

Building an Effective Child Maltreatment Surveillance System in North Carolina

Adam J. Zolotor, MD, MPH, Brenda McAdams Motsinger, MS, RD, LDN, Desmond K. Runyan, MD, DrPH, and Catherine (Kay) Sanford, MSPH

In public health, the first step in assessment of a health or social problem is enumeration of the population affected and the impact of the problem. Estimated rates of child physical abuse in North Carolina range from 0.5 to 36 per 1,000 children,^{1,2} a 70-fold difference. Such disparate estimates of abuse rates challenge policy makers to establish policies and systems for prevention. A child maltreatment surveillance system is needed in North Carolina that will provide for continuous and systematic data to identify the magnitude and the impact of child abuse and neglect. This will inform the allocation of resources and public health action,³ and it will require leadership and responsibility within state government. In this commentary, we review the current approaches to child maltreatment surveillance, options for surveillance, and promising new practices.

A public health-based child maltreatment surveillance system must rely on coordinated efforts and a variety of data sources from multiple sectors: social services, public health, law enforcement, and academic research. One of the challenges of

developing a surveillance system lies in the definition of child maltreatment. Currently, this differs widely among agencies and care providers. The Centers for Disease Control and Prevention (CDC) Division of Violence Prevention has made establishing uniform definitions of child abuse and neglect a priority for moving forward with surveillance, research, and prevention. A position statement with uniform definitions of various types of maltreatment will be forthcoming from the CDC.⁴ North Carolina's Division of Public Health needs to begin the work of designing a child maltreatment surveillance system with elements that are aligned with our child maltreatment laws, yet are consistent with national definitions and data elements.

“Emotional abuse, neglect, and witnessing domestic violence are all forms of child abuse that are harder to survey, more chronic in nature, and may cause more harm to the child than physical abuse.”

Current Approach

The current approach to monitoring child abuse relies on reports or complaints about suspected maltreatment that are made to county departments of social services (DSSs). In 2003

Adam J. Zolotor, MD, MPH, is Co-chair, surveillance sub-committee, North Carolina Institute of Medicine Child Abuse Prevention Task Force. He is also a National Research Service Award Program Primary Care Research Fellow at the University of North Carolina Department of Family Medicine and a Child Maltreatment Doctoral Fellow at the Center for Child and Family Health in Durham, NC. He can be reached at ajzolo@med.unc.edu or CB# 7595, Chapel Hill, NC 27599-7595. Telephone: 919-843-4817.

Brenda McAdams Motsinger, MS, RD, LDN, is Head of the Injury and Violence Prevention Branch, North Carolina Division of Public Health. She can be reached at brenda.motsinger@ncmail.net or 1915 Mail Service Center, Raleigh, NC 27699-1915. Telephone: 919-707-5431.

Desmond K. Runyan, MD, DrPH, is Professor and Chair at the University of North Carolina Department of Social Medicine. He can be reached at drunyan@unc.edu or CB# 7240, Chapel Hill, NC 27599-7240. Telephone: 919-843-8262.

Catherine (Kay) Sanford, MSPH, is Head of the Epidemiology Unit in the Injury and Violence Prevention Branch, North Carolina Division of Public Health. She can be reached at kay.sanford@ncmail.net or 1915 Mail Service Center, Raleigh, NC 27699-1915. Telephone: 919-707-5434.

there were 120,033 accepted reports to North Carolina DSSs; 32,846 (27%) of the accepted reports were substantiated. Due to state law and social service policy, North Carolina DSS classifies an overwhelming majority of substantiated reports as neglect (90.3%) and very few substantiated reports as physical abuse (3.1%). Of the states and the District of Columbia, North Carolina ranks last (51st) for its rate of substantiated cases for physical abuse, 46th for its rate of substantiated cases of sexual abuse, and eighth for its rate of cases of substantiated neglect.¹ These statistics should be interpreted cautiously as they reflect differences in state law and social service policy, not necessarily state trends in maltreatment.

The current child abuse reporting system in North Carolina is not designed for surveillance. It is designed to track the activities of the Division of Social Services and captures only those children reported to authorities. There are other important shortcomings in using DSS statistics as a surveillance system. Survey research from North Carolina has shown that rates of physical abuse may be more than 70 times the rate reported by the Division of Social Services.² County-level policies dictate the management of child abuse reports, and differences in these policies lead to variations in responses by local social services departments. Many reports are not accepted for investigation. Substantiation represents a decision by a social worker to believe the allegation of suspected maltreatment. Although rates of substantiated reports (all types) in North Carolina varied by county in 2003 from 3/1,000 children to 44/1,000 children, it is doubtful that the true rates of maltreatment vary so greatly. Cases may be reclassified from physical or sexual abuse to neglect to streamline administrative requirements.⁵ Lastly, the DSS registry captures abuse only by caretakers. Abuse by other people responsible for a child, such as care providers, teachers, neighbors, and parents' partners, is not captured in DSS reports.

Recent efforts in augmenting child abuse surveillance systems nationwide have focused on the extremes of physical abuse. These include surveillance systems of emergency department and hospital discharge records, as well as death reporting systems. Emotional abuse, neglect, and witnessing domestic violence are all forms of child abuse that are harder to survey, more chronic in nature, and may cause more harm to the child than physical abuse.^{6,7} To better understand the scope and magnitude of harm that results from child abuse and neglect, an effective system of surveillance must include the less physically obvious forms of abuse, such as emotional abuse, neglect, and witnessing domestic violence.

Opportunities for Surveillance

The national Institute of Medicine recommends an ecological approach to public health problems that include understanding and addressing the determinants of health.³ Therefore, an effective surveillance system must include data not only on an individual level, but should also include community-level measures and environmental indicators about community characteristics (policies, norms, support mechanisms) that influence behaviors, such as child maltreatment.⁸ The following describes what is currently

available at the individual level. More work is needed to identify strategies to capture community and environmental indicators that are of equal value.

Child maltreatment can be identified after an injury is sustained through reports to social services or presentation to the medical or mental healthcare system. There is potential for identifying an incident of child maltreatment if it results in recovery, disability, or death. An example of identifying recovery as a result of maltreatment would be population-based surveillance of childhood trauma experiences. An example of identifying disability as a result of maltreatment would be population-based surveillance for symptoms of childhood trauma among adolescents or young adults. Previous population-based child maltreatment surveillance systems in North Carolina and in other states have been able to obtain data on recovery and disability by asking children or young adults about childhood experience,⁹ asking potential perpetrators (parents or adults),^{2,9,10} or seeking information from systems and providers of care to children. This latter group could include physicians, hospitals, mental health professionals, educators, clergy, and social services.¹¹⁻¹³ Another opportunity for documenting child maltreatment is with the death of a child. North Carolina currently monitors the causes of death for all children through the Office of the Chief Medical Examiner and the North Carolina Child Fatality Task Force. The Injury and Violence Prevention Branch of the Division of Public Health recently improved the system for collecting information about violent deaths through the North Carolina Violent Death Reporting System (see page 403).¹⁴

Monitoring Risk Factors

One approach to an augmented surveillance system of child maltreatment is to monitor the risk factors associated with child abuse and neglect. Data about known risk factors are available from current health data sources such as birth certificates, death certificates, the Pregnancy Risk Assessment Monitoring System (PRAMS), the Behavioral Risk Factor Surveillance System (BRFSS), the Child Health Assessment Monitoring Program Survey (CHAMPS), criminal justice data, and the United States census. For example, known risk factors for child maltreatment, such as poverty, single parenthood, tobacco use, and adequacy of prenatal care, are readily available from birth certificate data.¹⁵ However, risk factors only increase the probability of an event. A prevention program may effectively reduce the prevalence of a risk factor without changing the prevalence of child maltreatment.

Monitoring the Occurrence of Child Maltreatment

Child maltreatment can be monitored through multiple sources, such as reports to social services, presentations of children to other systems of care, primary surveillance of perpetrators or victims, or through surveillance of those who work professionally with children. The challenges of using Child Protective Services data were discussed previously in this commentary under the section entitled "current approach." Other systems of care have

additional or different inherent biases. For example, a hospital discharge data system and/or emergency room data system only captures those events of child maltreatment that result in hospital-based medical care. As a result, hospital-based systems often only capture physical injuries and not the more common cases of neglect and emotional maltreatment. In addition, the circumstances or the intent of injury are seldom reported, and therefore, the mechanism and manner of the injury cannot be coded. So far, these types of surveillance systems have been shown to identify only small numbers of cases not already known to social services.¹³ However, healthcare data systems may be useful in capturing information about severity and disposition that is not measured with social service registries.

Another data source is the National Incidence Study (NIS), a recurring federal survey of professionals who work with children. This important national survey gives us insight into the national patterns and changes in the occurrence of child maltreatment, but cannot provide state- or local-level detail.¹¹

In many cases of child maltreatment, only the victim and the perpetrator are privy to the incident. A recent study conducted in North Carolina asked parents about their discipline and parenting behaviors. The findings of this study indicate that 3.6% of the North Carolina parents who responded to the survey reported one or more of the following in the last year: shaking a child less than two, beating, burning, or kicking a child, or hitting a child with an object somewhere other than the buttocks.² This is 70 times the rate of substantiated abuse reported by North Carolina DSS. The study did not collect information on the intent or consequences that surrounded these acts of violence.

Monitoring Consequences

Another option for a child abuse surveillance system is to measure the consequences of abuse and neglect, such as criminal behavior rates, school dropout rates, prevalence of adolescent and adult psychiatric disease, etc. Although these types of endpoints are reasonably well-captured in North Carolina databases, no formal mechanisms currently exist to link them to antecedent events in other databases that contain information on child maltreatment.

Promising Practices

North Carolina Families Accessing Services through Technology

There are several new sources of data that North Carolina can use in building a child maltreatment surveillance system. DSS is in the process of implementing a new program called North Carolina Families Accessing Services through Technology (NCFAST). This system will use new technological tools and business practices to improve the services provided by county DSS agencies. It will also improve the consistency of data collection and allow data to be compared more easily among counties. This new system may eliminate or minimize some of the differences between the county systems of report

processing. Also, for each report that is accepted to the department of social services for a family or investigative assessment, the family's needs are now assessed using a standardized risk assessment tool. Data from the risk assessment tool could be used to measure indicators, such as severity, chronicity, and co-morbid risks to the child.

Domestic Violence

It is well-documented that domestic violence is a risk factor for child abuse.⁶ Appel and Holden estimate the co-occurrence of domestic violence and child abuse at 40%.¹⁶ Research has shown that witnessing domestic violence may cause more harm to the psychological health and development of children than physical abuse.⁷ For this reason, DSS has recently implemented a policy to accept all reports of witnessed domestic violence for investigation. In addition, the North Carolina General Assembly passed a law in 2003 making acts of domestic violence committed when a child is present a separate and punishable felony for perpetrators.

Several of the state's public health surveillance systems collect information on domestic violence. For example, the North Carolina State Center for Health Statistics annually administers the Behavioral Risk Factor Surveillance Systems (BRFSS) and the Pregnancy Risk Assessment Monitoring System (PRAMS). BRFSS assessed the rates of current and past violence perpetrated by a partner, spouse, acquaintance, or stranger from 2000 to 2003. In 2003, 3.9% of BRFSS respondents reported that their current spouse or partner had been abusive to them.¹⁷ Likewise, 3.2-3.4% of women surveyed through PRAMS reported that their spouse or partner had been physically abusive to them before, during, or after their recent pregnancy.¹⁷

North Carolina Violent Death Reporting System (NCVDRS)

The Injury and Violence Prevention Branch of the North Carolina Department of Public Health began collecting information for the NCVDRS as of January 2004. This population-based surveillance system includes information on victims, suspects, their relationships, circumstance, and the mechanism of the fatal injury or injuries in every incident that resulted in a violent death. Data sources include death certificates, medical examiner records, and law enforcement reports. This system can be queried by age of victim and produce reports about the age of each child involved in a violent death in North Carolina. See page 403 for more information.¹⁴

Child Health Assessment and Monitoring Program Survey (CHAMPS)

The North Carolina State Center for Health Statistics launched CHAMPS in 2005. The Child Abuse Surveillance Sub-committee of the North Carolina Institute of Medicine's Child Abuse Prevention Task Force proposed that several questions on parenting practices and discipline be added to this tool. This is a large scale surveillance effort that will involve over 5,000 children before the end of 2005. Parents who participate in the BRFSS (a random digit-dial survey) and have at least one child

are asked to participate in CHAMPS. They are asked questions about one randomly selected child concerning family circumstances, child's health status, and their parenting practices. Unweighted preliminary results from some relevant questions in CHAMPS collected during the first four months of 2005 are shown in Table 1. None of these indicators are directly equivalent to abuse or neglect. However, data from CHAMPS can add to the current surveillance system by providing information on discipline strategies, bonding, and meeting the basic needs of children.

Conclusions

It is clear that child abuse and neglect are common in North Carolina. A coordinated approach will be essential to move child maltreatment surveillance forward. Several sources of high-quality data are currently available, and important new strategies are emerging. Because of its expertise in conducting population-based surveillance in many public health arenas, the Division of Public Health is in the best position to take the lead role in developing a coordinated child maltreatment surveillance system, while continuing to work with DSS, academic partners, and state and local agencies. Potential data users, including

Table 1.
Preliminary Unweighted Data from CHAMPS (partial year data, N=1,438)

Question	Percent
Hurt because no adult watching closely enough last month	31.5%
Spanked last month	20.7%
Insulted by parent last month (called dumb, lazy, or similar)	4.9%
Children less than age five were home alone for more than one hour last month	4.7%
Didn't get all needed medical care last year	3.5%
Skipped meal because there wasn't enough money for food last year	2.0%
Data provided by the North Carolina State Center for Health Statistics	

departments of health and social services, school districts, partnerships for children, will be involved in the development of a maltreatment surveillance system. A new child maltreatment surveillance system should include standardized and linkable information gathered at the individual level, but should also include community-level measures and environmental indicators about community characteristics (policies, norms, support mechanisms) that influence behaviors such as child maltreatment. **NCMedJ**

Acknowledgment: The authors appreciate the contribution of the members of the North Carolina Institute of Medicine Task Force on Child Abuse Prevention Surveillance Sub-committee for their insight into child maltreatment surveillance in North Carolina.

REFERENCES

- 1 US Department of Health and Human Services: Administration for Children and Families. Child Maltreatment 2003. Washington, DC: US Government Printing Office; 2005.
- 2 Theodore AD, Chang JJ, Runyan DK, Hunter WM, Bangdiwala SI, Agans R. Epidemiologic features of the physical and sexual maltreatment of children in the Carolinas. *Pediatrics* 2005;115(3):e331-337.
- 3 Committee for the Study for the Future of Public Health. Summary and Recommendations. In: *The Future of Public Health*. Washington, DC: National Academies Press; 1988.
- 4 Whitaker DJ, Lutzker JR, Shelley GA. Child maltreatment prevention priorities at the Centers for Disease Control and Prevention. *Child Maltreat* 2005;10(3):245-259.
- 5 Runyan DK, Cox CE, Dubowitz H, et al. Describing maltreatment: Do child protective service reports and research definitions agree? *Child Abuse Negl* 2005;29(5):461-477.
- 6 Lee LC, Kotch JB, Cox CE. Child maltreatment in families experiencing domestic violence. *Violence Vict* 2004;19(5):573-591.
- 7 Johnson RM, Kotch JB, Catellier DJ, et al. Adverse behavioral and emotional outcomes from child abuse and witnessed violence. *Child Maltreat* 2002;7(3):179-186.
- 8 Birkhead GS, Maylahn CM. State and local public health surveillance. In: Tentsch SM, Churchill PE, eds. *Principles and Practices of Public Health Surveillance*. New York: Oxford University Press; 2000.
- 9 Finkelhor D, Ormrod R, Turner H, Hamby SL. The victimization of children and youth: A comprehensive, national survey. *Child Maltreat* 2005;10(1):5-25.
- 10 Straus MA, Hamby SL, Finkelhor D, Moore DW, Runyan D. Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse Negl* 1998;22(4):249-270.
- 11 Sedlak AJ, Broadhurst DD. *Third National Incidence Study of Child Abuse and Neglect*. Washington, DC: National Clearinghouse on Child Abuse and Neglect Information; 1996.
- 12 Rovi S, Chen PH, Johnson MS. The economic burden of hospitalizations associated with child abuse and neglect. *Am J Public Health* 2004;94(4):586-590.
- 13 Schnitzer PG, Slusher P, Van Tuinen M. Child maltreatment in Missouri: Combining data for public health surveillance. *Am J Prev Med* 2004;27(5):379-384.
- 14 Sanford C, Marshall SW, Norwood T. NC child deaths from violence in 2004: Data from the National Violent Death Reporting System. *Running the Numbers*. NCMedJ 2005;66(5):403-404.
- 15 Wu SS, Ma CX, Carter RL, et al. Risk factors for infant maltreatment: A population-based study. *Child Abuse Negl* 2004;28(12):1253-1264.
- 16 Appel AE, Holden GW. The co-occurrence of spouse and physical child abuse: A review and appraisal. *J Fam Psychol* 1998;12:578-599.
- 17 North Carolina State Center for Health Statistics-Health Data. Available at: <http://www.schs.state.nc.us/SCHS/>. Accessed July 15, 2005.