical-legal autopsies. Among the other sites where contracted pathologists perform examinations, it is typical for more than one county to be served. This locally driven regionalization, however, has occurred without the provision of additional support from the private practice and medical school departments who voluntarily participate. An attempt to earmark funds to provide overhead support to the centers at ECU and WFU in the mid 1990's was unsuccessful.

Workload Trends

When the medical examiner system was instituted in the late 60's early 70's, the State's

population was considerably smaller and there was less urbanization. An essentially volunteer county medical examiner system staffed with part-time examiners as it was originally implemented is most practical in less populated areas where the overall case load is low and the additional duties can be easily assumed by physicians already in practice. As population densities increase, however, the total number of cases reported to medical examiners increase. At some point in time, the volume becomes such that it cannot be sustained by part-time physicians who also have full-time practice responsibilities. This was recognized in Mecklenburg County prior to the institution of the statewide medical examiners system. Because of its size, Mecklenburg had retained the services of a full-time forensic pathologist to serve as their medical examiner and pathologist in the mid 60's, as well as providing facilities for that function separate and apart from the private medical sector. We now have a number of other areas in the State where the population is such that it is no longer realistic to have medical-legal death investigation functions performed solely by part time individuals. Some type of solution that will provide for adequate services in these areas is required. The present Mecklenburg County Medical Examiners Office is a model for such a solution. It functions very similarly to other large county/district medical examiner offices around the country. Currently it is funded jointly by Mecklenburg County and the State.

C. Present Organization and Functioning

The North Carolina Medical Examiner System is a network of over 500 individuals, mostly medical doctors throughout the state who voluntarily devote their time, energy, and expertise to see that deaths of a suspicious, unusual or unnatural nature are adequately investigated. At the county level, the Chief Medical Examiner appoints medical practitioners for three-year terms as county medical examiners. In counties where there are no physicians willing or able to serve, non-physicians may be appointed to serve as "acting" medical examiners. Originally, elected coroners often filled the gap but in recent years, physician assistants and nurses have been utilized. By law, medical examiners must be notified when a death occurs in their county that falls within the statutorily defined categories. The county medical examiners take charge of the body of the deceased and conduct such examination as is necessary to properly determine the cause and manner of death. These duties are all in addition to their normal roles as private practitioners. In evaluating a case, the medical examiner must consult with law enforcement officers, relatives, and/or other individuals who may have knowledge of the circumstances surrounding the death. They conduct a physical examination of the body to detect or rule out signs of violence. On many occasions, they visit the place where the death occurred or where the body was found in order to gather more data. In some instances, they may decide that an autopsy is necessary in order to properly complete their investigation. The law gives them the authority to order an autopsy should they deem it advisable. Such an autopsy is performed by a pathologist who has been designated by the Chief Medical Examiner as competent and capable of performing the examination. Most of these pathologists are in university settings or private practice, like the medical examiners, and participate on a voluntary basis. They report their findings to the county medical examiners, which must consider them when they render their opinion as to the cause and manner of death.

Specimens for toxicological testing obtained by the medical examiners and the pathologists are all sent to the Office of the Chief Medical Examiner, where the toxicology laboratory performs a wide variety of analyses. When simple analyses are required, the medical examiners and pathologists have the results of toxicology tests within a few days after the specimens reach the lab, although in cases where more complex analyses are required, some weeks may be required to complete the studies.

All reports generated by the medical examiners and regional pathologists are forwarded to the Office of the Chief Medical Examiner, where they are assembled and kept on file. Much of the material on file is computerized and can be retrieved for epidemiological studies. A great strength of the NC medical examiner system is the assemblage of data that allows surveillance of deaths in the state, often leading to the discovery of existing and potential public health hazards.

Within the Office of the Chief Medical Examiner, five pathologists perform medicolegal autopsies for counties surrounding Chapel Hill and counties that have no regional pathologists. Cases are also referred to the central office when field pathologists are not available to do an autopsy or when additional expertise is required to assess a case. As a result, more than one third of all autopsies in the medical examiner system are performed at the Office of the Chief Medical Examiner. Each of the five pathologists is also responsible for providing consultation to county medical examiners and field pathologists as well as reviewing medical examiner investigative reports for a region within the state.

In addition to the pathology and toxicology staff, the central office has an administrative section which assembles information from multiple sources, performs the mechanical aspects of filing and generating reports, and coordinates the numerous other activities involved in operating the system across the state. For example, each medical examiner investigation generates a number of documents. Law enforcement, insurance, and other agencies regularly request these public documents. The office mails an average of four copies of the medical examiner's report (including toxicological and autopsy results, if done) per case.

The central office is responsible for a number of activities related to death investigation, including payment for the transportation of deceased individuals throughout the state when the medical examiners and pathologists order such transportation. Hundreds of individual transporters--funeral homes, rescue squads and independent transporters--aid the Medical Examiner System and the citizens of North Carolina by providing this service.

In addition to case investigation and management, the central office has a broad educational function. The medical examiners and regional pathologists must be kept abreast of happenings within the system, requiring continuing medical education sessions. This portion of the OCME responsibilities has been severely hampered by a high caseload. Pathologists are fully occupied with the performance of medicolegal autopsies and subsequent court appearances and have inadequate time to devote to outside educational activities. Education of law enforcement personnel for optimal interaction between the medical examiner and law enforcement systems is also an ongoing concern. Located within the UNC Medical School complex, the central office

staff also instructs medical and dental students and participates in programs and courses with the N.C. Justice Academy, State Bureau of Investigation, and many other institutions.

D. Funding

The Office of the Chief Medical Examiner is funded by a combination of state appropriations and generated revenues. The total authorized budget for operations of the OCME in SFY 00-01 was $3,550,486. This was funded by legislative appropriation of $2,525,946 and $1,024,540 in revenues that were generated by the ME system and budgeted against expected expenditures. Medical examiner and autopsy fees paid by the counties to the OCME for investigations and autopsies of county residents make up the majority of the incoming revenues. Revenues that are generated by OCME are considered general state revenue funds until budget officials allow the Division of Public Health to budget the revenues against OCME expenses. The total revenues collected in SFY 00-01 exceeded those that were approved and budgeted in OCME by $40,611.

In addition to the budget at the state level, there are local costs necessary to operate the greater statewide medical examiner system that are not reflected in the operational costs noted above. Each county must bear the cost of medical investigations and autopsies performed on county residents and if those services are not performed at the OCME, those costs are not reflected in the operational budget of the facility in Chapel Hill. The costs to each county within the state are noted in the Appendix F and are estimated to have totaled $3,086,150 in calendar year 2000. Therefore the total of both state and local costs for the present medical examiner system could be estimated at $6,636,636.

In addition to the direct costs there are many individuals and organizations across the state that contribute time and energy to the operation of the system. Medical Examiners (many of whom are private physicians) who are paid a fee of $75 for each investigation, without regard for distance traveled or amount of time spent in completing the investigation are the most obvious example of these in-kind contributions supporting the system. Likewise, pathologists, law enforcement officials, families of deceased individuals, funeral directors, the local Departments of Social Service and other government entities provide support to the system. These costs are not accounted for in the above discussion but are a critical component to the success of the existing system.

E. Current Legal Authority

The current legal foundations for the medical examiner system are found in the North Carolina General Statutes, **Chapter 130A; Article 16, Postmortem Investigation and Disposition**. A copy of the complete article can be found in the appendix. The legislation provides for the appointment of physicians at the county level to serve as medical examiners and for an Office of the Chief Medical Examiner to oversee the operation of the system. The OCME has the authority to appoint the medical examiners, identify doctors to perform autopsies as needed, as well as to provide other services that are necessary for the system overall.

The highlights of the present statutes are as follows:

- Central offices with appropriate facilities and personnel for postmortem medicolegal examinations. District offices, with appropriate facilities and personnel, may also be established and maintained if considered necessary by the Department for the proper management of postmortem examinations.

- In order to provide proper facilities for investigating deaths as authorized in this Part, the Chief Medical Examiner may arrange for the use of existing public or private laboratory facilities. The Chief Medical Examiner may contract with qualified persons to perform or to provide support services for autopsies and other studies and investigations.

- The Chief Medical Examiner shall appoint one or more county medical examiners for each county for a three-year term. A medical examiner may serve more than one county.

- The Chief Medical Examiner may take jurisdiction in any case or appoint another medical examiner to do so.

- Upon the death of any person resulting from violence, poisoning, accident, suicide or homicide; occurring suddenly when the deceased had been in apparent good health or when unattended by a physician or occurring under any suspicious, unusual or unnatural circumstance, the medical examiner of the county in which the body of the deceased is found shall be notified.

- Upon notification of a death, the medical examiner shall take charge of the body, make inquiries regarding the cause and manner of death, reduce the findings to writing and promptly make a full report to the Chief Medical Examiner on forms prescribed for that purpose.

- The medical examiner shall complete a certificate of death, stating the name of the disease that in his opinion caused death. If the death was from external causes, the medical examiner shall state on the certificate of death the means of death, and whether, in the medical examiner's opinion, the manner of death was accident, suicide, homicide, execution by the State, or undetermined.

- For each investigation and prompt filing of the required report, the medical examiner shall receive a fee paid by the State. However, if the deceased is a resident of the county in which the death or fatal injury occurred, that county shall pay the fee. The fee is seventy-five dollars ($75.00).

- If, in the opinion of the medical examiner investigating the case or of the Chief Medical Examiner, it is advisable and in the public interest that an autopsy or other study be made; or, if an autopsy or other study is requested by the district attorney of the county or by any

superior court judge, an autopsy or other study shall be made by the Chief Medical Examiner or by a competent pathologist designated by the Chief Medical Examiner.

- A fee for the autopsy shall be paid by the State. However, if the deceased is a resident of the county in which the death or fatal injury occurred, that county shall pay the fee. The fee is one thousand dollars ($1,000).

IV. Statement of the Problem

An efficiently functioning Medical Examiner System (ME) helps to insure that all suspicious deaths are adequately investigated and that the actual illness or injury that caused death is identified. This protects innocent individuals from prosecution and aids in the conviction of the guilty. It allows the speedy settlement of insurance claims and other survivor benefits. By bringing public attention to many cases of death that are in theory preventable, the toll of such premature deaths may be decreased.

The current ME System in NC has much strength. It is important to hold on to these strengths as concerns are addressed and improvements initiated. Some of the strengths identified include:

- Sound State Statute and legal underpinning for the present ME system
- Statewide consistency and one stop center for records and service from the system
- System is based on a strong professional medical model
- Forensically trained pathologists doing much of the current work
- Quick responses from the system generally
- Quality of the autopsy work in the system
- Long-term competent centralized database and data collection
- Relatively low expense of present system
- Willingness of physicians and other health professionals to voluntarily participate in the ME system in addition to their regular practice obligations
- Linkages to other public health entities and infrastructure; separate from a narrow law-enforcement perspective
- A centralized state toxicology lab fully dedicated to medical examiner functions
- Public perception of the ME system is good based on low volume of complaints
- High customer/client satisfaction with their interactions with the ME system based on anecdotal information from ME staff
- Use of collective data from death investigations by scholars to evaluate opportunities for prevention and inform policy makers

Despite its strengths, there remains room for improvement in the ME system in NC. A series of newspaper articles published in February 2001 on death investigation and certification and that the ME system raised concerns about the quality of death investigation in North Carolina. (Appendix C) The issues and concerns highlighted in the articles include questions about:

- The quality of the death investigations done by medical examiners, including the failure to visit scenes of death, lack of specific training in death investigation, the fact that non-physicians serve as medical examiners in some areas, lack of central control over county medical examiners, and lower rates of autopsy in some categories of unnatural deaths in NC when compared to national rates.
- The training and qualifications of some pathologists who are doing medicolegal autopsies in NC.
- Funding, personnel resources, and legislative support for the system statewide, and the fees paid for medical examiner investigations.
- The heavy workload and numerous demands placed on those who work in the system, especially the Mecklenburg County Medical Examiner's Office.
- The failure of regular attending physicians to notify medical examiners of some unnatural deaths among their patients, and the failure of the vital records system to always refer such cases to the medical examiner system for follow-up in a timely manner.
- The rate and quality of death investigation among elderly decedents and children.
- The timeliness of death investigations.

While the number of deaths occurring each year in NC has increased, the number of ME death investigations and autopsies has remained relatively constant. To some extent this has been the result of limited resources discouraging ME investigations in borderline cases and an overall under utilization of the autopsy. Many deaths now require a more extensive workup, for example child fatalities, than previously. The resources available to support ME case investigations and autopsies have not kept up with the increased requirements.

In North Carolina, most deaths occur under non-suspicious circumstances from natural causes. The deceased individual usually has a history of life-threatening illness and dies under the care of a physician who, having provided treatment for that illness, is able to certify both the fact and cause of death. Most of these deaths occur in hospitals or other terminal care facilities, though some may occur in homes or other places. Under the laws of the State of North Carolina, a physician is obligated to certify the death of his/her patient if that patient dies of the disease or illness for which the physician provided treatment, and the death does not fall under medical examiner jurisdiction.

Problems arise, however, when someone who has no physician dies and thus, there is no attending physician who can sign the death certificate. When deaths occur under suspicious circumstances or as a result of violence, there must be mechanisms in place to see that these deaths are properly investigated. In unattended deaths without confirmed medical histories, there is always the possibility that these deaths might be due to violence or external causes. Deaths in North Carolina that are unattended, suspicious, or the result of violence (homicide, suicide, and accident) are investigated and certified by our State Medical Examiner System. In addition, many natural deaths occur each year in hospital emergency rooms away from the decedent's attending physician. Emergency room physicians are reluctant to rule this a death from natural causes without confirmation from the patient's attending physician and therefore the case may inappropriately be referred as a ME case.

Most ME's in NC are private practice physicians with an interest in death investigation who voluntarily participate in the ME system. In many areas of the state, it is difficult to recruit, train and retain a qualified physician ME. In these situations, the ME system has had to rely on non-physician medical personnel to perform the death investigation.

The training necessary to fully support the ME system is significant and varies from a basic knowledge of what can cause deaths and how to complete a death certificate (which is important for almost all practicing physicians in NC) to highly specialized forensic training to perform complex medicolegal autopsies. The capacity for this training is not routinely and easily available across the board in NC.

So much of the outcome of any death investigation depends heavily on the initial decision by a potentially inadequately trained physician to refer the case to the local ME. In some cases, the ME must do considerable work on a case that has been referred to know whether on not it should have been designated a ME case. This work is typically not reimbursed in the ME system if it is not judged a ME case. If the local ME is not readily available to initiate a case, it may be an issue of who has responsibility for the body and where to store it until the ME accepts it. The essentially volunteer ME may not have the time or expertise to perform the work at the optimum level. Consultation with the Chief Medical Examiner is always an option but no substitute for firsthand knowledge.

V. Strategic Plan

A. Vision

The vision for the ME System in NC is one of a coordinated professional network of dedicated state and local resources to perform high quality death investigations on a timely basis on all appropriately identified deaths occurring in NC. This would be accomplished through a regionalized approach using a combination of forensically trained pathologists, physician medical examiners, and certified death investigation personnel. The system would retain central authority and data collection to insure the quality of death investigations statewide and encourage data analysis/research that can guide public policy and maximize the potential for prevention.

B. Recommendations for Improvement

GOAL: Enhanced Regionalization of ME Services

1. **Establish Regional ME Offices** - Formally establish regional offices across the state such that medicolegal death investigations are handled within geographic regions of the state with

regional authority and appropriate support services while retaining centralized reporting requirement quality standards. The Office of the Chief Medical Examiner would continue to perform toxicology and histology services as needed for all investigations and provide administrative oversight of the system

Based on workload and location, five regional centers should be established, one in the Northeast, Southeast, Triangle, Triad and Charlotte. A far Western center should also be considered. These regional centers, in addition to the central office of the OCME in Chapel Hill, would serve specific geographic areas of the state. (It is assumed that the OCME would serve as the triangle regional office, though whether it would remain in Chapel Hill would be a subject of consideration.) The OCME retains the authority to require any particular autopsy or investigation to be handled out of the central office at his discretion. Each regional center would at a minimum have personnel capacity for a board certified forensic pathologist, autopsy assistant, medical death investigator, and appropriate administrative support. These regional centers would not necessarily be freestanding state buildings staffed with state employees. It is possible that a contractual arrangement with new or existing autopsy service providers could provide the additional resources necessary to provide the regional ME services. The medical examiners who work within the various regions served by the proposed regional centers would find resources to assist them in the regional centers. The regional system is designed to support local ME's not replace them.

GOAL: Establish the Medicolegal Death Investigator Position in NC

Many other medical-legal death investigation systems around the country utilize non-physician investigators to assist in the performance of death investigations. Many of these systems are county or district operations with relatively limited geography and insufficient resources to employ full time individuals. In many systems, lay investigators work under a physician medical examiner that bears the ultimate responsibility for determining and certifying the cause and manner of death. The North Carolina ME Statutes only provide authorization for ME's. If a county or an individual medical examiner wishes to utilize individuals to assist in investigations, they may do so but there is no provision for state payment to such individuals or official status in the ME system. Cities or counties could create such positions, but they would be separate and apart from the medical examiner statute.

2. **Establish the Medicolegal Death Investigator Role in NC** – Clearly define the education and training requirements to formally establish the role of Medicolegal Death Investigators (MDI) in NC. These individuals would be medically trained non-physicians working under an appointed medical examiner. These individuals would serve to cover geographical gaps in coverage where ME's are not available or when workload requirements necessitate it. The MDI may be used to assist ME's in individual death investigations. The State ME Statutes must be amended to establish the MDI role within the ME system. The ME and not the MDI retains the authority to sign death certificates and to order an autopsy. The person filling the MDI role would be required to meet specified training and educational requirements as defined by the OCME prior to being appointed as MDI.

Note: According to the existing North Carolina ME Statutes (NCGS 130A-382), when a

physician ME is not available, the Chief Medical Examiner has the authority to appoint a non-physician with qualifying credentials as ME. This has been done in certain areas of NC. In these specific situations, a non-physician may act as an ME. Coroners and other paramedical personnel, nurses, physician assistants, and EMS personnel currently serve in this capacity in NC.

GOAL: Improved Training and Certification

The premise of a Medical Examiner system dating back to the first one in this country in Massachusetts in 1877 was that individuals with medical expertise should conduct the medical aspect of death investigations. Hence, the use of physicians as death investigators. Years ago, however, it was more common for physicians to receive some "forensic" medicine training during their medical school education than is the case today. While much of a physicians medical education is still relevant to investigating deaths, there are aspects of death investigation that are inadequately, if at all, covered in today's medical school curriculum. It should also be pointed out that the very process of death certification itself, let alone medicolegal death investigation, is often very poorly dealt with in medical school. Laws regarding what deaths must be reported to medical examiners/coroners may vary from state to state and may not be relevant for the state in which an individual ends up practicing.

3. **Enhanced Training** – Enhance the quality and quantity of training opportunities for MEs, pathologists performing autopsies on ME cases, and MDIs. One often-overlooked training need is for education on how best to perform death investigations in cooperation with law enforcement officials particularly at the scene of a crime. Training opportunities should be available locally and regionally to assure easy access. Opportunities for continuing education are now provided through a yearly seminar. It is recommended that a basic medicolegal death investigation course be offered at least twice a year. The Chief Medical Examiner must assure that all personnel performing ME duties are appropriately trained and certified prior to being appointed or reappointed in an ME role.

4. **Mandatory Training Requirements** – Appointed personnel performing death investigations in NC should be required to have a minimum number of hours each year of continuing education in the field of death investigation and/or forensic pathology to maintain their appointment. This will entail carefully defining the quality standards for all death investigations in NC. Physicians agreeing to serve as medical examiners currently receive education on the death investigation process in NC as furnished by the OCME at appointment. This orientation training should be made mandatory for newly appointed medical examiners. The OCME should have the authority to rule on what qualifies under the mandatory training requirement and any exceptions.

5. **Improve the Quality of Death Scene Investigation** – Specifically address the training needs necessary to improve the quality of investigations conducted at death or fatal injury scenes. This information may be critical to the accurate determination of cause and manner of death in certain circumstances. The death scene investigation is already an element of the death investigation but the quality of the investigation varies. Numerous agencies respond to fatal

incidents and gathering this information for ME purposes is at best time consuming and un-coordinated or at times inadequate. This is particularly true for sudden unexpected deaths of children. Mandatory training of death investigation personnel would improve the quality of death scene investigations.

6. **Establish a Certification System** – It is recommended that the MDI's affiliated with each of the regional centers be certified by a national certification entity such as the National Association of Medical Examiners.

7. **Training Coordinator** - Create a position within the OCME to provide, coordinate, and evaluate training opportunities for ME personnel statewide. This would include orientation to the ME system and other educational services for newly appointed and reappointed ME's, MDI's and pathologists performing autopsies on ME cases. In addition, this position would track compliance of all ME personnel with the proposed continuing educational requirements and certification.

8. **Accreditation** - The OCME itself shall seek accreditation by the National Association of Medical Examiners and the toxicology laboratory within the OCME will seek certification by the National Forensic Toxicology Association.

GOAL: Broaden the Mission and Optimize the Use of ME Data

One of the distinct advantages of a state operated ME system with centralized reporting and record keeping is the wealth of information that is collected and available for analysis. North Carolina has long benefited from this organizational structure. Research and analysis of ME data have produced a number of important findings that improve the understanding of how, when and why deaths occur in NC. The potential for improving health through better use of this data is tremendous.

9. **Broaden Mission** - The mission of the medical examiner system in North Carolina should be broadened to explicitly include a greater focus on data analysis, academic research, injury prevention, and public health aspects of death investigation. This work has always been part of the mission of the OCME but not expressly stated and few resources have been devoted to that portion of the work.

10. **Enhance Data Analysis** - Create a research/data coordinator position in the OCME with responsibility to facilitate research by working to assure data quality, track and locate missing information, and assist in the use of data.

11. **Improve Public Access to Information** - Establish an Information Specialist position on the staff of the OCME to handle and respond to the numerous requests for information, data, and reports. This position would more appropriately take the lead in dealing with inquiries from interested press and concerned citizens on cases of public interest thereby freeing the professional staff of this responsibility except as necessary. This position would also assist in preparing reports of research and surveillance activities for a variety of public health purposes.

GOAL: Internal Quality Assurance and Customer Service

The OCME is operating within physical facilities unchanged since 1973. Except for the addition of support staff for the State Child Fatality Prevention Team, overall staffing levels have not significantly increased since the 70's and in the pathology branch, the number of professional personnel is unchanged since 1980. OCME autopsy workloads have increased by 1/3 since 1980 and the overall needs of the office for storage of records have drastically increased. Space limitations make it impossible to store more than 5 years of statewide ME Investigation Reports on site. Thus, currently some 24 years worth of records are kept off site where they remain open for both death investigational and research purposes. Advances in medical technology used in death investigation have grown exponentially and the OCME resources have not kept pace with these advances. In addition, the public expectation for fast accurate results has never been higher while the tolerance for error has never been lower. Relatively inexpensive investments in internal quality assurance and modernized office infrastructure will improve OCME operations and insure both record security and appropriate access to information.

12. **OCME Infrastructure Needs** – The records of the ME death investigations should be assembled at a single location under the control of the OCME and maintained as a permanent archive. The records must be duplicated into some form of archival storage system such as microfilm or digital imaging.

    The OCME toxicology laboratory space should be renovated to allow more efficient utilization. The current space was designed for research purposes in the 1970's. Vast improvements in both equipment and laboratory workstation design have occurred since that time.

13. **Creation of a Medical Examiner System Advisory Committee** – There is currently no advisory board or regular forum for soliciting input and providing stakeholder feedback to the ME system. The recommendation is to establish a ME Advisory Committee composed of representatives of constituencies important to the operation of the ME system including law enforcement, judiciary, medical professionals, funeral service, and academic partners. The ME Advisory Committee would also be able to advocate for ME issues statewide. Individuals would be appointed by the Secretary of the Department of Health and Human Services to serve for a specified term. The OCME would arrange for and staff the ME Advisory Committee meetings.

GOAL: Greater Use of Information Technology

14. **Electronic Reporting System** - Develop a fully automated and integrated web-based reporting and data analysis system for death investigations in the ME system. This would include a secure system of electronic reporting of all ME referrals (case log), case investigations, laboratory results, and results. ME personnel, both state and local, would be able to communicate freely and securely through an access controlled Intranet system. Public information on death investigations in NC would be available on the World Wide Web.

15. **Digital Photographs** – Adopt a policy and develop the capacity to utilize digital photographs of death scenes or decedents to be used during death investigations.

16. **Enhanced Website** – Better utilize the existing OCME website. Local MEs cannot download forms or documents from the website nor can they file reports of investigations electronically via the web. The existing ME database should be made usable via the web. Authorized ME personnel should be able to access the ME database to check lab results, case status or other confidential information as appropriate. The public should be able to access appropriate ME information via the website as well. The eventual goal of this will be a strong new web-based reporting and data collection system and will have a "paperless" death investigation and certification system within five years. This could include utilization of technology that would allow direct data entry from the field such as at the site of the death investigation which would in turn facilitate rapid understanding of potential public health problems and a strategy to address them.

GOAL: Strengthen the Statutory Authority of the ME System

The existing North Carolina General Statutes should be revised to clarify specific issues and to accommodate some of the recommendations included in this report.

17. **Storage of Bodies** – Clarify the existing statutes regarding the county responsibility to provide for suitable temporary storage of bodies pending a decision on death investigation. Each county through its governmental structure and local health department shall provide facilities for around the clock temporary storage of deceased human remains that are within the ME's jurisdiction to examine, await a decision on disposition, or await further transportation. The facility should provide for the integrity, preservation (refrigeration), and short-term safekeeping of the corpse. The county may contract for storage services with hospitals, licensed funeral homes, or other facility with appropriate accommodations. Any facility charges or costs shall be arranged between the individual county and its service providers.

18. **Fee Structure** - Implement a new fee structure to recognize increasing cost of the ME services and the variation in death investigations both in terms of providers and complexity of each case.

19. **Establish Medicolegal Death Investigator Authority** – Per recommendation #2 in this report, revise the ME Statute to allow full or part-time MDI's to assist the ME in death investigations as needed. The qualifications for appointment as an MDI shall be determined by the OCME.

20. **Mandatory Training Requirements** – Add the new mandatory training requirement for OCME appointed personnel performing death investigations on ME cases as outlined in Recommendation # 4 of this report.

21. **Clarify the Appointment and Authority of Acting ME** – North Carolina statutes allow for the appointment of non-physician ME's in counties where a physician cannot be identified to

serve as the ME. The statute needs to be revised to establish the designation of Acting ME to clarify the distinction between the ME (physician), the Acting ME (non-physician with ME authority) and the MDI (non-physician assisting the ME). The Acting ME would be a physician assistant, nurse, or other individual with appropriate training and credentials as appointed by the Chief Medical Examiner. Acting ME's would have the same authority as a ME to order autopsies and sign death certificates.

GOAL: Assure Adequate State and Local Resources to Operate the ME System

The current ME System is funded jointly by the counties and state government. Improvements to the system are critical to the ongoing quality of death investigations in North Carolina. It is recommended that funding to support improvements should continue to be funded jointly by state and local government. Obviously the ability to bear additional costs varies widely between counties and should be considered in any future funding scheme.

22. **State and Local Funding** - Maintain shared funding between state and local government. It is proposed that future county funding responsibilities center around insuring local body transportation and storage services while the state would assume greater responsibility for providing out of county transportation services and regional office development.

23. **Legislative Study Commission** – Recommend passage of proposed legislation, House Bill 648 - Medical Examiner Study, currently being considered in the North Carolina General Assembly. This legislation would establish a Legislative Study Commission to evaluate the Medical Examiner System in North Carolina. Furthermore this report of the ME Study Group should be presented to the Legislative Study Commission at one of their meetings.

C. Implementation

This report and the recommendations within will be submitted to the Secretary of the Department of Health and Human Services, Carmen Hooker Buell. The report will also be shared with interested stakeholder groups and the North Carolina General Assembly through the proposed Legislative Study Commission. The report will be used to guide the decisions regarding improvements to the ME System in North Carolina and the funding required to accomplish them. Some of the recommendations may begin implementation immediately and some have. However, the majority is more substantive improvements that will require careful planning and new resources to accomplish over time.

VI. Conclusion

The Medical Examiner System in North Carolina is strong and viable. However there are

changes that can and should be made that would improve the quality of death investigations in NC and take more advantage of the wealth of data that is generated by this system to guide public policy and prevent unnecessary deaths. The concerns that were identified are born out of a lack of resources and capacity within the existing system rather than a fundamental flaw in the design or the motives of the people working within the system. The MESG, representing stakeholders from every facet of death investigation in NC, strongly believe that the citizens of NC deserve a well supported, fully coordinated ME system that can consistently produce high quality death investigations in a timely manner. This will not happen without the combined efforts of State and Local Governments, the leadership of those within the ME system, and the political will of public policy makers to prioritize this issue.

Appendix:

- **A. Medical Examiner Study Group Membership**
- **B. Related Newspaper Press Articles**
- **C. North Carolina Medical Examiner General Statutes**
- **D. Chart of Autopsies by County**
- **E. Chart of Autopsies by Facility**
- **F. Chart of Costs by County**
- **G. Description of Other State ME Models**
- **H. Published Investigations in Collaboration with the North Carolina Office of the Chief Medical Examiner**

Office of the Chief Medical Examiner
Medical Examiner Autopsies by County
(Appendix D)

	1996	1997	1998	1999	2000*	2001	TOTAL
Alamance	26	44	32	45	42	23	213
Alexander	36	23	20	14	23	7	123
Alleghany	4	1	2			2	9
Anson	24	11	12	15	13	8	83
Ashe	3	3	7	8	9	1	31
Avery	10	14	13	12	19	3	71
Beaufort	35	20	26	26	41	11	159
Bertie	13	10	9	11	22	3	68
Bladen	17	11	20	22	18	10	98
Brunswick	30	43	39	44	49	19	224
Buncombe	79	67	68	80	70	50	414
Burke	37	17	36	38	42	20	190
Cabarrus	22	17	38	44	42	25	188
Caldwell	38	44	34	27	34	24	201
Camden	1	1					2
Carteret	35	28	29	37	29	17	175
Caswell	9	3	3	4	9	4	32
Catawba	108	85	73	82	79	59	486
Chatham	25	16	14	11	22	3	91
Cherokee	7	11	14	15	19	9	75
Chowan	3	9	11	4	10	3	40
Clay	2	7	1	2	4	2	18
Cleveland	60	73	62	37	66	41	339
Columbus	33	33	35	30	29	14	174
Craven	51	66	55	48	56	29	305
Cumberland	142	141	125	116	124	56	704
Currituck	3	3	8	8	5		27
Dare	12	16	15	13	27	5	88
Davidson	46	47	45	45	57	24	264
Davie	13	9	5	5	10	2	44
Duplin	31	34	27	18	22	10	142
Durham	150	141	131	100	107	48	677
Edgecombe	13	19	33	20	25	7	117
Forsyth	285	229	244	184	213	102	1,157
Franklin	20	13	15	14	14	6	82
Gaston	103	128	154	161	166	99	811
Gates	2	2	1	5	2	1	13
Graham	1	5	8	1	3	2	20
Granville	18	13	11	8	19	11	80
Greene	4	7	2	6	7	1	27
Guilford	138	170	167	162	159	76	872
Halifax	34	34	29	16	27	15	155
Harnett	29	44	32	33	26	17	181
Haywood	20	26	27	27	18	13	131
Henderson	19	20	22	29	31	18	139
Hertford	12	5	12	15	16	6	66
Hoke	24	10	6	6	11	2	59
Hyde	1	1	4	6			12
Iredell	77	79	59	77	68	36	396
Jackson	10	11	6	10	16	8	61
Johnston	29	20	33	30	21	19	152
Jones	1	2	6	3	5	1	18

Office of the Chief Medical Examiner
Medical Examiner Autopsies by County

	1996	1997	1998	1999	2000*	2001	TOTAL
Lee	20	21	30	27	17	7	122
Lenoir	36	27	20	28	40	5	156
Lincoln	27	24	30	26	26	20	153
Macon	4	6	10	14	10	7	51
Madison	5	7	4	5	14	2	37
Martin	17	11	14	14	16	4	76
McDowell	13	18	12	12	16	13	84
Mecklenburg	284	298	273	319	318	120	1,612
Mitchell	12	13	16	6	17	4	68
Montgomery	16	10	12	12	18	5	73
Moore	22	31	20	19	23	17	132
Nash	43	33	53	44	49	16	238
New Hanover	57	96	85	81	80	45	444
None	1						1
Northampton	12	5	3	7	8	3	38
OUT OF COUNTRY	1						1
Onslow	62	58	44	52	65	24	304
Orange	59	42	45	44	48	15	253
Pamlico	6	1	4	8	2	1	22
Pasquotank	21	16	13	16	14	4	84
Pender	11	16	15	17	32	9	100
Perquimans	2	4	1	2	1	4	14
Person	6	8	10	13	18	6	61
Pitt	118	104	98	92	133	39	584
Polk	7	5	1	7	6	2	28
Randolph	23	29	30	30	35	11	158
Richmond	25	23	27	35	23	16	149
Robeson	55	75	77	69	69	38	383
Rockingham	22	27	35	40	22	14	160
Rowan	39	39	47	41	34	23	223
Rutherford	26	37	32	20	30	19	164
SOUTH CAROLINA	1	2	1				4
Sampson	30	26	25	26	34	17	158
Scotland	30	26	21	21	24	13	135
Stanly	25	21	17	11	14	11	99
Stokes	18	24	21	12	9	4	88
Surry	21	30	21	24	31	13	140
Swain	7	7	8	11	8	2	43
TENNESSEE	2	1	1			1	5
Transylvania	1	7	8	5		4	25
Tyrell	1	3	1	1			6
Union	34	29	39	34	35	22	193
Unknown	1						1
VIRGINIA	2					1	3
Vance	21	24	27	24	25	15	136
Wake	225	214	201	170	181	93	1081
Warren	4	8	5	2	5	2	26
Washington	7	9	7	7	8	3	41
Watauga	19	23	28	31	14	8	123
Wayne	63	49	69	44	39	27	291
Wilkes	23	25	21	21	27	16	133
Wilson	44	48	39	55	42	17	245
Yadkin	6	8	12	5	13	10	54
Yancey	6	3	3	6	11	1	30

GRAND TOTAL: 19,437

*There are more autopsies reported for 2000 on this chart than last time because additional information was entered to the database since April.

Office of the Chief Medical Examiner
Medical Examiner Autopsies by Facility
Between 01/01/1996 and 06/30/2001

(Appendix E)

Facility Name	1996	1997	1998	1999	2000	2001	Total
Anne Penn Memorial Hospital	8	3	6	10	8	3	38
Brody School of Medicine	317	233	193	256	384	114	1497
Cape Fear Valley Medical Center	97	87		37	43	17	281
Charlotte ME Office	262	280	253	298	300	111	1504
Duke University Medical Center	33	35	14		1		83
Forsyth Medical Center	69	57	43	44	63	32	308
Gaston Memorial Hospital	156	195	200	182	211	126	1070
Grace HealthCare	22	4		3	4		33
Halifax Regional Medical Center	1						1
Harris Regional Medical Center	28	37	35	44	44	20	208
Haywood Regional Medical Center	8	7	3	6			24
Margaret R. Pardee Hospital	28	19	15	21	13	6	102
Memorial Mission Hospital	62	35					97
Moore Regional Hospital	16	9	9	8	4	4	50
Morehead Memorial Hospital	8	15	12	23	9	6	73
Moses Cone Memorial Hospital	1						1
Nash General Hospital	96	88	114	87	105	34	524
OCME	1174	1210	1401	1221	1205	591	6802
Onslow Memorial Hospital	252	311	271	270	300	143	1547
Piedmont Pathology Associates***	200	179	59	132	139	108	817
Rex Hospital	8	13	13	13	9	7	63
Rutherford Hospital	9						9
Sampson Regional Medical Center	30	25	25	24	32	16	152
Southeastern Regional Medical Center	53	55	68	64	59	29	328
St. Joseph's Hospital	3	4					7
St. Luke's Hospital		1					1
UNC Hospitals Pathology	7	4	2	2	6	2	23
VA Hospital (Durham)	2	3					5
Wake Forest Baptist Medical Center	390	406	528	443	506	265	2538
Wake Medical Center	193	194	179	140	154	63	923
Watauga Hospital	44	53	60	56	63	19	295
Wilson Memorial Hospital	1		2	4	2	1	10
Unknown	1	1			1		3
TOTAL	3579	3563	3505	3388	3665	1717	19417

***Piedmont Pathology Associates conduct autopsy examinations at a number of hospitals in their area, including Caldwell Memorial Hospital, Catawba Memorial Hospital, Frye Regional Medical Center, and others.