**Longitudinal Studies in Child Abuse and Neglect**

LONGSCAN


# The Third Five Years at the Coordinating Center

**2000 – 2005**

**Final Report to the Office of Child Abuse and Neglect**

**For Grant # 90-CA-1678**

**December 30, 2005**

**Desmond K. Runyan, MD, DrPH**
**Principal Investigator at the Coordinating Center**

*University of North Carolina at Chapel Hill*
*Injury Prevention Research Center*
*Collaborative Studies Coordinating Center*

**TABLE OF CONTENTS**

**LONGSCAN Coordinating Center**
**2000-2005 Phase 3 Final Report**

**IV. FINDINGS and DISCUSSION**

## Figure and Tables

## EXECUTIVE SUMMARY

LONGSCAN (The Consortium of Longitudinal Studies in Child Abuse and Neglect) has completed 15 years; this report summarizes progress made in the last five. The study continues to be one of the most remarkable child maltreatment studies ever undertaken. During the last five years the oldest children reached their 18th birthdays while the youngest children were not yet eligible for the 12 year-old interview. The sample, which began at 1354 children, experienced another 2289 reports of maltreatment during the last five years. Our data indicate that the cohort retention rate for age 8, which is now complete across all sites was 89.8 %. Our age 12 data, with a total of 126 withdrawals and 8 deaths (and some children not yet old enough to be interviewed) is at 921 or 74.4% of the sample. We have already completed 55.3% of the age 14 interviews and 25% of the age 16 interviews.

The Coordinating Center has completed the development and programming for audio-CASI administration of all current LONGSCAN interviews. The age 14, 16, and 18 interviews were developed within the past five-year grant period. Each of these interviews were developed for confidential administration with computer programming needed to accommodate site specific differences in which children might have to be reported to authorities, or their caregivers notified for concerns about mental health. In addition, the Coordinating Center has developed and fielded the data retrieval processes for these instruments. Data are retrieved quarterly from each of the sites, cleaned, checked, and discrepancies sent back to the sites for adjudication. This interactive process has been continuous throughout all five years. Administration manuals and data dictionaries for each of the interview protocols have been developed. These materials have been put on the study website for LONGSCAN investigators and others. Datasets have been made available to all site investigators twice a year in the normal conduct of business; and as requested by individual investigators when needed. The Coordinating Center has also organized and directed a minimum of three meetings of the LONGSCAN sites each year. The Coordinating Center has also deposited two datasets with the National Data Archive on Child Abuse and Neglect (NDACAN) during the last five years, and has worked with a number of investigators across the country who are using these datasets.

In addition to providing support and statistical resources for each of the LONGSCAN study sites, the Coordinating Center has help coordinate the writing of papers at all of the sites and performed or verified the statistical analyses for the majority of LONGSCAN papers. Several papers are featured in this report. LONGSCAN examined the issue of definitions of maltreatment. We reveal that there is remarkably low agreement as to the type of maltreatment between recoded child protective service reports using the Modified Maltreatment Classification System and the original determination of type made by child protective service. We also conclude that analyses need to be very nuanced by type and that it is inadequate to lump all maltreatment together as an exposure variable. Severity and chronicity ratings of maltreatment are also important but complex.

In a second important analysis, we show that, at child age 8, the impact of neighborhood violence and witnessing domestic violence outstrip the importance of child maltreatment allegations or substantiation in the development of symptoms in mental health areas most likely to be impacted: trauma, anger, depression and post traumatic stress. While maltreatment exposure explains only 1% of the variance in child symptoms, domestic violence exposure explains 4% of the variance and neighborhood violence exposure explains 8%. Our observations of the importance of domestic violence and neighborhood exposure to violence suggest that society and Child Protective Services need to address these issues more directly.

Overall, LONGSCAN is now well established with multiple data points for each of the study subjects and the data are of very good quality. The pace of publication for LONGDSCAN is now increasing as the data have accumulated and many of the original questions that generated the study are now, or soon will be, addressed. The next major task for the Coordinating Center is to facilitate the development of the longitudinal analyses anticipated back in 1989.

## BACKGROUND

### A. Introduction, History, and Organization

LONGSCAN (Longitudinal Studies in Child Abuse and Neglect). In response to an initiative by the National Center on Child Abuse and Neglect (NCCAN), the LONGSCAN Consortium was formed from 1989 to 1991 to conduct a multi-site longitudinal investigation of young children identified as maltreated or at risk for maltreatment. This consortium consists of five independent longitudinal studies designed to explore the antecedents and consequences of maltreatment. The studies are being conducted in four primarily urban sites (Baltimore, Chicago, Seattle, and San Diego) and in one statewide site that includes urban, suburban, and rural communities (North Carolina). The studies are linked through a coordinating center (The University of North Carolina at Chapel Hill) and an agreement to share objectives, measures, data collection strategies, data management, and governance. LONGSCAN is a multidisciplinary collaboration with investigators who are recognized as leaders in child maltreatment research from pediatric medicine, public health, sociology, social work, psychology and biostatistics. This report discusses the activities of the LONGSCAN Coordinating Center for years 11-15 of the project covering September 30, 2000 through September 29, 2005.

LONGSCAN is a set of prospective cohort studies which began with children at age four or younger and follows them at regularly scheduled intervals (ages 4, 6, 8, 12, 14, 16, 18 and 20 years) administering an extensive face-to-face interview with the primary caregiver and the child/youth; data are also collected from periodic review of Child Protective Services case narratives, Central Registry records, and written teacher reports. Between face-to-face interviews there are annual telephone interviews to enhance sample retention and track service utilization, life events, and child behavior problems. The project was designed using

ecological-developmental theory. (Bronfenbrenner, 1979, 1993). As LONGSCAN has evolved, we have embraced social development theory as a complementary paradigm for understanding the impact of child maltreatment (Catalano & Hawkins, 1996).

Thorough maltreatment histories are collected from child self-report, parent report, state central registries, and periodic review of case narratives within Child Protective Services records. In an effort to both enhance definitions within the field of child maltreatment, ensure comparability with other large data sets, and to ensure we have accurately coded each child's actual maltreatment experience as well as legally documented maltreatment experience, CPS case narrative records have been coded using official CPS allegations and substantiations, and recoded using a revised version of Barnett, Manly and Cicchetti (1991) and NISII definitions. The Modified Maltreatment Classification System (MMCS) is available on the LONGSCAN website (visit www.iprc.unc.edu/longscan/).

Having completed its fifteenth year, LONGSCAN is well established. Governance and publications agreements; committee and topic-specific workgroups comprised of members from each of the five sites; data development, collection, and management protocols; and a history of successful collaboration among investigators ensure the continued productivity of LONGSCAN in Phase IV. In the first five years of the project, 1435 children were enrolled across the five sites and baseline data were collected for all participants. During the second five years, extensive follow-up measurement was developed and collected for each child. Age 12 data collection, including child self-report of maltreatment, was completed with the oldest participants at the NC, Seattle, San Diego, and Baltimore sites. The age range of our youth participants is broad, with the oldest currently being 18 years old with the youngest still turning 11. During the third five years covered by this report, face-to-face interviews at Ages 14,16,and 18 were fielded; as well as annual contact interviews (telephone follow-ups) at ages 15 and 17. Also during this funding phase LONGSCAN investigators published two special issues and one focus section in peer-reviewed journals, as well as many other peer-reviewed articles. All of these research activities will be discussed in more detail as part of this final report.

**B. Consortium Structure**

Participation in a multi-site consortium has meant that both the Coordinating Center (CC) and sites have had to negotiate issues related to decreased autonomy in the conceptualization and implementation of individual research studies, and increased time necessary to communicate about and make cross-site decisions regarding common protocol. The CC, as the Consortium component with the clearest mandate to protect the integrity of the common data set, has navigated between competing site needs to help define the most appropriate compromises. An on-going challenge to the CC is the time required for successful coordination of large-scale, collaborative longitudinal research with investigators from varied disciplines. The coordination and staff time necessary to ensure consistency of methods with multiple data points running concurrently across five sites is extensive. The CC investigators have dedicated themselves to these development and implementation issues over the last 15 years, and we will continue to so.

LONGSCAN investigators continue to comprise a cohesive team; successfully maximizing each member's expertise, trusting members to advocate for site-specific needs, and willing to relinquish autonomous decision-making for the good of the Consortium. Fundamental to this process was the development of a Governance Agreement (previously included in the first phase final report dated 08/20/96) and a Publications Policy (finalized 12/17/98 and previously included in the second phase final report dated 12/29/00). Both of these important documents outline and commit investigators to the mutual expectations of Consortium participants, including: common goals, measurement, data collection and handling procedures; group review of proposed publications; opportunity for cross-site collaboration in analyses and dissemination activities; protocols for review and replication of analyses. These agreements will continue to guide common expectations throughout the remaining years of the project participation in LONGSCAN mandates a commitment to shared management.

It is the CC's task to facilitate site adherence to the tasks and timelines necessary to develop each age-specific interview. One of the most challenging aspects of coordinating LONGSCAN has been ensuring continuous and timely cross-site participation in all decision-making related to conceptualization and implementation of the study, and dissemination of study results. For example, age-specific interviews need to be ready for fielding by the site with the oldest participants four years prior to field entry at the site with the youngest participants. Once interviews are fielded, changes are sometimes requested. It is the CC's responsibility to negotiate these changes to ensure that revisions to protocol content and administration procedures are minimized from the first to last administration across all five sites. This is accomplished through standardized training of coordinators and interviewers; development, maintenance and dissemination of thorough documentation regarding coding, data collection and handling protocols; and as-needed inter-rater reliability checks of data coding procedures. The A-CASI methodology used for all youth respondent interviews starting with Age 12 assures the highest standard for uniformity of data collection across sites. LONGSCAN has continued to utilize state-of-the-art interview technology to facilitate ethical and valid data collection procedures.

Thus, through a variety of means and activities the CC provides leadership and organization to the overarching structure of the Consortium. Activities conducted by the CC involve the areas of measurement development and implementation, oversight of data collection, development and maintenance of age-specific data entry systems, assurance of data quality, data processing and distribution, deposit of cross-site data in the National Data Archive on Child Abuse and Neglect (NDACAN), data analyses and manuscript preparation, production and dissemination of research briefs, grant preparation and submission, and tracking of dissemination progress.

The CC is also responsible for coordination of communications among members of the consortium, budget development, maintaining contact with sites to monitor progress and provide assistance, training staff in data collection and handling procedures, leading and facilitating the work of cross-site consortium committees, and coordination of consortium-

wide meetings. Although the LONGSCAN website (visit www.iprc.unc.edu/longscan/) was initiated during the second phase of LONGSCAN, during the third five years the website has been expanded, made more user-friendly, and is now much more widely used by consortium investigators as well as other researchers and child maltreatment professionals. The LONGSCAN website includes both public and internal (i.e., password protected) websites that include information about the study as well as project generated materials (e.g., measure manuals, data dictionaries, works in progress, LONGSCAN policies, etc…). In addition, the internal website houses documentation specific to the design, implementation, and maintenance of the LONGSCAN database management systems, as well as materials necessary for statistical computing.

The CC assumes responsibility for providing training, documentation, and on-going oversight of measurement to assure uniformity across sites for each age-specific interview. The development of new interview protocols has involved identifying and researching existing measurement options and developing new instrumentation when necessary, submitting proposals to the CC-led Measures and Executive Committees for approval. Then, once approved, the CC acquires the instruments and/or the documentation necessary for programming the instrument into the data entry system. The CC pilots proposed and new measures and A-CASI/CASI protocols, and oversees piloting at the five sites. The CC also bears responsibility for thorough documentation of the measurement protocols and dissemination of the documents to sites, and to the NDACAN. Background information on the selection and development of measures, scoring protocols, scored data files for use at the sites, scoring manuals, codebooks, and measures manuals that are distributed to sites and the NDACAN are developed and/or maintained by the CC. The production of the measures manuals involves describing each measure, including both the original authors' version and the measure as implemented by LONGSCAN, generating descriptive statistics, reliability and validity analyses, and summarizing these in the manual.

**C. Objectives as Stated in 2000**

*Cross-siteObjectives.* The goal of the LONGSCAN Coordinating Center has been to initiate and coordinate five separate but overlapping longitudinal studies of the antecedents and consequences of child maltreatment, and the impact of societal intervention with specific reference to outcomes in elementary school years, early adolescence, late adolescence and young adulthood.

The Phase 3 consortium-wide objectives for LONGSCAN during 2000 through 2005 include:
(1) Examine the impact of individual and combined subtypes of maltreatment at ages 8 and 12 upon child well-being, including sexual, psychological, and physical abuse and variations in outcomes by developmental age at occurrence, frequency, and severity of maltreatment;

(2) Examine the relative contributions of exposure to violence in the forms of child abuse, witnessed violence in the home, and witnessed violence outside of the home on social and cognitive functioning, and the development of aggression in 8 and 12 year old children;

(3) Examine the relative importance of factors that either protect or exacerbate negative outcomes for at-risk and maltreated children at Ages 8 and 12;

(4) Examine alternative definitions of maltreatment using: (a) both the definitional schemas of NIS-2 and MMCS for the coding of CPS narrative case record reviews, (b) Central Registry reports, (c) child self-report at age 12, and (d) parent report of discipline strategies;

(5) Describe the patterns of societal aid and support experienced by children known to the child protective service agencies in the first four years of life over the course of the next 8 years;

(6) Examine the impact of community and family support (social capital) on both the risk of recurrence of maltreatment and on child cognitive function, including risk taking and aggressive behaviors; and

(7) Continue to publish in peer-reviewed journals and inform policy makers through the preparation and distribution of research briefs.

*Coordinating Center Objectives.* In addition to the cross-site objectives outlined above, CC-specific objectives include:

1) Facilitate cross-site analyses and conduct replications of specific analyses performed on sub-samples to test specific findings or conclusions developed at individual sites.

2) Develop interviews for youth and their primary caregivers at ages 16 and 18 that include measurement of salient developmental risk and protective factors and outcomes, including behavioral, mental health, social functioning and academic outcomes. Salient developmental issues addressed in each interview will include development of self-identity, social functioning, future orientation and preparation for adulthood.

3) Continue coordinating data collection and handling for existing interviews.

4) Complete the documentation of all interviews developed in previous phases of the study.

5) Archive data from the age 6 and age 8 interviews at the National Data Archive on Child Abuse and Neglect.

6) Nurture new researchers in the field of child maltreatment through the support of post-doctoral programs and other mechanisms.

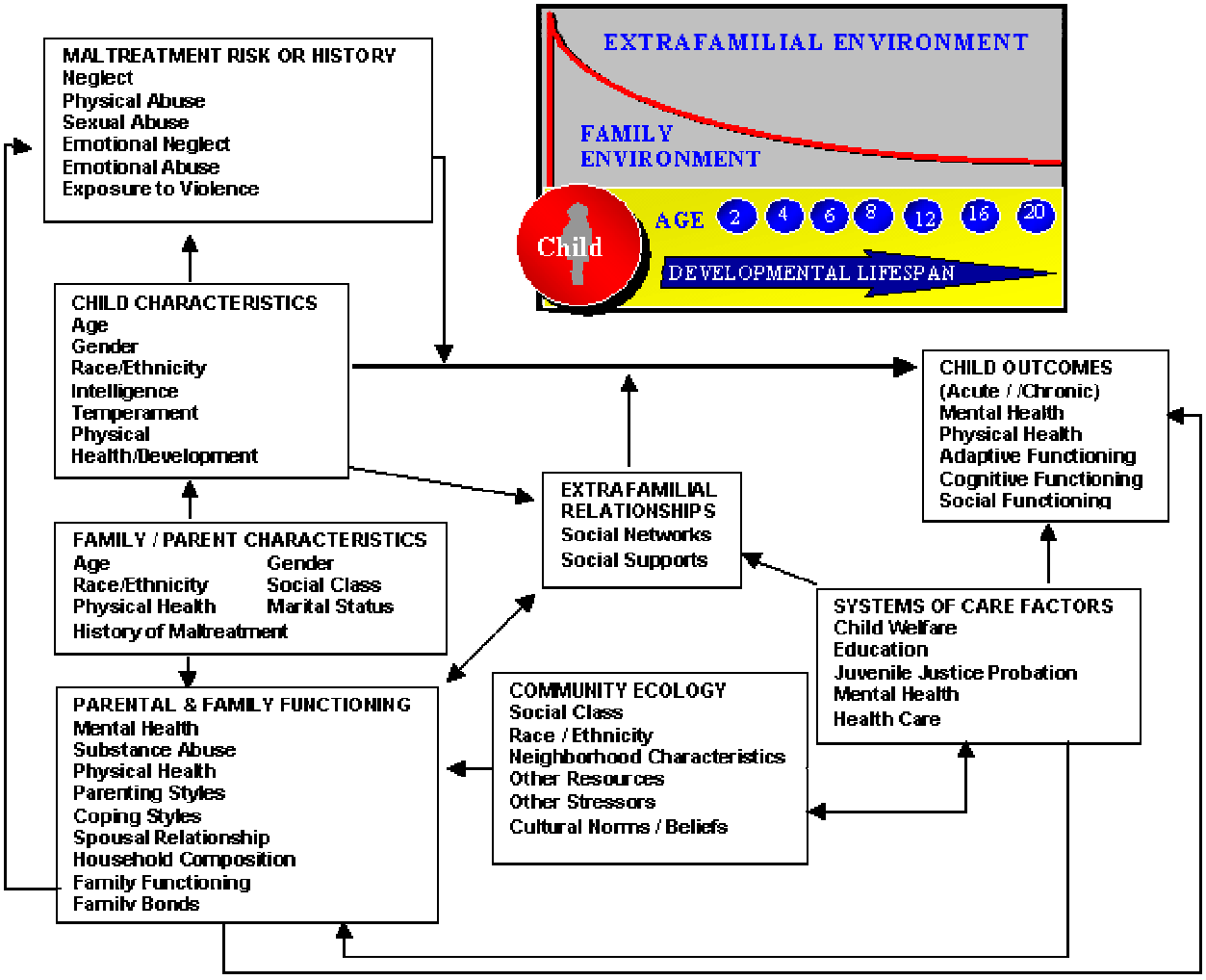
## METHODOLOGY

### A. Ecological-Developmental Theory

According to ecological theory, a child develops within a series of multiple, nested social systems beginning with direct interaction with the family and extending through indirect influence from cultural traditions (Bronfenbrenner, 1979, 1993). Much of the research on child development has focused either on the child or the child's proximal environment - the mother - and the corresponding daily activities, roles, expectations, and interpersonal relationships within the family. However, development is also influenced by children's interactions with other caregivers or in other settings (e.g., daycare). At broader levels, development may be influenced by systems that do not directly affect the child, including events that influence the family's financial, emotional, or physical status. For example, poverty is frequently linked to maltreatment both through specific parental behavior and through the general neglect that society extends to many children and families (American Humane Association, 1983).
In a similar fashion, religious, cultural, and community-level influences may have an impact on children's opportunities for development-enhancing experiences. A child is not a static entity within his/her ecological milieu. As such, social development is another concept that must be incorporated into maltreatment research (Aber & Zigler, 1981; National Research Council, 1993).

Social development theory (Catalano & Hawkins, 1996) hypothesizes that interaction with others, skills for interaction and involvement, perceived rewards for interaction and involvement with others, attachment and commitment to others, and beliefs in the values of others mediate the influences of individual and social factors on child outcomes. This model uses multiple biological, psychological and social factors at multiple levels in different social domains, that is, within the family, school, peer group and community to predict child outcomes (Catalano & Hawkins, 1996). A child's social ecology changes over time, from complete dependence upon caregivers in infancy to the complex and multiple interactions an adolescent has with family, peers, and the larger community. With this broadening social ecology also comes an increased ability in the child to shape his or her environment. LONGSCAN's Conceptual Model of development appears in Figure 1.

Figure 1. LONGSCAN's Conceptual Model of development




Children's' responses to maltreatment and to intervention vary by age, developmental level, and maltreatment context. For example, Rutter (1983) argues that out-of-home placement can be particularly stressful for children between 6 months and 4 years of age. Before 6 months, children may not have developed attachments and therefore may not experience separation anxiety, while beyond 4 years they may be able to understand the situation and use verbal exchanges or play, to deal with their feelings. Many investigators in the field of maltreatment have incorporated developmental level into their research, rather than considering children of all ages as a generic group (Black, Dubowitz, & Harrington, 1994; McGee & Wolfe, 1991; Dodge, Pettit, & Bates, 1994).

**B. Sites and Samples**

Samples differ by site and were carefully chosen to vary by levels of exposure to maltreatment, ranging from those with a substantiated early history of abuse and subsequent foster care placement in San Diego, to those in Seattle who have all been reported to DSS, but may or may not have been substantiated, to participants in Baltimore, Chicago, and North Carolina, some

of whom have no known history of abuse. All children in LONGSCAN are being followed from the first years of life into adulthood regardless of movements into or out of foster care or through other placements. With varying levels of risk and exposure the LONGSCAN sample provides the opportunity for a unique prospective look at maltreatment, or recurring maltreatment, as it occurs during the lifespan.

Salient features of the samples are displayed in Table 1 and are described below. At the most extreme level, the San Diego site focuses exclusively on children who, at a very young age, were removed from their homes and placed into foster care because of substantiated maltreatment. Many of these children were reunited with their family of origin prior to their entrance into LONGSCAN at age 4.

Table 1. Brief Description of the LONGSCAN Samples

| | Baltimore (n = 282) | Chicago (n = 245) | North Carolina (n = 243) | San Diego (n = 330) | Seattle (n = 254) | Total (n = 1354) |
|---|---|---|---|---|---|---|
| Cohort Birth Year | 1988-91 | 1991-94 | 1986-87 | 1989-91 | 1988-94 | 1986-94 |
| Race (%) | | | | | | |
| African American | 92.9 | 53.5 | 63.0 | 37.6 | 20.5 | 53.3 |
| White | 5.0 | 13.1 | 35.8 | 28.5 | 50.0 | 26.2 |
| Hispanic | 0.4 | 13.9 | 0.0 | 16.7 | 2.8 | 7.2 |
| Mixed | 1.1 | 17.1 | 1.2 | 15.8 | 24.0 | 11.9 |
| Other | 0.7 | 2.4 | 0.0 | 1.5 | 2.8 | 1.5 |
| Gender (%) | | | | | | |
| Male | 52.1 | 46.9 | 45.3 | 47.3 | 50.8 | 48.5 |
| Female | 47.9 | 53.1 | 54.7 | 52.7 | 49.2 | 51.5 |
| Maltreatment Status at Recruitment* (%) | | | | | | |
| Maltreated | 24.1 | 60.8 | 34.2 | 100 | 100 | 65.3 |
| At Risk | 36.5 | -- | 56.8 | -- | -- | 17.8 |
| Control | 39.4 | 39.2 | 9.0 | -- | -- | 16.9 |

Note. * The sample of children varies systematically within site with regard to risk status and exposure to maltreatment.

At the Seattle site, all children have been reported to CPS and were believed to be at moderate risk for subsequent maltreatment prior to recruitment. This sample is divided into two groups: those with substantiated reports of maltreatment; and those whose reports were not substantiated.

At the Chicago site, about two-thirds of their sample of very young infants was recruited from families reported to CPS, with half receiving comprehensive services and half receiving only CPS intervention. The other third of the sample is comprised of neighborhood controls.

The North Carolina and Baltimore sites are at the lesser extreme: The North Carolina sample was originally recruited at birth based upon eligibility for the statewide "High Priority Infant Tracking Program". Children from the tracking program were recruited at age 4 for LONGSCAN and the sample was selected from the original by matching non-reported children to children reported after birth at a 2:1 ratio. Thus, at the time of recruitment into LONGSCAN, one-third of the North Carolina sample had been reported. The Baltimore sample includes low-income children recruited into an earlier study from primary health care clinics, independent of their involvement with CPS.

The decision to enroll existing cohorts foreshortened the time to results in the study and saved considerable money. However, it also resulted in a spread of ages between sites as new cohorts were established. Nevertheless, our broad sample provides us with the chance to examine the impact of a range of services provided to maltreated and at-risk children, among them standard CPS care versus comprehensive services in Chicago, a range of foster care in San Diego, and risk assessment in CPS decision making in Seattle.

During the early years of LONGSCAN, the original N of the LONGSCAN cross-site sample was reported as 1435. Because three of the five LONGSCAN sites initially recruited participants younger than Age 4, some of the participants initially considered to be in the cross-site sample were found not to have completed the LONGSCAN interview protocol at Age 4 or Age 6. In September of 2002, the LONGSCAN Executive Committee voted to define the cross-site LONGSCAN sample to include only those participants who had data for an Age 4 or an Age 6 LONGSCAN interview.

This decision resulted in the cross-site sample changing from 1435 to 1354 as participants at the San Diego, Chicago, and Seattle sites were dropped because they had not completed the LONGSCAN cross-site protocol at either Age 4 or Age 6. Data from the dropped participants may still be used in site-specific analyses at those three sites. Throughout this report the names of our LONGSCAN Sites will be used as follows:

Baltimore (BA, EA, or East/Eastern)
Chicago (CH, MW, or Midwest/Midwestern)
North Carolina (NC, SO, or South/Southern)
San Diego (SD, SW, or Southwest/Southwestern)
Seattle (SE, NW, or Northwest/Northwestern)

**C. Statistical Considerations**

The LONGSCAN database is complex and challenging since it consists of repeated measures on the same individuals and the cohorts come from five distinct purposive convenient samples

across a spectrum of risk for maltreatment. The repeated measurements, as with all longitudinal studies, leads to correlated data resulting in the violation of the assumption of independent observations required for most statistical analyses. Also, as with all longitudinal data, there is attrition, missing data at one or more time points for some respondents, and censored information. Our data are also irregularly timed because of the span in ages of the children (8 years), variation in the age at enrollment in the study, and variation in the children's ages at each interview and the intervals between interviews. In addition, as the participant's age, the instruments to measure particular constructs must change over time to accommodate developmental phases. Furthermore, the sampling procedures for the cohorts were complex and varied across sites. These complexities make the dataset uniquely challenging and interesting from a statistical perspective.

In order to address the statistical analytic needs of LONGSCAN, the LSStat Committee, consisting of a group of statisticians and methodologists from each site and the Coordinating Center, meet regularly via conference calls to address common and site specific statistical and data management concerns. During the 2000-2005 period, the LSStat Committee has addressed the issues of (1) how to aggregate data across the five heterogeneous sites, (2) modeling alternatives for longitudinal data, and (3) handling attrition and missing data across time. The work of the LSStat Committee has successfully informed team investigators in the development of manuscripts and is currently authoring a manuscript regarding longitudinal data modeling alternatives. Additionally, the Coordinating Center launched and completed an intensive round of reliability assessment of CPS records. Specific information about the LSStat Committee's work with attrition and the results of the reliability assessment are detailed below.

*Attrition.* In October 2002, analyses were conducted to examine the effects of attrition on some key variables for the total sample, as well as by site. At this time, all sites, with the exception of the CH site had completed all age 8 interviews. Attrition was examined by interview. Specifically, age 4 variables were examined for the group present at 4 but not at 6 and the group present at 4 and 6. Age 6 variables were examined for the group present at 6 but not 8 and the group present at 6 and 8. Finally, variables closest to the age 8 interview were examined for the group that was present at 'baseline' but not at age 8, and the group present at 'baseline' and age 8. Please note that for these analyses, baseline refers to a 4 or 6 interview. Chicago data is not represented in the 6 to 8 analyses or the baseline to 8 analyses.

The variables examined included: Gender, Race, Family Income, Parent Education, CBCL, Vineland, Functional Social Support of the Caregiver, and Maternal Depression. Chi-Square analyses and t-tests were conducted. These variables are often used to quantify the demographic characteristics of the sample and include some key outcome variables typically used in analyses. Overall, only one significant finding was detected with regard to the total sample. Specifically, the group present at baseline and at visit 8 had higher family incomes compared to the sample present at baseline but not at age 8. Attrition does not appear to be a big concern with regard to the total sample. Some within site differences were detected and are

described in Table 2. The Gender, Maternal Depression, and Vineland Screener variables were not significantly affected by attrition.

*CPS Abstraction Reliability.* In winter of 2004-2005 a formal assessment of CPS narrative coding reliability was conducted among all active coders at each of the five sites plus the original data. Approximately five percent of CPS records (N = 129) currently in the LONGSCAN cross-site database at that time were selected for review. Analyses were conducted to measure agreement on (a) the number of allegations and substantiations, (b) the type of maltreatment at referral and the investigation by CPS, (c) conclusions about maltreatment based on CPS investigation, and (d) the severity of maltreatment based on the referral information. These categories are consistent with the way the CPS data is commonly used for analyses within LONGSCAN and for classifying the maltreatment experiences of the study child participants. Reliability analyses focused on coding using the MMCS and NIS2 classification systems. Results indicated reliability ranged from moderate to almost perfect for nearly every category of analysis except coding of substantiated maltreatment based on the CPS findings narratives. Given the complexity of coding CPS records across agencies and states, the span of the ages at the time of referral, and the change in coders inherent in a longitudinal study, these figures are encouraging and represent the quality and consistency of training.

Table 2. Description of Within Site Attrition Analyses.

| *Variables Assessed* | *Comparing participants present at 4 and 6 to those present only at 4* | *Comparing participants present at 6 and 8 to those present only at 6* | *Comparing participants present at 4 or 6 and 8 to those present at 4 or 6 only* |
|---|---|---|---|
| Gender | No difference for any site | No difference for any site | No difference for any site |
| Race | Fewer Whites (versus Non-Whites) and greater number of African American (versus Non-African American) in the CH non-attritted group. | No difference for any site | No difference for any site |
| Family Income | No difference for any site | No difference for any site | The SD attritted group had lower family incomes than the SE non-attritted group. |
| Parent Education | No difference for any site | The SE attritted group had higher levels of parent education than the SE non-attritted group. The NC attritted group had higher levels of parent education than the NC non-attritted group. | The SE attritted group had higher levels of parent education than the SE non-attritted group |
| CBCL Scores | No difference for any site | The NC attritted group had higher Externalizing scores than the NC non-attritted group. | The NC attritted group had higher Externalizing and Total scores than the NC non-attritted group |
| Vineland Screener | No difference for any site | No difference for any site | No difference for any site |
| Maternal Depression | No difference for any site or total sample | No difference for any site or total sample | No difference for any site |
| Functional Social Support | No difference for any site | The NC attritted group had higher functional support scores than the NC non-attritted group. | The NC attritted group had higher functional support scores than the NC non-attritted group. |
| Site Differences | No difference with regard to number of participants attritted. | The SE site had fewer drop-outs than any other site. | The SE site had less drop-outs than any other site. The NC site had a more drop-outs than any other site |

Table 3. Total number of CPS reports added to the cross-site LONGSCAN database between October 1, 2000 and September 30, 2005.

| | RMNB Dataset | RNA Dataset | Total |
|---|---|---|---|
| Baltimore | 309 | 18 | 327 |
| Chicago | 221 | 0 | 221 |
| North Carolina | 60 | 9 | 69 |
| San Diego | 573 | 319 | 892 |
| Seattle | 636 | 144 | 780 |
| Total | 1799 | 490 | 2289 |

Table 4. Frequency of LONGSCAN participants with a record including an allegation for specific maltreatment types.

| Maltreatment Type | Age Birth – 4 | Age 4 – 6 | Age 6 – 8 | Age 8 – 12 | Age 12 – 14 | Age 14 – 16 | Age 16 – 18 |
|---|---|---|---|---|---|---|---|
| Any Record | 743 (54.9) | 298 (22.0) | 267 (19.7) | 340 (25.1) | 139 (10.3) | 65 (4.8) | 10 (0.7) |
| Physical Abuse | 267 (19.7) | 108 (8.0) | 109 (8.1) | 159 (11.7) | 69 (5.1) | 23 (1.7) | 2 (0.1) |
| Sexual Abuse | 91 (6.7) | 55 (4.1) | 37 (2.7) | 64 (4.7) | 18 (1.3) | 14 (1.0) | 1 (0.1) |
| Neglect | 628 (46.4) | 203 (15.0) | 169 (12.5) | 217 (16.0) | 70 (5.2) | 31 (2.3) | 0 (0.0) |
| Emotional | 285 (21.0) | 90 (6.6) | 96 (7.1) | 140 (10.3) | 51 (3.8) | 28 (2.1) | 2 (0.1) |
| Moral/Legal | 67 (4.9) | 17 (1.3) | 20 (1.5) | 32 (2.4) | 9 (0.7) | 6 (0.4) | 6 (0.4) |
| Educational | 10 (0.7) | 20 (1.5) | 32 (2.4) | 40 (3.0) | 13 (1.0) | 8 (0.6) | 0 (0.0) |
| Drugs/Alcohol | 387 (28.6) | 113 (8.3) | 110 (8.1) | 142 (10.5) | 38 (2.8) | 24 (1.8) | 5 (0.4) |

Note. Maltreatment type was categorized with the Modified Maltreatment Coding System (English et al, 1997).

Table 5. Frequency of participants with a record including at least one substantiation for specific maltreatment types

| Maltreatment Type | Age Birth – 4 | Age 4 – 6 | Age 6 – 8 | Age 8 – 12 | Age 12 – 14 | Age 14 – 16 | Age 16 – 18 |
|---|---|---|---|---|---|---|---|
| Any Record | 558 (41.2) | 127 (9.4) | 97 (7.2) | 129 (9.5) | 23 (1.7) | 10 (0.7) | 1 (0.1) |
| Physical Abuse | 105 (7.8) | 29 (2.1) | 32 (2.4) | 34 (2.5) | 9 (0.7) | 2 (0.1) | 0 (0.0) |
| Sexual Abuse | 37 (2.7) | 17 (1.3) | 13 (1.0) | 14 (1.0) | 1 (0.1) | 3 (0.2) | 0 (0.0) |
| Neglect | 431 (31.8) | 91 (6.7) | 59 (4.4) | 79 (5.8) | 12 (0.9) | 6 (0.4) | 0 (0.0) |
| Emotional | 146 (10.8) | 29 (2.1) | 26 (1.9) | 43 (3.2) | 5 (0.4) | 4 (0.3) | 1 (0.1) |
| Moral/Legal | 22 (1.6) | 6 (0.4) | 4 (0.3) | 7 (0.5) | 0 (0.0) | 0 (0.0) | 1 (0.1) |
| Educational | 2 (0.1) | 6 (0.4) | 9 (0.7) | 11 (0.8) | 1 (0.1) | 0 (0.0) | 0 (0.0) |
| Drugs/Alcohol | 235 (17.4) | 31 (2.3) | 32 (2.4) | 46 (3.4) | 8 (0.6) | 3 (0.2) | 0 (0.0) |

Note. Maltreatment was categorized with the Modified Maltreatment Coding System (English et. al, 1997)

**D. Measurement Development**

The Coordinating Center, Measures Committee, and Principal Investigators developed extensive face-to-face interviews for youth aged 16 and 18 and their caregivers during this project period. Key outcomes include health status, pregnancy and parenting, health risk (including substance use) and health promotion behaviors, school status, employment status, peer and romantic relationships, delinquency and prosocial behavior and involvement, criminal justice involvement, and mental health status. Both interviews collected extensive self-report of lifetime maltreatment history. At age 18, mental health status is assessed using the YA-DISC (Young Adult Diagnostic Interview Schedule for Children, computerized voice version), as well as the Trauma Symptom Inventory. The majority of these measures are implemented using a project-developed A-CASI (Audio-Computer Assisted Self Interview) system.

Interviews were developed to capture key age-specific youth outcomes and risk and protective factors at each level of the developmental-ecological model. Preference was given in the measures selection process to measures used longitudinally within the LONGSCAN project and to proven standardized instrumentation. Measurement was developed or adapted for LONGSCAN use when existing measurement did not meet the needs of the project. Appendix 1 lists all measures used at each age-related data-collection contact. The numbers of face-to-face interviews collected *during this funding period* are presented in Table 6.

Table 6. Frequency of face-to-face interviews collected *during this funding period*

| | *Child Interview* | | | | | *Caregiver Interview* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Visit 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Visit 6 | 27 | 2 | 0 | 0 | 0 | 30 | 2 | 0 | 0 | 0 |
| Visit 8 | 57 | 38 | 19 | 0 | 0 | 75 | 46 | 19 | 0 | 0 |
| Visit 12 | 130 | 126 | 173 | 147 | 50 | 115 | 124 | 184 | 174 | 53 |
| Visit 14 | 151 | 88 | 101 | 151 | 148 | 163 | 75 | 97 | 161 | 164 |
| Visit 16 | 0 | 0 | 109 | 63 | 110 | 0 | 0 | 111 | 62 | 112 |
| Visit 18 | 0 | 0 | 0 | 2 | 142 | 0 | 0 | 0 | 0 | 133 |
| TOTAL | 365 | 254 | 402 | 363 | 450 | 383 | 247 | 411 | 397 | 462 |

Table 7. Frequency of annual telephone contact interviews collected *during this funding period*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Visit 1 | 0 | 0 | 0 | 0 | 0 |
| Visit 2 | 0 | 0 | 0 | 0 | 0 |
| Visit 3 | 0 | 0 | 0 | 0 | 0 |
| Visit 5 | 0 | 0 | 0 | 0 | 0 |
| Visit 7 | 54 | 26 | 1 | 0 | 0 |
| Visit 9 | 146 | 56 | 53 | 18 | 0 |
| Visit 10 | 241 | 151 | 60 | 48 | 13 |
| Visit 11 | 144 | 228 | 138 | 58 | 35 |
| Visit 13 | 14 | 41 | 45 | 95 | 102 |
| Visit 15 | 0 | 0 | 29 | 67 | 99 |
| Visit 17 | 0 | 0 | 0 | 0 | 25 |
| TOTAL | 599 | 502 | 326 | 286 | 274 |

**E. Training**

The Coordinating Center conducts on-going training in LONGSCAN data collection protocols, monitors quality control across sites, and coordinates data collection. Individual interview protocols, including A-CASI or computer-assisted interviews, paper and pencil forms, data entry and management systems are all developed and maintained by the CC. Coordinating

Center staff provide cross-site training in all LONGSCAN instrumentation, and develop training and documentation specific to each data collection point. Centralized training of project coordinators is conducted at the CC for each major data collection point. Technical assistance including initial certifications of reliability for site interviewers for complex instrumentation, reliability assessments to prevent drift in coding, and final determinations of reliability for any instrument with complex coding (such as the coding of CPS narrative records) are provided on an on-going basis. Interrater reliability of our instruments has been assessed periodically, and to date has been robust. The results of a recent cross-site assessment of the consistency of coding maltreatment records are discussed in section 3 of this report.

Training meetings include interviewers, coordinators, and data management staff from each site and the CC. These interactions provide a continual venue for cross-site checking of standardized data collection and handling procedures, and allow for a coordinated response to questions regarding data collection and handling which may arise after field entry.

Training Meetings held during the past five years include:

| | |
|---|---|
| May 2001 | Cross-site Age 14 Interview Administration Training |
| July 2001 | Maltreatment Coding Training for the SO Site |
| February/Mar ch2002 | Maltreatment Coding Training for the NW Site |
| June 2002 | Maltreatment Coding Training for adjunct researcher |
| August 2002 | New Site Coordinator Training for the MW Site |
| October 2002 | Age 16 Interview Administration Training for the SO Site |
| October/November 2002 | Maltreatment Coding Training for the MW Site |
| February 2003 | New PI Training for the MW Site |
| March 2003 | Maltreatment Coding Training for the EA Site |
| April 2003 | Cross-site Age 16 Interview Administration Training |
| June 2003 | Age 12 Interview Administration Training for the MW Site |
| June 2003 | Maltreatment Coding Training for the MW Site |
| February/March 2004 | Maltreatment Coding Training for the SO Site |
| March 2004 | Cross-site Coordinator (overview of forms) Training |
| May 2004 | Maltreatment Coding Training for the SO Site |
| November 2004 | Age 18 Interview Administration Training for the SO Site |
| December 2004 | Age 14 Interview Administration Training for the MW Site |
| February 2005 | Cross-site Age 18 Interview Administration Training |
| February 2005 | Cross-site Data Management/Error Report Training |

**F. Human Subjects**

All LONGSCAN investigators and staff are scrupulously trained in data confidentiality and protection issues. All interview protocols are approved by local site IRBs as well as by the IRB of the Coordinating Center. All LONGSCAN consents and assents fully inform parents and participants that new incidents of maltreatment will be reported as necessary. The decision whether to report to CPS is determined through careful data review by site LONGSCAN

investigators.

To help protect participant confidentiality, the CC develops customized A-CASI modules for each site to accommodate site-specific human subject protocols. CPS reporting and clinical response protocols vary by necessity across sites. The CC develops site-specific "flagged-item" report protocols, which alert the interviewer if specific items are endorsed. The content of the report generated for interviewer review varies. At some sites, the report contains actual data, while at others; it simply alerts the interviewer that a child has indicated a need or a request for follow-up.

Individual site consent, assent, and related human subjects protocols are approved by local IRBs. The CC requests that all site-specific consent and assent forms discuss the safeguards and limitations provided by the Certificate of Confidentiality granted by the National Institutes of Mental Health, in keeping with the NIMH stipulations accompanying the Certificate. The Certificate of Confidentiality, while not assumed to override state reporting laws, is assumed to protect all LONGSCAN data at the CC from third party subpoena. The Principal Investigator and the University of North Carolina make every attempt to protect the data from third party review for purposes other than qualified research. Data are stripped of all identifying information prior to being sent to the CC.

## DATA MANAGEMENT, DOCUMENTATION, and TRANSFER TO NDACAN

Data management, processing, documentation, and distribution of data to the sites are conducted for LONGSCAN by the Collaborative Studies Coordinating Center (CSCC), a unit within the Department of Biostatistics at the University of North Carolina at Chapel Hill. The CSCC coordinates a number of multi-center public health and medical studies, provides statistical, data management, quality assurance, and study management services to a number of national, international, and multi-site studies. Data entry software and data management systems have been developed and centrally maintained by the CSCC for LONGSCAN since its inception. Statistical programming, Data Management System (DMS) development, and the coordination and distribution of data retrievals are jointly coordinated by the CC and the CSCC ensuring seamless management of the technical aspects of LONGSCAN.

### A. Data Management Systems

The Data Management Group of the LONGSCAN study is responsible for the development and implementation of the data collection and data management software that allow sites to collect the Face-to-Face (FTF) and Annual Contact Interviews (ACI). Portions of these interviews are Audio-Enabled Computer-Aided Self-Administered systems (A-CASI), allowing participants a greater degree of privacy when responding to sensitive questions and addresses literacy issues. The Age 16 FTF Interview was programmed and put into the field in the fall of 2002; the Age 18 FTF Interview was put into the field January of 2005. The Age 18 Interview also included the YA-DISC, which required extensive programming to make this product compatible and integrated with the LONGSCAN interview system. Also during the

2000-2005 grant period, the DMS group programmed a cross-site Age 15 ACI and a site specific age 17 ACI for the BA site. Additionally a number of site-specific measures are incorporated into the interview systems, the programming for which only allows these measures to be administered for the appropriate site. Finally, the DMS group programs site-specific reports for each FTF interview flagging participants that report issues which may require counseling referrals or immediate intervention based on responses to particular measures or a combination of responses across multiple measures.

The DMS group provides ongoing user service to all of the LONGSCAN sites. This group is responsible for updating the DMS and the technical portion of the LONGSCAN data collection efforts with the most up to date software and technology. This group has also completed programming efforts to allow sites to send data via a secure email transfer system, automate backup systems, and allow sites to apply updates to the DMS via the secure website.

The Statistical Computing Group of the CSCC is responsible for data retrievals and cross-site distribution of the pooled LONGSCAN data. Data are retrieved four times a year and distributed twice a year. At each retrieval, extensive reports are run to check for key missing data points, inconsistent data within measures, and out of range values. This group also programs the scoring for many of the LONGSCAN measures, and provides analysis datasets and conducts analyses as requested by investigators. Retrieval procedures, changes in retrieval code, analysis datasets, and all programming activities are well documented. All code developed for analysis datasets and statistical analyses is saved permanently for documentation to allow analyses to be rerun as children at sites age into analyses or as new and corrected data become available.

**B. Data Documentation**

Given the extensive amount of data collected and important project activities conducted throughout the course of the LONGSCAN study, documentation of project activities and products detailing the variables and data collected are essential. During the 00-05 grant period, Data Dictionaries for FTF and ACI interviews collected from baseline to Age 14 were developed and made available via the LONGSCAN website. The Data Dictionary for Age 16 was in development at the close of this grant period. Data Dictionaries are also developed for datasets comprised of derived variables from other LONGSCAN measures. A tutorial was developed for use with the CPS data collected on the RNA and RMNB forms. A Data Management Users Guide for the Age 12-18 DMS system was developed. A manual detailing procedures for data cleaning and error reports was developed and distributed at the Age 18 training in January of 2005. All of this documentation has been made available to project investigators and affiliated LONGSCAN users via the LONGSCAN website. In addition, tables detailing analysis datasets, scored measures, and derived variable datasets are updated regularly. And key information from retrievals, such as interview counts, age distribution of subjects, sample characteristics by time point, and site specific error reports are posted on the website at each retrieval.

<u>Documentation created and distributed in years 00-05:</u>

Data Dictionary: Ages 0-7
Data Dictionary: Ages 8-11
Data Dictionary: Age 12
Data Dictionary: Age 14
Data Dictionary: Maltreatment Data 0-18
Tutorial For Use with Maltreatment Data: 0-18
Data Management Users Guide: Ages 12-18
Data Cleaning Manual: Ages 8-18

**C. Providing Consortium datasets to the National Data Archive on Child Abuse and Neglect (NDACAN)**

In July of 2003, the scored data for applicable measures administered at Baseline and the Age 4 FTF Interview were archived with the National Archive on Child Abuse and Neglect (NDACAN). In June of 2004, the final set of data for the Age 6 FTF (and updated data from the Baseline through Age 4 FTF Interview) were sent to the archive. All names of people and places, as well as any other direct identifiers were removed from the data prior to distribution to the Archive. Additionally, all dates collected via LONGSCAN measures, including any dates of birth were recoded at the CC prior to being sent to the archive. Site locations were identified only as South, East, Northwest, Midwest and Southwest to further protect participant confidentiality. The subject identifiers consist of a 2-letter identifier for the site plus a five-digit number, and cannot be traced back to an individual participant.

The following items accompanied the datasets to the Archive: a comprehensive Data Dictionary, copies of the data collection instruments, the LONGSCAN project description, a bibliography of reports, articles and other publications related to the datasets. In 2004, a tutorial to accompany the Data Dictionary was added that assists users with the complicated abstracted CPS data archived for the first time in 2004.

To date, a total of 21 users have applied and been granted access to the archived LONGSCAN data. These users make up diverse backgrounds of interests and affiliations including professionals from social work, pediatric research, epidemiology, medical schools, criminal justice, child and family policy, and economics. NDACAN hosts regular Summer Research Institutes to orient and assist users with the archived data. LONGSCAN sent a representative to assist with the Summer Institute in May of 2002.

**FINDINGS and DISCUSSION**

**A. Definitions/Dimensions of Maltreatment**

In a special issue of the journal *Child Abuse & Neglect*, (Volume 29, May 2005) the LONGSCAN investigators undertook multiple examinations of the dimensions of maltreatment definitions. The major findings of these papers pertinent to research definitions of maltreatment are summarized here. We explored the concordance of three alternate systems for classifying records of maltreatment and examined the implications of coding severity, type and chronicity of maltreatment.

*LONGSCAN's Determinations of Maltreatment Type Compared to CPS Determinations.* When the LONGSCAN group conceived of a project to examine the performance of alternative approaches to the coding of maltreatment, it used a sub-sample of participating children who met the following specific criteria: (1) the child and parent both completed the age 4 and age 8 data collection interviews so we have data about the family members and about the cognitive and behavioral function of the children; (2) there was a reported allegation of maltreatment that occurred before the age 8 interview; and (3) CPS records had been searched by a LONGSCAN reviewer for each child from birth through the date of the age 8 interview. We excluded all children enrolled in LONGSCAN who had never been reported for abuse or neglect for this analysis since they had no CPS records to examine. These criteria produced an analysis sample of 545 children and their primary caregivers out of the total sample of 806 children who had completed age 8 interviews at the time of the analysis. The size of the original LONGSAN sample is 1435 children. The difference between 1435 and 806 is due to subjects who did not meet inclusion criteria for this analysis including 78 with a pre-age 4 and no actual age 4 interview, 128 children added at age 6 across two sites, 175 children whose CPS record reviews were not current at age 8, and 270 children who were not yet old enough for the age 8 interview at the time of these analyses. The four-site attrition rate (excluding Midwest site, which was not used in the analysis because of the small number of completed interviews at the time the analysis was initiated) between baseline and the age 8 data collection effort and interview was 16.7% (185 of 1109). Attrition analyses, comparing the two groups on race/ethnicity, gender, and various caregiver measures (Vineland, Battelle, Caregiver Depression, Years of Parent Education, and CBCL) indicate no significant differences between the attritted and nonattritted samples between baseline and Visit 8. Analyses of the coding strategies were performed at both the report- and the subject-level.

Table 8. LONGSCAN Sample characteristics at Age 4 (N = 545)

| | % | N | Mean | Median |
|---|---|---|---|---|
| Child Gender | | | | |
| Male | 49.2 | 268 | | |
| Female | 50.8 | 277 | | |
| Child Ethnic Status | | | | |
| Majority status | 31.9 | 174 | | |
| Minority status | 68.1 | 371 | | |
| Child Age (years) | | | 8.2 | 8.1 |
| Caregiver Marital Status | | | | |
| Married | 34 | 185 | | |
| Single/Never Married | 37 | 202 | | |
| Separated | 10 | 52 | | |
| Divorced | 18 | 96 | | |
| Widowed | 2 | 10 | | |
| Caregiver Education (years) | | | 11.8 | 12.0 |
| Family Income (US$) * | | | | $15-19.9K |
| Family Geographic location ("Site") | | | | |
| East | 12 | 66 | | |
| South | 10 | 56 | | |
| Southwest | 40 | 217 | | |
| Northwest | 38 | 206 | | |

Note. * The range for the upper category of income was truncated, so it is not appropriate to report a mean for this variable.

*Sample characteristics.* Sixty-six percent of the sample was of minority ethnic status (i.e., Black, Hispanic, Mixed Race, Asian, and American Indian). The sample was nearly equally divided between boys and girls (51% boys). The range of educational attainment of the participating primary maternal caregivers was broad, ranging from less than high school completion to completion of graduate school. On average, caregivers used for this analysis had 12 years of education; 31% of the caregivers reported post-high school education. Participating families had a median income of between $15,000 and $19,999 per year at the time that the child was enrolled in the study (1990-1995).

*Maltreatment Measures.* One or two trained reviewers at each site abstracted data for each allegation, the conclusion of any investigation, and information about any services or interventions that resulted. Staff reviewed individual records at least every two years at all sites from the time children first enrolled in the study. Reviewers completed a structured coding form, using specified pages from the CPS records that include the face sheet and the intake form and recorded the original CPS classification of the case as well as completing the fields required to score the record according to the criteria for the MMCS and for the NIS-2 research coding systems. Because of the difficulties involved in accessing records in the field and the limitation of resources, no effort was made to have independent coding for the NIS-2

and the MMCS categorizations of records; the records were coded when they were located and reviewed and all information needed for assess the original CPS classification and to develop codes for each of the research systems were collected at the same time. The collection of the data for the alternative research classification systems was not originally intended to produce a comparison between the systems so no effort was done to design build in independence.

As noted above, two sites have continuous access to CPS records. The maltreatment data collection training required a minimum of 2 days each time a new staff member was hired to conduct the reviews. Training involved both didactic presentations and a requirement that the interviewer demonstrate at least 90% concordance on all the major elements across a long data collection from with a gold standard reviewer on 10 records selected from across all five LONGSCAN sites. The gold standard reviewer was a MSW co-investigator at the Coordinating Center who helped develop the expanded coding specifications for the MMCS. This investigator also organized the original and repeated training of the interviewers at all of the sites and sent out a selection of records from each of the sites to all of the other sites for review to assess scoring consistency. The test records were two social service records selected by each site where allegations of maltreatment had been recorded. Each site copied two actual DSS records from one of the LONGSCAN subjects at their site that were legible and for which all identifying information was redacted. The selected records had to contain at least one maltreatment allegation and provide a set of specified pages from the DSS records including the reported allegation and a face sheet that specified the age and gender of the child and the identity (role in the family) of the responsible family. These records were sent to the Coordinating Center, and copies of the packets of 10 records were sent to all of the active record reviewers. The test records were coded by each record reviewer, using the LONGSCAN data entry coding system. Their scoring reports were then sent to the statistical unit of the Coordinating Center for analysis. Record reviewers not achieving a 90% concordance rate on all data elements were re-trained and re-tested until they reached the required standard. Each new record reviewer is trained and tested and all active record reviewers repeat scoring at a minimum of 2-year intervals to assess drift with re-training required if the score drops below 90% concordance. The two-year window reflects the periodicity of record review as most records are reviewed promptly at the start of every record review period. Two new records are obtained for review from each site for each major training of record reviewers. Trainings were scheduled such that record reviewers for multiple sites could attend them; some were held at the Coordinating Center and some were conducted in cities involved in the research. The concordance rate is determined across all fields of the record review form including dates, types of maltreatment, and severity, as the gold-standard trainer and each record reviewer enter the records into a special version of the LONGSCAN data entry system. Record reviewers may or may not have been child interviewers depending upon the resources and staffing available to each LONGSCAN site but the record reviews and child interviews were not contemporaneous and most sites, at most of the periods of time in which records were reviewed, trained staff who were not child interviewers for the record review task. Because of the limited staff resources, it was not always possible to require completely independent assessment of child function and record review but this was achieved for most children.

*Child Outcome Measures.* Our efforts to study alternate maltreatment classification systems required assessment of child development at age 4 and at age 8. Developmental outcomes of interest included behavioral, adaptive, and physical and emotional functioning of the children at age 8 years. We used the child's baseline developmental and behavioral status before new experiences of maltreatment and examined change as it related to new maltreatment experiences. While latent effects of earlier maltreatment, before age 4, might complicate the analysis; for this exploratory analysis, we postulated that measures of functioning at age 4 would partially control for the impact of maltreatment and other adverse life events prior to entry into LONGSCAN. In this way, we could best isolate changes in function of the children that might be tied to new experiences of maltreatment.

In line with our multiple-method principles, we selected, as outcomes, measures obtained by parent report, by child report and by interviewer assessment. Child behavior was assessed at ages 4 and 8 using the Total Problems, Internalizing, and Externalizing Scales of the Child Behavior Checklist (CBCL). The validity and reliability of this 113-item instrument have been well described (Achenbach, 1991). The Internalizing Problem scale combines three subscales; the Social Withdrawal, Somatic Complaints and Anxiety/Depression scales. The Externalizing Problems scale combines the Delinquent Behavior and Aggressive Behavior subscales. T scores less than 60 are considered in the normal range, while T scores above 63 are considered in the clinical range, and scores of 61-63 are considered "borderline."

The Socialization and Daily Living Skills subscales of the Vineland Screener were used to assess child adaptive behavior at Age 8. The Vineland Screener (Sparrow, Carter, & Cicchetti, 1993) is an abbreviated version of the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984) developed exclusively for research use and it is administered to the child's caregiver. The authors report inter-rater reliability coefficients of .98 with lay interviewers, and correlations between the full Vineland and Vineland Screener of the Daily Living Skills and Socialization subscales of r =.92 and r =.93, respectively (Sparrow, Carter, & Cicchetti, 1993).

LONGSCAN used the Trauma Symptom Checklist-Alternative Version (TSCC-A) (Briere, 1996) to assess child emotional functioning at age 8. The TSCC-A is a child report instrument of post-traumatic distress and related psychological symptoms designed for use with child victims of traumatic events. The alternate version included five subscales (Anxiety, Depression, Anger, Post-Traumatic Stress, and Dissociation). Higher scores reflect greater symptomatology. T-scores of 65 or greater are considered clinically significant.

*Approach to the Analysis.* We theorized that the effects of maltreatment experienced prior to the time of the age 4 interview already would have influenced the measures of child functioning at age 4. This assumption results in a conservative bias; to the extent that there are late or latent effects from earlier maltreatment, the relationships between child function and any new maltreatment would be less apparent; this conservative risk seemed appropriate for this exploratory analysis since the earlier maltreatment would not be expected to attenuate the

relationship between any specific coding system and child outcome and since measurement of child development in very early childhood has little correlation with later cognitive function. The child's T score on the age 4 CBCL Total Problems scale was used in models predicting age 8 scores on the CBCL Total Problems, Internalizing, and Externalizing scales, and in the models predicting scores on the five TSCC-A scales to control for the effects of maltreatment prior to the child's enrollment in LONGSCAN, as no baseline TSCC-A data were possible. For models predicting scores on the Vineland Screener Socialization and Daily Living Skills subscales, we used the Personal-Social Skills and Adaptive Behavior domain scores from the Battelle Developmental Inventory Screening Test (Battelle Screener) administered at age 4 (Newborg et al., 1988) as a control for developmental effects from the earlier maltreatment. Thus, the analyses were designed to be able to assess change in child behavior by using the baseline CBCL as a baseline for changes in CBCL scores at follow-up. Thus, the statistical modeling was designed to examine change in mental health status from baseline and examine whether that change was linked to any maltreatment exposure that occurred between the baseline assessment and the Age 8 assessment.

Before proceeding with an examination of concordance among the classification schemes used by child protective services, the NIS-2 coding system, and the MMCS, we first addressed another issue that has been controversial in maltreatment research. Namely, should substantiated referrals or just allegations of maltreatment be used as the basis of analysis? Although many studies of maltreatment use substantiated allegations as the measure of maltreatment (Runyan & Gould, 1985), several recent studies have questioned the use of substantiated cases in child maltreatment research (Drake, 1996; English et al., 1998, 2002). The LONGSCAN group examined this issue in the LONGSCAN sample (Hussey et al., 2005) by comparing social, emotional, and behavioral functioning of the sample subjects without reports of maltreatment, participants with reports that had not been substantiated, and participants with reports that were substantiated. After controlling for potential confounding variables, including reports of maltreatment prior to enrollment in LONGSCAN at child age 4, Hussey et al. (2005) found no significant differences between children with substantiated versus unsubstantiated reports between the ages of 4 and 8 on any of the outcomes of interest, suggesting that the differences between groups with respect to substantiation may have reflected the investigative process, rather than the actual experiences of the children. Hussey et al (2005) did describe significant differences in outcome, however, between the group of LONGSCAN children who had never been reported for maltreatment and those who were reported at some point in their lives (both substantiated and unsubstantiated cases), indicating that reported children showed significantly worse outcomes than non-reported children. Based on the Hussey et al. (2005) findings and other studies (Leiter & Johnsen, 1997; English et al., & Drake, 1996), allegations of maltreatment recorded as having been made to CPS, instead of substantiations of maltreatment by CPS, in the jurisdictions in the LONGSCAN study were used as the basis of judging that maltreatment had occurred to a child enrolled in LONGSCAN for our recent concordance, type, severity and chronicity analyses. As the MMCS and NIS –2 codes are established on a specified set of limited pages from the records, and the entire CPS

record is not required, there does not appear to be any difference in information available to code type of maltreatment between substantiated and only alleged maltreatment reports.

Concordance in maltreatment definitions between coding schemes: The three classifications of maltreatment type -- the original CPS designation, the NIS-2 codes, and the modified MCS codes (MMCS) -- were compared using both Kappa statistics to assess agreement beyond chance, and by receiver-operator characteristic curve (ROC) analysis (Fletcher, Fletcher, & Wagner, 1996). CPS maltreatment type was coded using a checklist. The major categories for this variable were physical abuse, sexual abuse, neglect, and emotional maltreatment. Allegations that did not fit one of these types were not considered reports; these non-reports included "None given," "Dependency," "Caretaker absence/incapacity," "Moral/legal/ educational," "Abuse (unspecified)," and "Don't know." We excluded 387 reports with no valid CPS allegation type codes and 167 reports with multiple types of allegations coded by CPS. Clearly, where there was no CPS allegation contained in the record, it could not be recoded by the other systems. When, on infrequent occasions, CPS records coded multiple types of maltreatment, there was no systematic way to decide which allegation should be linked in the comparison of CPS and research codes without biasing the agreement by assuming concordance. Relatively small numbers of CPS records recorded a report as more than one type of maltreatment. An additional 163 reports were dropped because no valid MMCS type of maltreatment could be applied to the CPS narrative (as it was impossible to find sufficient information to ascertain the nature of any allegation) yielding 1263 reports as the total N of reports for a concordance analysis.

Because the use of a receiver-operator characteristic curve for analysis requires that one measure be designated as the standard to which the others can be compared, we had to select one of the measures as the criterion. Because of its extensive development, level of specification, and our efforts to ensure that this instrument described the events recorded in case files, we arbitrarily decided that the MMCS would be regarded as the "Gold Standard" or our best estimate of the truth, and the criterion against which each of the other coding strategies could be compared. When little data exist to specify which measure is best designated as a standard, the face validity and content validity can be used to select one, but the analyses can be iteratively performed with each of the potential candidates used as the gold standard in order to graphically represent the level of agreement between measures. Thus, it is not critical that the gold standard be the best measure as long as the shortcomings of each measure are understood and the limitation of using a less-than-gold standard are appreciated, because the figures for sensitivity and specificity will be depressed by a less than gold standard. In this ROC analysis, the sensitivity (classification of reports as abuse when the MMCS classification system determined that there was abuse) and specificity (reports not classified as abuse when there was no abuse coded using the MMCS system) were calculated. We contrasted the sensitivity and false positive rate of both the original CPS classification and the NIS-2 classification to the MMCS classification. In a ROC-type analysis comparing two different measures for greater sensitivity and specificity, without consideration of cost or difficulty, the preferred test is the test that is graphically closer to 100% sensitivity and 100%

specificity (i.e., a 0% false positive rate). In its simplest form, the visual inspection of the relative positions of alternative tests compared to a gold standard will identify how closely the tests perform. More sophisticated examinations can then be undertaken to compare the area under the curve when each of the possible tests has a variety of possible cut-points or determinations as to when the test is positive. Our alternate approach to establishing the relation between the two alternative coding schemes was to examine agreement using the Kappa statistic. The Kappa statistic is close to 1 if there is agreement in all of the reports and 0 if none of the reports are classified as the same type by the two coding systems. We did not attempt a weighted Kappa but looked for agreement between the primary type of maltreatment for each report determined by DSS and the type of maltreatment determined by the MMCS. When there was more than one MMCS abuse or neglect type that could be derived from a single CPS report, we assigned a single, "predominant type" of maltreatment allegation coded under the MMCS system to each report. We developed an algorithm to determine the predominant type for each report: 1) the type of maltreatment allegation with the highest severity rating was assigned. As the MMCS severity codes for physical and sexual maltreatment were intended to be parallel in so far as possible, selection of the highest severity rating generally results in a ranking with face validity. When two MMCS types were coded as having equivalent severity, we selected the type coded with the combination of both the highest severity and the greatest frequency. This approach allowed us to assign a primary form of maltreatment for nearly all of the cases. In those few cases where the severity and frequency codes were identical, type was assigned according to the conventional hierarchical ordering of sexual abuse, physical abuse, neglect, and emotional abuse. We admit that falling back on this convention has limitations but needed to make some ordering possible where both frequency and severity were tied and felt that the traditional hierarchy would be a reasonable solution for the seven cases of tied severity and frequency and that dropping these cases would have the effect of inflating our estimate of concordance.

*Comparison of different coding and definitional schemes in predicting outcomes.* In addition to examining concordance, we compared the ability of the different coding systems to predict children's functioning at age 8. A total of 10 measures of functioning at age 8 were predicted with nearly identical regression models for each type of maltreatment (i.e., physical abuse, sexual abuse, neglect, and emotional maltreatment experienced after age 4). We used the outcome variables of the CBCL internalizing, externalizing and total problem scores, Vineland daily living and socialization scores and the Trauma Symptom Checklist depression, anxiety and PTSD scores.

In the regression analyses for each outcome, we first entered a block, which described the demographics of the child and a baseline value of either the baseline CBCL score or Batelle Developmental Screen Score. The choice of the baseline control variable was related to the outcome; we used the age 4 CBCL Behavior problems score as a control in the age 8 models where the CBCL provided the outcome and the baseline Battelle Score was used as a control for the Vineland scales. Next, a second block entered control for site. Then in a third block, we entered the type of maltreatment according to one or the other coding systems (i.e. the

presence or absence of a specific maltreatment type as noted in the original CPS allegation, the presence of a specific maltreatment type as recorded by the NIS coding system, or the presence of that same maltreatment type as recorded by the MMCS). These maltreatment-type codes were dichotomous and the outcome variables were the scale scores for the 10 different outcomes measures derived from either the CBCL, the Vineland, or the Trauma Symptom Checklist. The models were held constant for each outcome with the sole exception that we systematically varied the maltreatment variable in each model using each of the three coding systems. To say this another way, to examine the impact of physical abuse, we sequentially substituted the CPS variable indicating whether or not an allegation of physical abuse had been made with the NIS variable for a physical abuse allegation and then the MMCS allegation of physical abuse variable while keeping the remaining variables, child demographics, site, and baseline functioning measure in the model unchanged. We modeled scores on the Child Behavior Checklist Total Problem, Internalizing and Externalizing scores, the Vineland Screener Daily Living and Socialization Scores, and the Anger, Depression, Anxiety, Dissociation, and PTSD scores from the Trauma Symptom Checklist and compared the ability of the different coding systems to predict impact.

The Research Coding Systems Largely Agreed: Agreement between the MMCS codes and CPS recorded allegations based on the predominant type coded from MMCS, for each reported allegation of child abuse or neglect in the social service records is presented in Table 2. We observed that agreement between the MMCS predominant allegation type of physical abuse and CPS recorded allegations for physical abuse was 82%. Agreements between MMCS and CPS for sexual abuse, neglect, and emotional abuse were 90%, 85% and 37%, respectively. We also note some major areas of disagreement; 9% of reports assigned a MMCS code of physical abuse because the record included data that indicated that abuse should be coded had been recorded by CPS as neglect. Similarly, 9% of children we assigned an MMCS code of sexual abuse had been recorded by CPS as neglect and no sexual abuse determination was noted in the CPS record. Emotional abuse turns out to be rarely used by CPS as a major category, likely policy related to the difficulty of assigning this as an explanation. However, the total number of cases meeting MMCS criteria and being assigned a code for emotional abuse in the MMCS increased to 98 whereas only 51 assigned cases of emotional abuse were recorded as the determination by CPS. Among all of the reported maltreatment, only 36 cases were coded by both CPS and the MMCS as emotional abuse.

Table 9. Type of Maltreatment allegation designated by Child Protective Services by predominant type of narrative-based allegation coded by LONGSCAN[a] for 1263 Maltreatment reports from CPS Records[b]

| Coding Scheme | | Modified Maltreatment Classification System Codes[c] | | | | |
|---|---|---|---|---|---|---|
| | | Physical Abuse | Sexual Abuse | Neglect | Emotional | Total |
| Child Protective Service Codes | Physical | 222 | 1 | 36 | 16 | 275 |
| | Sexual | 8 | 101 | 32 | 2 | 143 |
| | Neglect | 25 | 10 | 663 | 35 | 733 |
| | Emotional | 4 | 0 | 11 | 36 | 51 |
| | Other[d] | 12 | 0 | 40 | 9 | 61 |
| | Total | 271 | 112 | 782 | 98 | 1263 |

Notes. [a] Predominant type of maltreatment alleged when multiple types were coded was determined using the following algorithm: Type with highest severity (excluding emotional maltreatment, as severity is coded using a different scheme), then type with highest severity and frequency when two types were coded with equal severity, then if no type was coded more frequently than any other, type was assigned in the following hierarchy: sexual abuse, physical abuse, neglect, and then emotional abuse.

[b] Row percents represent the percentage of the total number of reports classified as that type by CPS that were also classified as that type by the MMCS allegation codes, using the predominant type algorithm. Column percents represent the percentage of the total number of reports classified as that type by the MMCS allegation codes, using the predominant type algorithm, that were also classified as that type by CPS.

[c] Of 163 reports excluded from this table because LONGSCAN coders were unable to code the report as one of these four types using MMCS, CPS classified 22 (14%) as physical abuse, 29 (18%) as sexual abuse, 87 (53%) as neglect, 2 (1%) as emotional maltreatment, and 23 (14%) as some other type.

[d] Other type categories used by CPS included Dependency, Caretaker absence/incapacity, Moral/legal/educational, and unspecified Abuse.

Overall, child protective service reports and the MMCS classified cases as the same type of maltreatment in 81% of reports with 19% of reports being classified differently by CPS and the MMCS coding system. NIS-2 and CPS similarly agreed for 81% of reports. These levels of agreement were clearly enhanced by the process of collecting data for all three systems by the same record reviewers at the same time.

As might be expected by a process of record review in which the data were obtained in systematic ways at the same time, we found a very high level of agreement between NIS-2 and the MMCS for all types of maltreatment. For physical abuse, the Kappa statistic was 0.981. The agreement between CPS and the MMCS system was much lower, with a sensitivity of 74%, a specificity of 95% and a positive predictive value of 81%. A similarly high level of agreement between the NIS-2 and MMCS codes for sexual abuse was also apparent (Kappa = 0.961). CPS codes for sexual abuse had much greater misclassification when assessed against the MMCS.

Despite the influence of the methods of case review, the agreement between the NIS-2 and the MMCS codes for neglect was not as strong as for physical abuse, with a Kappa of 0.743.

The type of abuse with the least agreement was emotional abuse. CPS recorded an allegation in just 51 reports of maltreatment. The MMCS codes for emotional maltreatment added another 239 reports that met research criteria for this type of maltreatment. The sensitivity was just 16% for a CPS report identifying emotional maltreatment as the type and the Kappa statistic for CPS and MMCS was low at 0.224. In contrast, the agreement between the NIS-2 and MMCS codes was good with a Kappa of 0.722.

Table 10. Sensitivity, Specificity, Positive Predictive Value and Kappa Statistics for Child Protective Service and National Incidence Study-2 Coding of Abuse Allegations Using the Modified Maltreatment Classification System as the gold standard

| Type | Sensitivity | Specificity | Positive Predictive Value[a] | Kappa[b] |
|---|---|---|---|---|
| CPS Physical Abuse | 74% | 95% | 81% | |
| NIS-2 Physical Abuse | 98% | 100% | 99% | 0.981 |
| | | | (0.975 substantiated cases) | |
| CPS Sexual Abuse | 87% | 95% | 65% | |
| NIS-2 Sexual Abuse | 92% | 100% | 97% | 0.961 |
| | | | (0.971 substantiated cases) | |
| CPS Neglect | 82% | 76% | 83% | |
| NIS-2 Neglect | 84% | 93% | 94% | 0.743 |
| | | | (0.785 substantiated cases) | |
| CPS Emotional Abuse | 16% | 99% | 87% | 0.224 |
| NIS-2 Emotional Abuse | 72% | 96% | 85% | 0.722 |
| | | | (0.207 substantiated cases) | |

Notes. [a] Positive Predictive Value is the probability that the type of maltreatment coded by the CPS system or by the NIS-2 system will be the same type as coded by the MMCS system.

[b] Kappa statistics were calculated for all 1920 records of maltreatment coded by NIS-2 & MMCS. CPS comparisons were limited to 1426 records with a single valid CPS code

*Regression analyses predicting child outcomes.* In a novel to refining measurement of maltreatment, we used hierarchical regression models to compare the relative ability of the three different coding systems of new maltreatment reports to predict child functioning at age 8 while controlling for status before the reports. Clearly, as investigators, we have no *a priori* need to prefer one code over another as we have no constraints as to which types of cases we either have legal authority to proceed in or types of maltreatment that we might believe we have more services to provide. Thus we have no specific boxes that we need to sue to fit cases. The CPS system is more likely to have policy or legal constraints that favor some "diagnoses"

over others. To the extent that these constraints alter the determination of the nature of a case by CPS agencies, official statistics and classifications are unlikely to be satisfactory as means of surveillance or descriptions of the epidemiology of child maltreatment.

We recognize that determining categories of exposure by impact is circular reasoning. But for its planned outcome analyses, LONGSCAN will not rely solely upon CPS records to determine who has been maltreated. These data illustrate the problem with studies that rely upon CPS as the source of data about what children have experienced. Our efforts to assess the exposure to maltreatment will require multiple sources data from parents, the children themselves and CPS records. Other LONGSCAN data from the first site to complete child self-report data find little agreement between what the children at age 12 say has happened to them and what has been reported to CPS (unpublished data). Other studies suggest that less than 5% of the maltreatment acknowledged by parents is ever reported to CPS (Theodore & Runyan, 2005).

Our ultimate purpose in LONGSCAN is to determine the impact of abuse or neglect on the children. However, these efforts to compare classification systems on the differences seen in children at age 8 inform us about the value of CPS records.

The use of outcomes to characterize maltreatment exposure is not a solution that will ultimately help assess the impact of maltreatment. It does provide a unique method of examining the thicket of measurement issues in child abuse that has been relatively insolvable to date. Ten outcome variables and four exposure variables, each measured by three alternative coding systems, resulted in a total of 120 separate regression equations. In our analysis, we focused on three specific questions: 1) in the third hierarchical block, does entry of the maltreatment code for type of maltreatment into the regression model result in a significant increase in overall variance explained ($R^2$ change). 2) Is the unstandardized regression coefficient for the maltreatment type code statistically significant in the final regression model containing all control variables? And finally, 3) are there regression models with a statistically significant amount of the variance explained by one of the coding systems not matched by the other two coding systems?

The regression analysis results for MMCS and NIS-2 coding systems are very similar; results that are not unexpected when a record reviewer is simultaneously coding for both systems. Data found in the record review for either coding process are likely to find their way into the codes for the other process. However, structured coding, with a codebook and training are always going to beat a more haphazard process in which CPS employees, in the course of daily work, are making coding decisions that may have little or no impact on their own actions to help families and for which there may be overarching policy implications. Demographic and control variables explained about 12% of the variance in composite and individual CBCL and Vineland Screener scores and thus child outcome. Physical abuse predicted higher CBCL Total Problems scores while Neglect, both failure to provide and failure to supervise, predicted poorer Vineland Socialization and had no apparent impact on behavior! The MMCS and the NIS-2 systems codes for sexual abuse predicted more behavior problems. While statistically significant, use of either of the research codes for physical abuse only modestly contributed to

the variance in Vineland Daily Living scores. Sexual abuse accounted for of the significant outcomes in child function or symptoms at age 8.

Sexual abuse, classified by any of the coding systems predicted higher CBCL Internalizing scores. CBCL Externalizing and Total scores were affected by sexual abuse only when the sexual abuse was coded by MMCS or NIS-2 systems; CPS determination of sexual abuse had no apparent impact on externalizing or total behavior problem scores.

Physical abuse explained a significant amount of the variance in CBCL Total Problem scores regardless of which of three systems was used to determine physical abuse exposure. Vineland Daily Living scores appeared to be impacted by a history of physical abuse only when the abuse was coded by one of the research systems; there was no apparent impact for physical abuse when the indication of this exposure was whether it had been recorded officially as the CPS allegation.

Table 11. Comparing CPS, MMCS and NIS-2 Coding of Specific Allegations of Maltreatment After Age 4 Looking at Block 3 $R^2$ Change, Final Model β Values, and Post-Hoc Comparisons

| | CPS | | MMCS | | NIS-2 | |
|---|---|---|---|---|---|---|
| | $R^2$ Change | β | $R^2$ Change | β | $R^2$ Change | β |
| *CBCL Internalizing* | | | | | | |
| Physical Abuse | .002 | -2.088 | .001 | -1.184 | .001 | -1.247 |
| Sexual Abuse | .006 | 4.645* | .022*** | 8.289*** | .017*** | 7.314*** |
| Neglect | .003 | 1.476 | .001 | .665 | .003 | 1.316 |
| Emotional Maltx. | .014** | 7.108*** | .004 | 2.511 | .001 | 1.414 |
| *CBCL Externalizing* | | | | | | |
| Physical Abuse | .001 | -2.046 | .002 | -2.085 | .003 | -2.261 |
| Sexual Abuse | .003 | 3.339 | .030*** | 10.293*** | .020*** | 8.615*** |
| Neglect | .001 | 1.554 | .000 | -.275 | .000 | .000 |
| Emotional Maltx. | .001 | .677 | .002 | 2.573 | .003 | 2.815 |
| *CBCL Total Problems* | | | | | | |
| Physical Abuse | .005* | -3.612** | .003 | -2.365 | .004 | -2.605 |
| Sexual Abuse | .004 | 3.075 | .028*** | 9.861*** | .020*** | 8.469*** |
| Neglect | .001 | 1.570 | .000 | .395 | .001 | .979 |
| Emotional Maltx. | .003 | 2.895 | .004 | 3 .109* | .002 | 2.547 |
| *Vineland Daily Living* | | | | | | |
| Physical Abuse | .005 | 3.960 | .010* | 6.846* | .012** | 7.451** |
| Sexual Abuse | .001 | -2.918 | .000 | 1.742 | .000 | -.466 |
| Neglect | .000 | .000 | .000 | .000 | .000 | .687 |
| Emotional Maltx. | .003 | 4.428 | .001 | -1.470 | .004 | -3.728 |
| *Vineland Socialization* | | | | | | |
| Physical Abuse | .000 | -.329 | .001 | 1.817 | .002 | 2.417 |
| Sexual Abuse | .001 | -2.918 | .006 | -6.697 | .005 | -5.916 |
| Neglect | .007* | -4.810** | .001 | -1.751 | .002 | -2.508 |
| Emotional Maltx. | .001 | 1.776 | .000 | -.618 | .009* | -5.268 |

*Note.* There were no significant findings for the TSCC scales, and these have been excluded.
*$p < .05$, **$p < .01$, ***$p < .001$.

Emotional maltreatment, when coded by MMCS, explained a little variance in CBCL Total Problems scores but the r square change was modest at best. A CPS emotional maltreatment determination explained only variance in the CBCL Internalizing score. The MMCS and the NIS-2 codes of sexual abuse were both better predictors of CBCL Internalizing and CBCL total problems outcomes than CPS coding. The effect size was larger when coded by MMCS as can be seen in Table 4.

Neglect determinations and child outcomes at age 8: We were unable to predict an adverse impact of neglect at age 8 on either the Vineland or the CBCL scales using either of the research coding systems. We did find that the CPS classification of the original allegation as neglect was predictive of worse outcomes on the Vineland but this may well be because the some forms of maltreatment that the research coding systems regards as physical abuse and sexual abuse were classified as neglect in the CPS record. Dubowitz *et al*. (2005) addressed the failure of neglect, as defined by both the MMCS and the NIS-2 systems, to predict child outcomes within LONGSCAN and offered a number of hypotheses for the failure of the study to find an apparent impact of neglect. In many jurisdictions, social service personnel may code allegations of sexual or physical abuse by a boyfriend or other person not always present in the home as neglect by the resident caregiver because he or she allowed the child to be mistreated.

---

*Conclusions from the comparative analysis.* Though the lack of uniform research definitions of maltreatment remains an issue if a researcher is confined to using CPS records to define maltreatment, we found agreement between the original child protective services classification of reports and two different research classification systems for upon reviewing CPS records for some forms of maltreatment. Overall, the percent agreement (concordance) between the original child protective service classification and the research classification using the MMCS is in the 80-90% range for physical abuse, sexual abuse and neglect. We found much greater disagreement among emotional maltreatment reports with potentially significant misclassification. The ROC curve analysis and the Kappa statistics confirmed close agreement between the two alternative research definition coding systems as they were used in LONGSCAN. For every type of maltreatment, the sensitivity and specificity of the NIS-2 codes were very close to the MMCS codes although high levels of agreement would be expected given the simultaneous coding and the collection of data from the records for one coding system that might be difficult to ignore for the other. More importantly, our data emphasize the lack of concordance between the original determinations of categories of maltreatment by CPS and what can be learned by record review. Our record abstractors had specific coding manuals for both coding systems and that both systems used the form of abuse with the greatest severity code as the major form of maltreatment. In contrast, the coding decisions by agency staff in daily practice are without the same systematic training and provision of coding manuals to guide decisions.

This work, a secondary analysis of data collected by LONGSCAN to compare the predictive ability of the original CPS classifications and two research definition systems for subsequent child function, represents a novel addition to the current discussion about the need to improve research definitions. The data have serious limitations as discussed above as they were not collected to produce a comparison of coding methods. However, what these data do demonstrate is that serious misclassification of maltreatment is likely if CPS data are used incautiously to describe children's maltreatment experiences.

One might ask if there is any utility to the use of CPS data on exposure to maltreatment. These data call into question whether conclusions based upon official data can be used to examine trends in the epidemiology of maltreatment or compare patterns of official statistics across jurisdictions. Systematically recoded CPS data does appear to be useful in that there are differences in child outcome by exposure to physical abuse and sexual abuse and CPS records will be available for children offered services. Recoded CPS data may prove to be useful in assessments of impact of interventions.

*How to deal with determining the predominant type of maltreatment.* Parallel LONGSCAN analyses have been undertaken to see if an empirical approach can help determine how reports or cases should be classified when multiple types of maltreatment are reported longitudinally and/or concurrently. In the analyses we presented above, we classified the type of maltreatment that we considered the most important by weighting severity. We compared the severity codes for each reported type and generated a predominant type based on the highest severity score. We broke ties in severity score by using the most frequent type. Where a tie still existed, we broke this tie by weighting active forms of maltreatment over more passive forms (i.e. physical and sexual abuse were judged to be more dominate when all else was equal). Lau and other LONGSCAN colleagues (2005) examined this issue in greater depth. In the Lau et al (2005) study, the classification scheme used in the above referenced study, herein, called the Severity/Frequency Classification scheme (SFT) for type was compared to two other methods of type of maltreatment classification. The other two classification schemes were the Hierarchical Type (HT) and the Expanded Hierarchical Type (EHT). The HT scheme was based on the assumption that when co-occurring types of maltreatment are experienced, active forms of abuse such as sexual abuse, are more detrimental than passive forms such as neglect (See Levine et al., 1998; and DePanfilis & Zuravin, 2001 for discussion). The EHT scheme differentiated multiple maltreatment type combinations from "pure" or single subtypes. In the EHT scheme 6 type categories were derived including sexual abuse only, sexual abuse plus other types of maltreatment, physical abuse only, neglect only, physical abuse and physical neglect, and emotional maltreatment only. The later category seems to be seldom used; our data suggest that the CPS agencies LONGSCAN is working with do not identify emotional maltreatment except in combination with other types of maltreatment. The very few emotional maltreatment only referrals contained egregious allegations of emotional maltreatment. While the HT approach has more commonly been used in maltreatment research, there is little empirical evidence to suggest which method of organizing single or co-occurring types of maltreatment best predicts child outcomes.

The same analytical approach used in the other LONGSCAN analyses referenced in this chapter was also used in the examination of the predictive utility of different classification schemes (Hussey, et al. 2005; Lau et al. 2005; English, et al. 2005). Hierarchical regression analyses examined whether the HT, SFT, and EHT type schemes differentially predicted child emotional, behavioral and adaptive functioning. The expanded hierarchy of maltreatment type actually produced the strongest set of predictive models of child outcome and predicted more child outcomes than either the simple traditional hierarchy, or the type classification using severity and/or frequency of allegations to classify cases with multiple allegations of

maltreatment. These analyses confirmed that the co-occurrence of multiple types of maltreatment is significantly related to child outcome, and that classification of maltreatment type must account for multiple type of maltreatment whether within one episode (report to CPS), or across multiple episodes/reports of maltreatment over time. Each of the systems examined in this study predicted child outcomes, but different schemes predicted different levels of outcomes. The HT scheme gave primacy of effect to the active abuse categories compared to the passive forms. However, a system that differentiated single vs. combined types provided finer discriminations in terms of predicting emotional, behavioral or adaptive outcomes for children at age 8. This study confirms the importance of examining profiles of maltreatment to help better understand the consequences of individual types of maltreatment and combinations or co-occurring types of maltreatment on child outcomes. It also highlights the problem of using a single type of maltreatment allegation as is coded most frequently in CPS records. Careful examination of records to ascertain all of the forms of maltreatment would appear to be supported by this finding.

*Accounting for Chronicity of Child Maltreatment Experiences.* Examination of different approaches to defining a child's maltreatment experience over time, including age of onset of alleged maltreatment, has been identified as an important element in the description of a child's maltreatment experience (Manly, 2005). In order to explore the utility of different definitions of maltreatment, English et al., (2005) developed descriptions of maltreatment based on a child's experience within specified developmental periods (e.g., 0-18 months, 19-36 months) The broad developmental definition was developed to correspond to Erikson's 1963 classification of initial stages of psychosocial development, that is, infancy, toddler-hood, preschool and early school age, and a calendar definition (within each calendar year of life from birth through age 8). In addition, descriptions of a child's experience of maltreatment across time included concepts of extent (the number of "units" or periods of maltreatment experienced within the developmental and calendar definition), and continuity (whether there were any "gaps" or maltreatment free periods within the defined developmental and calendar units).

This analysis and its findings emerged as among the most complex and difficult to interpret of the various analyses undertaken by LONGSCAN. Further work will be needed as the LONGSCAN children age, to continue to clarify the impact of chronic maltreatment that extends over multiple developmental stages. The overall analytical approach was to contrast different definitions of chronicity to determine their differential utility in accounting for different child outcomes. These analyses took age, gender and minority status demographics into account. Using block-wise analyses, one hierarchical regression analyses for each of the ten outcomes of interest was conducted for each of the three chronicity definitions. Demographics were entered into the first block, with the chronicity variable entered into the second block so that variance associated with this variable could be attributed next. Age of onset was entered into the third block to give priority to pattern rather than time at which the pattern began. Finally, income and site were entered in the last block in the final model. The most useful definition of chronicity, in terms of its ability to predict child behavioral and emotional functioning, varied by specific outcome. A developmental definition, counting the

number of developmental stages of the child's life that maltreatment had been reported, was found to have the most balanced sensitivity (increased percent of variance explained) across the three domains of outcome. The developmental definition predicted child outcomes across social, emotional and behavioral functioning of the child whereas a simple classification based upon age and frequency predicted outcomes in just two of three outcome domains of interest across outcomes. Among other significant findings, both *the total number of maltreatment reports* and the *continuity* of maltreatment across developmental stages of the child's life, from infancy to middle childhood, up through age 8 contributed respectively to the prediction of behavior and emotional trauma symptoms. Consideration of the number of major developmental stages involved and the continuity across stages together were more useful than a simple enumeration of number of reports (English, Graham, Litrownik et al. 2005).

*Summary.* Overall, the exploration of a more detailed description of a child's experience of maltreatment conducted by the LONGSCAN group confirms and extends the findings and recommendations of other researchers (Manly et al., 1994; Bolger & Patterson 2001, Sprang G, Clark JJ, Bass S. 2005, Drake & Pandy 1996). First, if child well-being or child functioning is a criterion of interest, then the important distinction is whether a child has been reported for maltreatment, not whether the allegation of maltreatment has been substantiated. As noted earlier, many factors influence whether a CPS referral is substantiated, and if a referral is not substantiated that does not mean the child has not been maltreated, nor does it mean a child is doing well.

Second, researchers have long suggested that use of CPS designations of type of maltreatment is flawed (NRC 1993). While findings of concordance between CPS and other methods of classifying type of maltreatment reached 80% or higher, that still leaves as many as 1 in 5 CPS cases potentially misclassified (at least for P/A and S/A), and we note that the majority of apparent emotional maltreatment is un-classified in the CPS typology. At the very least, the findings by Runyan et al. (2005) suggest that maltreatment researchers cannot rely on CPS designation of type of maltreatment as the best summary of the experiences of the child's experience.

These and other findings suggest maltreatment researchers, at this time, must go beyond use of CPS classification of physical abuse, sexual abuse, neglect, and emotional abuse until the issue of problems of classification of maltreatment by CPS is adequately addressed.

Finally, the examination of the dimensions of maltreatment by the LONGSCAN group has demonstrated that maltreatment experiences are very complex and won't yield to a simplistic definitional scheme. When examined longitudinally, maltreatment classifications may take into account multiple allegations within one episode or multiple episodes over time. Evaluating different methods of classifying or describing a child's maltreatment experience based on child functioning is one way to test the usefulness of different characterizations of maltreatment. However, the utility of this approach will be tested again when LONGSCAN examines child outcomes related to CPS, child, parent, and adult retrospective reports of maltreatment and has to reconcile type and severity across various sources of information.

Overall, the exploration of definitions of maltreatment examined by LONGSCAN confirms that record review of CPS records for determinations of exposure to child abuse or neglect will need to be approached very carefully. The concordance between unexamined official records and any systematic coding system is such that the usefulness of records may be in question if they have not been systematically recoded. The two coding systems used by LONGSCAN reveal relatively little to choose between on the basis of what we know now. Clearly training and a procedures manual can produce more reliable coding. Our premise that examining child outcomes permits a more in-depth examination of individual dimensions of maltreatment has allowed us to make some recommendations about coding severity and dealing with concurrent multiple reports. However, these recommendations are limited in that we conducted a series of secondary analyses on data already collected and we did not test alternative coding systems "head-to-head" in a blinded and independent comparison.

Our analyses demonstrate that CPS classifications of maltreatment are "not good enough", and that researchers must adopt more careful coding and well need a complex classification scheme to more accurately describe the maltreatment experience of children. Furthermore, the data suggest that if our interest is in examining child well-being, reliance on CPS classification of substantiation is "not good enough". Indeed, there is so much slippage in classification between CPS use and more rigorous efforts to classify experiences that one may call apparent CPS-based national trend data on declines of sexual abuse or increases of neglect into question (NCCANDS, 2002; Jones & Finkelhor 2003). Finally, examinations of various definitions of type, sub-type, severity and chronicity of different forms of maltreatment suggest that the way these dimensions are defined will make a difference in our understanding of the effects of maltreatment on child outcomes overall, and differentially within different outcome types. Looking at one set of longitudinal change data in one study with outcomes at age 8 has just scratched the surface.

We conclude that careful re-coding of CPS records will be needed to accurately describe the experiences of children in the system. Research types of quality control and coding manuals with careful attention to training of coders will be needed by CPS data systems if conclusions about trends and changes are to become useful. Investigators seeking to use CPS record data will need to recognize the limitations of official records and make plans to augment or recode the data. Because we recoded simultaneously to two different systems without setting up independent coding, we can say that it appears to make some modest differences which system is used but we cannot make a definitive recommendation as to which system on the basis of our data. Either system appears to be an improvement on the raw records.

**B. Relative contributions of violence findings**

We undertook a set of analyses examining the relative impact of different forms of violence on LONGSCAN children at age 8. We are now in the process of developing a manuscript on this set of observations. When discussed in the context of a presentation on the measurement of maltreatment (as described in section A above) at the April 2005 National Child Abuse Meeting, our observations generated a lot of discussion. These analyses were undertaken because we observed that the impact of physical abuse and sexual abuse on age 8 trauma

symptoms were small, as indicated by very low r square in the examination of the alternative forms of measurement noted above.

Children in LONGSCAN, in addition to frequently being the victims of more than one form of child maltreatment, also indicate high rates of exposure to domestic violence and community violence. Each of these types of exposures can have dramatic impact on the child. We note that children and family have reported to us 4 times as much exposure to adults yelling in the home, fighting, or threatening or using a gun as the social service reports reveal. While just 11% of families have domestic violence recorded in the social service records (using child or parent report), we note that 44% of the LONGSCAN children report domestic violence exposure by the time the children are 6 years old. Children also report high levels of exposure to violence in the community although they report lower rates at age 8 than at age 6. We wondered about the impact of these additional forms of violence on our children and whether they were synergistic in causing difficulties for the children.

*Methods.* We used a sample of 853 children from all five LONGSCAN sites representing all children who had completed the Trauma Symptom Checklist for Children (TSCC) at age 8 and the measures of witnessed violence at ages 6 and 8 years of age. We excluded 20 children with scores on the TSCC validity scales suggesting that the children were either under or over reporting all symptoms and we excluded 7 children where our intelligence scale results suggested that they probably could not be trusted for their self-reports. We limited the analysis further to only those children with lifetime reviews of their protective service records through the age 8 interview.

Outcomes were assessed using the Anxiety, Depression, and PTSD scales of the TSCC. We created a composite measure that used the "T" scores for each and combined them with standard scores of 0 and standard deviations of 1 to produce a single composite score.

Exposure to child maltreatment was determined by coding social service records using a modified version of the Maltreatment Classification System. This instrument was detailed extensively above. Exposure to Domestic Violence was determined by examining responses to the "Things I've Seen and Heard" items related to violence exposure in the home whereas exposure to neighborhood violence was determined by the child's responses to items related to seeing gangs, shootings, and dead bodies in the neighborhood using the same measure. This instrument was administered twice, at ages 6 and 8. We used reports at either of these administrations as a mark of exposure for both the domestic violence and neighborhood violence exposures. The analyses controlled for site, majority or minority ethnic or racial status, age, and family income.

*Analysis Strategy.* After examining simple descriptive statistics and cross-tabulations, we undertook hierarchical linear regressions. Our model was constructed similar to the models done for the concordance analyses described above; multiple regression for each dependent variable.

The modeling was conducted in the following manner:

a. *Block 1:* demographics (i.e., gender, race/ethnicity, income, and site)
b. *Block 2:* add physical, sexual, neglect, and emotional abuse (no DV) allegations
*c. Block 3:* add child report of physical violence and verbal arguments in home
d. *Block 4:* add child report of neighborhood safety/witnessed violence

*Results.* At the time of this analysis, 853 of the 1356 LONGSCAN children were eligible after the exclusions for missing data or concerns about data quality. About 27% (231) were alleged to have been exposed to physical abuse, 13% (111) had been reported to be victims of sexual abuse, 53% or 450 children were alleged to have been neglected. Twenty percent (171) were victims of emotional maltreatment. Over 85% (733) reported having heard long, loud arguments by adults in the home. At age 6, 32% of the children reported having seen adults hit each other in the home while this percentage dropped slightly to 29.5% at age 8. Reports of seeing a grown up shot or stabbed in their homes were noted by 72 children at age 6 and 24 at age 8. Overall, we noted that 50.2% or 428 children had a positive indicator for physical violence in the home.

Neighborhood violence was also quite common. (See table 12). At ages 6 and 8, the proportion of children reporting feeling unsafe in their neighborhoods rose from 43% to about 52%. Smaller proportions reported gangs, seeing dead bodies, or having the house broken into. The mean number of concerns about neighborhood were 2.9 out of 4 types of violence exposure at the two different ages.

Table 12. Descriptive Statistics for Independent Variables (N = 853)

| **Independent Variables** | n | (%) | M | (SD) |
|---|---|---|---|---|
| *Demographics* | | | | |
| Child's gender is male | 445 | (52.2) | | |
| Child's race/ethnicity is White | 231 | (27.1) | | |
| Household Income (Age 8) | | | 4.75 | (2.99) |
| Indicator for Baltimore Site | 182 | (21.3) | | |
| Indicator for Chicago Site | 130 | (15.2) | | |
| Indicator for North Carolina Site | 153 | (17.9) | | |
| Indicator for San Diego Site | 209 | (24.5) | | |
| Indicator for Seattle Site | 179 | (21.0) | | |
| *Maltreatment History* | | | | |
| Indicator for MCS Allegation of Physical Abuse (<= 8) | 231 | (27.1) | | |
| Indicator for MCS Allegation of Sexual Abuse (<= 8) | 111 | (13.0) | | |
| Indicator for MCS Allegation of Neglect (<= 8) | 450 | (52.7) | | |
| Indicator for MCS Allegation of Emotional Maltreatment – no DV (<= 8) | 171 | (20.0) | | |
| *Verbal Arguments in Home (reported by child)* | | | | |
| CEVA6: Heard grownups in home yell at each other (Age 6) † | 573 | (67.2) | | |
| WVA6: Heard grownups in home yell at each other (Age 8) † | 615 | (72.1) | | |
| Indicator for Verbal Arguments in Home (Age 6 or 8) | 733 | (85.9) | | |
| *Physical Violence in Home (reported by child)* | | | | |
| CEVA11: Child saw grown-ups in home hit each other (Age 6) † | 273 | (32.0) | | |
| WVA11: Child saw grown-ups in home hit each other (Age 8) † | 252 | (29.5) | | |
| CEVA16: Child saw grown-ups in home get shot/stabbed (Age 6) † | 72 | (8.4) | | |
| WVA16: Child saw grown-ups in home get shot/stabbed (Age 8) † | 24 | (2.8) | | |
| Indicator for Physical Violence in Home (Age 6 or 8) | 428 | (50.2) | | |
| *Neighborhood Safety/Violence (reported by child)* | | | | |
| CEVA12: Child feels unsafe in neighborhood (Age 6) † | 370 | (43.4) | | |
| WVA12: Child feels unsafe in neighborhood (Age 8) † | 440 | (51.6) | | |
| CEVA13: Child has seen dead body in neighborhood (Age 6) † | 106 | (12.4) | | |
| WVA13: Child has seen dead body in neighborhood (Age 8) † | 49 | (5.7) | | |
| CEVA14: Child has seen gangs in neighborhood (Age 6) † | 282 | (33.0) | | |
| WVA14: Child has seen gangs in neighborhood (Age 8) † | 382 | (44.8) | | |
| CEVA17: Child's house has been broken into (Age 6) † | 111 | (13.0) | | |
| WVA17: Child's house has been broken into (Age 8) † | 134 | (15.7) | | |
| Neighborhood Violence Mean Index (of Age 6 and 8) | | | 2.90 | (2.11) |

Notes. † Original item is a Likert Scale (0 = Never…4 = 3 or more times), for the purpose of presenting overall endorsement, percentages represent whether or not the child endorsed 1 or greater.

The patterns of T scores for the dependent variable are shown in Table 13. The bivariate correlations between the different exposures to violence and the different Trauma Symptom Checklist Scores are shown in Table 14. The most obvious pattern for these analyses is that the correlations for community violence and neighborhood violence with higher scores on the TSCC far exceed those for allegations of child maltreatment. The regression models are shown

in table 15. These results reiterate the much greater importance of domestic violence and community violence to reported child maltreatment.

Table13. Descriptive Statistics for Dependent Variables (N = 853)

| *Dependent Variables* | Total N | n | (%) † | M | (SD) |
|---|---|---|---|---|---|
| Trauma Symptom Checklist Anxiety T Score | 853 | 198 | (23.2) | 54.0 | (15.1) |
| Trauma Symptom Checklist Anger T Score | 853 | 73 | (8.6) | 46.1 | (11.1) |
| Trauma Symptom Checklist Depression T Score | 853 | 132 | (15.5) | 50.9 | (12.6) |
| Standardized Trauma Symptom Checklist Composite Score (alpha = .84) | 853 | -- | | 0.0 | (1.0) |

Notes. † Percentage represents the number of kids at or above 65 for the clinical scale, which is considered clinically significant.

Table 14. Bivariate Correlations among predictors and Age 8 Trauma Symptom Checklist Composite Score

| | Trauma Symptom Checklist T Scores | | | |
|---|---|---|---|---|
| *Independent Variables* | Anxiety | Depression | Anger | Composite |
| Child's gender is male | -.03 | -.02 | -.03 | -.03 |
| Child's race/ethnicity is White | .05 | .06* | .06 | .07* |
| Household Income (Age 8) | .05 | .03 | .05 | .05 |
| Indicator for Baltimore Site | -.15*** | -.17*** | -.08* | -.15*** |
| Indicator for Chicago Site | .02 | .02 | .02 | .03 |
| Indicator for North Carolina Site | -.07* | -.08* | -.02 | -.06* |
| Indicator for San Diego Site | .08* | .08* | -.00 | .06 |
| Indicator for Seattle Site | .11** | .13*** | .09** | .12*** |
| Allegation of Physical Abuse (<= 8) | .11*** | .15*** | .09** | .13*** |
| Allegation of Sexual Abuse (<= 8) | .07* | .08* | .06 | .08* |
| Allegation of Neglect (<= 8) | .06* | .13*** | -.01 | .07* |
| Allegation of Emotional Maltreatment – no DV (<= 8) | .11*** | .12*** | .05 | .11** |
| Indicator for Verbal Arguments in Home (Age 6 or 8) | .15*** | .16*** | .16*** | .18*** |
| Indicator for Physical Violence in Home (Age 6 or 8) | .14*** | .19*** | .18*** | .19*** |
| Neighborhood Violence Mean Index (of Age 6 and 8) | .28*** | .26*** | .27*** | .31*** |

*Notes.* * p < .05 ** p < .01 *** p < .001

Table 15. Age 6/8 Violence Measures Predicting Age 8 Trauma Symptom Checklist Composite Score (Anxiety, Anger, and Depression)

| | *Block 1* | | | *Block 2* | | | *Block 3* | | | *Block 4* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Independent Variables* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| Child's gender (1 = male; 2 = female) | -0.05 | 0.05 | -0.03 | -0.05 | 0.05 | -0.03 | -0.04 | 0.05 | -0.02 | -0.02 | 0.05 | -0.01 |
| Child's race Caucasian (1=Caucasian; 0=othr) | 0.03 | 0.07 | 0.01 | 0.02 | 0.07 | 0.01 | 0.01 | 0.07 | 0.00 | 0.05 | 0.06 | 0.02 |
| Household Income (Age 8) | -0.00 | 0.01 | -0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.04 |
| Ind of Baltimore Site (1=BA; 0=other sites) | -0.45 | 0.09 | -0.21*** | -0.38 | 0.10 | -0.18*** | -0.35 | 0.10 | -0.16*** | -0.39 | 0.10 | -0.18*** |
| Ind of Chicago Site (1=CH; 0=other sites) | -0.13 | 0.10 | -0.05 | -0.06 | 0.11 | -0.02 | -0.11 | 0.11 | -0.05 | -0.21 | 0.10 | -0.08* |
| Ind of North Carolina Site (1=NC; 0=othr site) | -0.33 | 0.09 | -0.15*** | -0.27 | 0.10 | -0.12* | -0.25 | 0.10 | -0.11* | -0.23 | 0.10 | -0.10* |
| Ind of San Diego Site (1=SD; 0=other sites) | -0.11 | 0.08 | -0.05 | -0.07 | 0.08 | -0.03 | -0.04 | 0.08 | -0.02 | -0.04 | 0.08 | -0.02 |
| Ind of Allegation of Physical Abuse (< = 8) | | | | 0.13 | 0.07 | 0.06 | 0.10 | 0.07 | 0.05 | 0.06 | 0.07 | 0.03 |
| Ind of Allegation of Sexual Abuse (< = 8) | | | | 0.10 | 0.09 | 0.03 | 0.08 | 0.09 | 0.03 | 0.06 | 0.08 | 0.02 |
| Ind of Allegation of Neglect (< = 8) | | | | -0.08 | 0.07 | -0.05 | -0.10 | 0.07 | -0.05 | -0.12 | 0.06 | -0.07 |
| Ind of Allegation of Emotional Abuse (< = 8) | | | | 0.11 | 0.08 | 0.05 | 0.10 | 0.08 | 0.05 | 0.11 | 0.07 | 0.05 |
| Ind of Verbal Arguments n home (Age 6 or 8) | | | | | | | 0.27 | 0.08 | 0.11** | 0.24 | 0.08 | 0.10** |
| Ind of Physical Violence in home (Age 6 or 8) | | | | | | | 0.26 | 0.06 | 0.15*** | 0.16 | 0.05 | 0.10** |
| Neigh Violence Mean Index (of Age 6 and 8) | | | | | | | | | | 0.11 | 0.01 | 0.29*** |
| *Degrees of Freedom* | | 852 | | | 852 | | | 852 | | | 852 | |
| *Adjusted $R^2$* | | .03 | | | .04 | | | .08 | | | .16 | |
| $\Delta R^2$ | | -- | | | .01 | | | .04** | | | .12*** † | |

*Notes.* * p < .05 ** p < .01 *** p < .001

† Change in $R^2$ is the difference between Blocks 2 and 4.

The results showed a few differences between sites with the eastern site of Baltimore being different from the others with better child functioning. Few children at the Baltimore Site were reported for maltreatment early in life. Interestingly, the impact of allegations of maltreatment appear to pale in comparison to children's own reports of violence in their homes and in their communities. The adjusted $R^2$ for adding child maltreatment allegations to the control variables produced a jump in $R^2$ from just 3% to 4%. Adding allegations of violence in the home doubled the $R^2$ again to 8% of the variance explained. The mean neighborhood violence index produced the strongest single jump in the $R^2$ to 16% to explain the variance in the individual and composite scores of the Trauma Symptom Checklist.

This finding, that neighborhood and family violence exposure have much more significant impacts on child mental health than allegations of child abuse and neglect is surprising. Our prior work showed that children who are alleged to have been victims of maltreatment look more like children with substantiation than like children with no maltreatment. We ran the models again using substantiated maltreatment instead and there was no change in the results. The absence of a major impact on the young children could not be ascribed to the use of allegations.

The other methodological issue that could explain the results is the use of official statistics instead of child report of maltreatment. We have previously explored the ethical and legal issues around directly asking children about their own maltreatment. The conclusion of a broad interdisciplinary panel of experts is that children below the age of 10 or 11 could not be appropriately informed of the risks of disclosing maltreatment to research investigators and that other proxy measures of maltreatment would have to be used. We used a carefully developed methodology of reviewing and coding all allegations of maltreatment in a method that has been shown to be reliable and valid. We know of no other way to ascertain maltreatment exposure in these young children.

It is quite plausible that both domestic violence and neighborhood violence would have greater impact on our LONGSCAN children at age 8. They may not have enough sense of societal norms to identify the parental mistreatment as inappropriate or bad. However, they may be much more frightened by the threats to the safety of their caregivers whom they rely on for all essentials. Interestingly, there was a small decline in the amount of neighborhood violence witnessed by the children in their lifetimes between ages 6 and 8. The instrument LONGSCAN used has been used previously, and worked well in other studies. The instructions for the instrument make clear that we are not asking about things they might have seen on television or in the movies but we wonder if the children's responses at age 6 were more contaminated than they were at age 8.

Overall, these findings demonstrate that neighborhood safety and protection from domestic violence may be as important in protecting children as stopping child abuse. Child Protective Service workers and others will need to specifically attend to domestic violence and consider

the impact of neighborhoods on children. Societal intervention in child abuse may not be enough.

We expect that the issues of personal maltreatment will become more salient to the children as they age and discover that similar behaviors are rare in other families. It will be interesting to watch our cohort mature for this reason alone.

**C. Self-report of Maltreatment: Summary of initial findings**

Our initial analyses have included 350 children from the North Carolina and Baltimore sites who had participated in age 12 data collection and also had had a lifetime review of CPS records through their 12th birthday. The focus has been on assessing the utility of our project-developed adolescent self-report measures of physical, sexual, and psychological abuse by examining: 1) reported rates of abuse by the youth; 2) level of agreement between self-reported and CPS records of abuse; and 3) the ability of self-reported abuse to predict adolescent functioning (CBCL, YSR, TSC-C) after controlling for indicators of abuse based on CPS records.

*Frequency of reported Physical Abuse.* Slightly over 21% of the youth endorsed at least one of the 14 stem items suggestive of their having experienced physically abusive behavior in the first 12 years of their lives. Almost 10% of the sample reported being kicked or punched by a caregiver. The next most frequent, potentially injurious behavior described was being pushed or thrown around (4.9%). The most frequent injury sustained was bruising or receiving a black eye, reported by 4.9% of the sample. Every stem item, including having been wounded by a gunshot, was endorsed by at least one adolescent in the sample.

*Frequency of reported* ***Sexual Abuse.*** Almost 9% of the adolescents reported some form of sexual victimization perpetrated by a family or household member. The two most frequent experiences reported were being forcibly exposed to sexual materials (2.9%) and having "private parts or bottom" touched inappropriately (2.6%). Penetration was reported by 1.4% of adolescents.

*Frequency of reported* ***Psychological Abuse.*** Approximately 39% of the adolescents endorsed at least one of the 18 stem items reflecting psychological abuse. The most frequent report (20%) was having been called names or teased in such a way by a parent figure that they felt "really bad" about themselves.

Table 16 offers a comparison of the prevalence of maltreatment up through age 12 as identified by the adolescent self-report interview and CPS reports/referrals and CPS substantiations/findings. The pattern is similar in the case of each type of abuse. Adolescent self-reports yielded the highest rates of abusive experiences while CPS finding of abuse provided the lowest estimates of prevalence. For example, 21.1% of the adolescents reported at least one lifetime experience of physical abuse, while there were accepted CPS reports of alleged physical abuse in 16.6% and CPS confirmations of abuse in only 4.3%. The greatest

disparity in abuse rates among indicators occurred for psychological abuse with rates ranging from 39.1% among self-reports to only 6.0% for CPS findings of abuse. For all three forms of maltreatment, adolescent self-report produced prevalence rates of abusive experiences four to six times higher than CPS findings of abuse.

Table 16. Percentage of Sample Identified as Abused by Abuse Indicator

| | Overall (N = 350) | Males (N = 172) | Females (N = 178) |
|---|---|---|---|
| *Physical Abuse* | | | |
| Adolescent Self Report | 21.1 | 22.1 | 20.2 |
| CPS Accepted Report | 16.6 | 14.5 | 18.5 |
| CPS Finding of Abuse | 4.3 | 2.3 | 6.2 |
| *Sexual Abuse* | | | |
| Adolescent Self Report | 8.6 | 10.6 | 6.7 |
| CPS Accepted Report | 6.3 | 3.5 | 9.0 |
| CPS Finding of Abuse | 2.0 | 1.2 | 2.8 |
| *Psychological Abuse* | | | |
| Adolescent Self Report | 39.1 | 33.7 | 44.4 |
| CPS Accepted Report | 15.4 | 15.1 | 15.7 |
| CPS Finding of Abuse | 6.0 | 2.9 | 9.0 |

Table 16 also presents a breakdown of abuse experiences by gender. Consistent with expectations, a higher percentage of girls than boys was reported to CPS for sexual abuse. However, there were no statistically significant gender differences in rates of sexual victimization as indicated by CPS findings or adolescent self-reports, with the self-report rate for males being unexpectedly higher (but not significantly so) than the self-report of girls (10.7 versus 6.9%). In contrast, females experienced significantly higher rates of psychologically abusive experiences according to two indicators—self-reports and CPS findings.

Tables 17 and 18 summarize the findings on the concordance or agreement between adolescent elf-reports and CPS records. Specifically, Table 17 presents the individual, 2x2 summaries of agreement between adolescent self-report and the two CPS abuse indicators.

*Physical Abuse. A*s seen in Table 17, the correspondence was relatively high between self-report and CPS records of likely physical abuse. This agreement was primarily due to the large percentage of cases in which both measures indicated, based upon their specific definitions, that no physical abuse occurred. Specifically, comparing adolescent self-reports with CPS accepted reports, there was agreement in 73.7% of the cases (i.e., 258/350) while agreement between self-reports and CPS findings was slightly higher at 78.6% (i.e., 275/350). However,

there was considerable disagreement between abuse indicators when at least one measure suggested that abuse had occurred. Only 27.0% of adolescents who reported experiencing likely physical abusive behavior had been investigated by CPS as possible victims of physical abuse (i.e., 20/74). Among a sample of children who were high risk for maltreatment, 15.4% of the children (note age 12 is not universally regarded as adolescents) reported possible physical abuse that was unknown to the CPS system (i.e., 54/350). At the same time, CPS data suggested physical abuse not identified in the self-reports by the children. Of the 58 youth investigated by CPS for alleged physical abuse (cells a and c), only 34.5% of study participants (i.e., 20/58) self-reported at least one physical abusive experience.

Table 17. Agreement between Adolescent Self-Reports and Official Records

| | *CPS Accepted Report* | | *CPS Finding of Abuse* | |
|---|---|---|---|---|
| *Adolescent Self-Report of Abuse* | Yes | No | Yes | No |
| Physical Abuse | | | | |
| Yes | (a) 20 (5.7) | (b) 54 (15.4) | (e) 7 (2.0) | (f) 67 (19.1) |
| No | (c) 38 (11.0) | (d) 238 (68.0) | (g) 8 (2.3) | (h) 268 (76.6) |
| Sexual Abuse | | | | |
| Yes | (i) 4 (1.1) | (j) 26 (7.5) | (m) 4 (1.1) | (n) 26 (7.5) |
| No | (k) 18 (5.7) | (l) 300 (86.2) | (o) 3 (0.9) | (p) 315 (90.5) |
| Psychological Abuse | | | | |
| Yes | (q) 25 (7.1) | (r) 112 (32.0) | (u) 14 (4.0) | (v) 123 (35.1) |
| No | (s) 29 (8.3) | (t) 184 (52.5) | (w) 7 (2.0) | (x) 206 (58.9) |

Comparisons of self-report and CPS findings yield similarly low rates of agreement on the occurrence of abuse. Considering the 80 cases identified as physically abused by either or both indicators, (cells e, f, or g), there was agreement in only 7 or 8.5% of the cases (i.e., 7/82). Similarly, only 9.5% of the adolescents reporting a history of likely physical abusive behavior (cells e and f) had been identified as physically abused by CPS (i.e., 7/74), whereas 19.1% of the total sample represented self-reported, new discoveries of possible physical abuse (i.e., 67/350). Over 50% of adolescents with documented physical abuse (i.e., a CPS finding) failed to endorse a single stem item suggestive of physical abuse during their interview (i.e., 8/15).

*Sexual Abuse.* The overall agreement, including both the occurrence and non-occurrence of abuse, was very high between self-reports of sexual abuse and the two official indicators. Adolescents and official records agreed in 87.4% (i.e., 304/348) and 91.6% (i.e., 319/348) of cases for CPS accepted reports and CPS findings of sexual abuse, respectively. However, agreement was poor when at least one measure indicated that abuse had occurred. As seen in Table 17, 48 adolescents were categorized as sexually abused according to either the self-report or CPS accepted report indicators, but overlap between the two indicators was limited to 8.3% of "identified" cases (i.e., 4/48). Agreement was only slightly better between self-report and CPS findings: 11.4% or 4 of 33 "identified" cases.

Thirty adolescents described having experienced behaviors suggestive of sexual abuse, but only 4 (13.3%) had been investigated by CPS and were subsequently determined to be abused. Three (42.8%) of the 7 adolescents found by CPS to have been sexually abused denied such abuse during their A-CASI interview. In contrast, 26 adolescents reported sexual abuse but were not known to CPS (at least in the state in which the adolescent was living at the time of the study).

*Psychological Abuse.* For psychological abuse, overall agreement between self report and both abuse indicators based on official CPS records was relatively low with only 59.6% agreement for CPS accepted reports (cells q and t) and 62.9% for CPS findings (cells u and x). The reason for the lower agreement in comparison with physical and sexual abuse rests in the high frequency of adolescents reporting experiences suggestive of psychological abuse that were not reflected in official records. Specifically 32% of the sample reported such experiences not represented in CPS accepted reports and 35.1% reported experiences not represented in CPS findings. Only 18.2% of adolescents (i.e., 25/137) reporting a history of likely psychological abuse were ever the subjects of an actual CPS investigation of possible psychological maltreatment. Finally, one third of the 21 adolescents substantiated by CPS did not report such abuse in the study. In contrast, 123 adolescents describing histories of possible psychological abuse were unknown to CPS.

Table 18. Bivariate Correlations between Abuse Indicators and Measures of Adolescent Adjustment

| | *Trauma Symptom Checklist (TSC)* | | | | | | *Youth Self Report* | *Child Behavior Checklist* |
|---|---|---|---|---|---|---|---|---|
| | Depression T Score | Anxiety T Score | PTSD T Score | Dissociation T Score | Anger T Score | Composite T Score | Total Problems T Score | Total Problems T Score |
| *Physical Abuse* | | | | | | | | |
| Adolescent Self Report | .23*** | .14** | .21*** | .23*** | .23*** | .23*** | .24*** | .12* |
| CPS Accepted Report | .10 | .02 | .07 | .08 | .07 | .08 | .12* | .18*** |
| CPS Finding of Abuse | .01 | -.08 | -.02 | -.04 | -.05 | -.04 | -.05 | .01 |
| *Sexual Abuse* | | | | | | | | |
| Adolescent Self Report | .18*** | .22*** | .24*** | .21*** | .17** | .23*** | .18*** | .05 |
| CPS Accepted Report | .04 | -.01 | .03 | .03 | .06 | .04 | .05 | .17** |
| CPS Finding of Abuse | .09 | .10 | .12* | .10 | .15** | .13* | .11* | .15** |
| *Psychological Abuse* | | | | | | | | |
| Adolescent Self Report | .27*** | .20*** | .21*** | .27*** | .33*** | .29*** | .32*** | .12* |
| CPS Accepted Report | .10 | .09 | .03 | .06 | .08 | .08 | .07 | .15** |
| CPS Finding of Abuse | .04 | -.04 | -.08 | -.03 | .00 | -.02 | .02 | .12* |

***Notes.*** * p<.05 ** p<.01 *** p<.001

***Predictive Validity of Abuse Indicators.*** Next, we turn our attention to the question of assessing the validity of the self-report interview as a predictor of adolescent psychological adjustment. Table 18 presents the bivariate correlations between abuse indicators and the total or composite score for the TSC, YSR and CBCL as well as the subscale scores of the TSC. Of the abuse indicators, adolescent self-report has the strongest and most consistent associations with the adjustment measures. For each type of maltreatment, adolescent self-report produced low to moderate correlations with adjustment measures except in the case of adolescent self-reports of sexual abuse failing to predict CBCL scores. The strongest relationships were found between adolescent self-report of abuse and the two adolescent self-reports of adjustment (i.e., TSC and YSR) with correlations ranging from .18 to .32. Official reports generally produced significant but modest correlations (.12 to.18) with parental reports on the CBCL, but only a few significant relationships with the measures based on adolescents' responses. A series of multivariate linear regression models were estimated for each of the three psychological adjustment outcomes. These models address three questions: 1) Do the bivariate relationships between the abuse measures and the psychological outcomes persist after adjusting for socio-demographic factors and study site?; 2) What is the unique contribution of each type of abuse to predicting psychological functioning after adjusting for the other two types of abuse?; and 3) Does adding self-report measures of abuse to models already containing CPS measures of abuse improve our ability to predict adolescent psychological functioning? Clarify how these address the third objective, and make sure consistent (i.e., should there be a fourth objective? Look at each type controlling for other types?).

Many victims of abuse experience more than one type. Consequently, measures of physical, sexual, and psychological abuse tend to be correlated. This makes it difficult to estimate the unique effects of a given type of abuse in bivariate analyses. Multivariate analyses allow us to estimate the unique effects of each type of abuse by adjusting for the effects of the other two types. The results of these analyses are found in Steps 2-4 of Tables 19-21 (see below). The regression analyses are consistent with the bivariate analyses in finding that self-reported measures of abuse have a stronger association with the TSC and YSR scores than do CPS measures of abuse. Like the bivariate analysis, both self- and CPS-reported abuse are moderately associated with CBCL scores. With respect to CPS accepted *reports* of abuse (Step 2), only sexual abuse is independently associated with adolescent functioning, and only for the CBCL. Similarly, with respect to CPS *findings* of abuse (Step 3), only sexual abuse is independently associated with adolescent functioning, and only for the TSC and CBCL. Specifically, a CPS finding of sexual abuse is associated with an average increase of 7.1 units on the TSC and nearly 12.4 points on the CBCL.

In Step 4 (Tables 19-21), we see the effects of each type of self-reported abuse after adjusting for the effects of the other two types. For the youth-reported TSC and YSR outcome measures (Tables 4 and 5), each type of self-reported abuse has a significant independent effect. The impact of psychological abuse was especially noteworthy, increasing symptom scores, on average, from 3.5 to 5.7 points. These results contrast with the findings for CPS reports, where only sexual abuse had a significant independent effect. However, none of the three self-

reported abuse measures has a significant independent effect on the parent-reported CBCL score.

Finally, we examined the ability of the self-reported measures of abuse to improve our prediction of adolescent psychological functioning over and above the predictive utility of CPS reports. The results of this analysis are found in Steps 5 and 6 of Tables 19-21. Self-reported measures of abuse significantly improve our ability to predict TSC and YSR scores over and above CPS reports of abuse, but not on the parent-reported CBCL. For both outcomes, adding self-reported measures results in a statistically significant increase in the R-square value when compared to models that include only CPS measures of abuse.

*Summary of Findings.* Within a high-risk sample of 12-year-olds, self-reported, lifetime estimates of physical, sexual, and psychological abuse were four to six times greater than estimates based on CPS data. Agreement between age 12 self-reports and CPS-based measures of abuse was poor. Both self-reports and CPS reports identified abuse that was not detected by the other source. Specifically, more than seven in ten youth who reported physical, sexual, or psychological abuse had never been investigated by CPS for that type of abuse. At the same time, a high proportion of youth with CPS records did not self-report abuse. More than half (54%) of youth investigated by CPS for psychological abuse, 66% of youth investigated by CPS for physical abuse, and 82% of youth investigated for sexual abuse did not self-report that type of maltreatment. Similarly, four in ten (18/43) CPS substantiated reports of abuse were not corroborated by self-report including seven of 21 youth with a CPS finding of psychological abuse, three of seven with a CPS finding of sexual abuse, and eight of 15 with a CPS finding of physical abuse. Finally, our self-report measures of physical, sexual, and psychological abuse are significant predictors of adolescent psychological adjustment, even after controlling for indicators of abuse based on CPS records.

Table 19. Multiple Regression Predicting Trauma Symptom Checklist Composite Score

| | *Block 1*† | *Block 2* | | | *Block 3* | | | *Block 4* | | | *Block 5* | | | *Block 6* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| CPS accepted report phy abuse | | 1.28 | 1.50 | -.01 | | | | | | | 0.33 | 1.44 | .01 | | | |
| CPS accepted report sex abuse | | 0.25 | 2.13 | .00 | | | | | | | -0.57 | 2.03 | -.01 | | | |
| CPS accepted report psyc abuse | | 0.79 | 1.36 | .03 | | | | | | | -0.00 | 1.30 | -.00 | | | |
| CPS finding phy abuse | | | | | -2.33 | 2.25 | -.06 | | | | | | | -4.06 | 2.14 | -.10 |
| CPS finding sex abuse | | | | | 7.11 | 3.09 | .13* | | | | | | | 2.67 | 3.02 | .04 |
| CPS finding psyc abuse | | | | | -1.01 | 1.87 | -.03 | | | | | | | -2.10 | 1.77 | -.06 |
| Self-report phy abuse | | | | | | | | 2.64 | 1.10 | .13* | 2.65 | 1.12 | .13* | 2.88 | 1.10 | .14** |
| Self-report sex abuse | | | | | | | | 4.57 | 1.55 | .15** | 4.53 | 1.60 | .15** | 4.59 | 1.60 | .16** |
| Self-report psyc abuse | | | | | | | | 3.53 | 0.92 | .21*** | 3.54 | 0.93 | .21*** | 3.60 | 0.93 | .22*** |
| *Degrees of Freedom* | 334 | 334 | | | 334 | | | 332 | | | 332 | | | 332 | | |
| $R^2$ | .01 | .02 | | | .03 | | | .14 | | | .14 | | | .16 | | |
| $\Delta R^2$ | | .01 | | | .02 | | | .13*** | | | .12*** †† | | | .12*** ††† | | |

*Notes*. † Step 1 includes the following control variables*:* Ethnicity/Race (Other=0, Black =1); Gender (Male=1, Female=2); Site (Southeastern=0, Northeastern=1); Child's age at Age 12 Interview; and Caregiver Education (Age 12).

†† Represents change in $R^2$ from step 2.

††† Represents change in $R^2$ from step 3.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 20. Multiple Regression Predicting Youth Self-Report Total Problems T Score

| | *Block 1*† | *Block 2* | | | *Block 3* | | | *Block 4* | | | *Block 5* | | | *Block 6* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| CPS accepted report phy abuse | | 2.84 | 1.93 | .10 | | | | | | | 1.29 | 1.83 | .04 | | | |
| CPS accepted report sex abuse | | -0.05 | 2.75 | -.00 | | | | | | | -0.77 | 2.58 | -.01 | | | |
| CPS accepted report psyc abuse | | 0.03 | 1.77 | .00 | | | | | | | -0.66 | 1.67 | -.02 | | | |
| CPS finding phy abuse | | | | | -4.35 | 2.86 | -.08 | | | | | | | -6.69 | 2.69 | -.13* |
| CPS finding sex abuse | | | | | 7.69 | 4.06 | .10 | | | | | | | 2.41 | 3.91 | .03 |
| CPS finding psyc abuse | | | | | 0.92 | 2.50 | .02 | | | | | | | -0.72 | 2.33 | .02 |
| Self-report phy abuse | | | | | | | | 3.53 | 1.42 | .13* | 3.50 | 1.44 | .13* | 3.91 | 1.42 | .15** |
| Self-report sex abuse | | | | | | | | 3.81 | 2.00 | .10* | 3.70 | 2.06 | .09 | 4.09 | 2.07 | .11* |
| Self-report psyc abuse | | | | | | | | 5.73 | 1.20 | .26*** | 5.73 | 1.20 | .26*** | 5.76 | 1.20 | .27*** |
| *Degrees of Freedom* | 335 | 335 | | | 335 | | | 333 | | | 333 | | | 333 | | |
| $R^2$ | .02 | .03 | | | .04 | | | .16 | | | .16 | | | .18 | | |
| $\Delta R^2$ | | .01 | | | .02 | | | .14*** | | | .13*** †† | | | .16*** ††† | | |

*Notes*. † Step 1 includes the following control variables*:* Ethnicity/Race (Other=0, Black =1); Gender (Male=1, Female=2); Site (Southeastern=0, Northeastern=1); Child's age at Age 12 Interview; and Caregiver Education (Age 12).

†† Represents change in $R^2$ from step 2.

††† Represents change in $R^2$ from step 3.

* p < .05 ** p < .01 *** p < .001

Table 21. Multiple Regression Predicting Child Behavior Checklist Total Problems T Score

| | *Block 1*† | *Block 2* | | | *Block 3* | | | *Block 4* | | | *Block 5* | | | *Block 6* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| CPS accepted report phy abuse | | 1.56 | 2.01 | .05 | | | | | | | 0.80 | 2.04 | .02 | | | |
| CPS accepted report sex abuse | | 7.32 | 2.90 | .15* | | | | | | | 7.40 | 2.91 | .15* | | | |
| CPS accepted report psyc abuse | | 2.92 | 1.85 | .09 | | | | | | | 3.12 | 1.86 | .10 | | | |
| CPS finding phy abuse | | | | | -2.01 | 3.02 | -.03 | | | | | | | -2.50 | 3.04 | -.04 |
| CPS finding sex abuse | | | | | 12.44 | 4.61 | .14** | | | | | | | 11.51 | 4.82 | .13* |
| CPS finding psyc abuse | | | | | 4.62 | 2.59 | .01 | | | | | | | 4.13 | 2.59 | .08 |
| Self-report phy abuse | | | | | | | | 1.87 | 1.61 | .06 | 0.98 | 1.61 | .03 | 1.81 | 1.61 | .06 |
| Self-report sex abuse | | | | | | | | 0.69 | 2.28 | .02 | -0.84 | 2.30 | -.02 | -0.50 | 2.36 | -.01 |
| Self-report psyc abuse | | | | | | | | 1.86 | 1.36 | .08 | 1.91 | 1.33 | .08 | 1.32 | 1.36 | .05 |
| *Degrees of Freedom* | 336 | 336 | | | 336 | | | 334 | | | 334 | | | 3.34 | | |
| $R^2$ | .04 | .08 | | | .07 | | | .05 | | | .09 | | | .08 | | |
| $\Delta R^2$ | | .04* | | | .03* | | | .01 | | | .01 †† | | | .01 ††† | | |

*Notes*. † Step 1 includes the following control variables*:* Ethnicity/Race (Other=0, Black =1); Gender (Male=1, Female=2); Site (Southeastern=0, Northeastern=1); Child's age at Age 12 Interview; and Caregiver Education (Age 12).

†† Represents change in $R^2$ from step 2.

††† Represents change in $R^2$ from step 3.

* p < .05 ** p < .01 *** p < .001

## D. Retention of the LONGSCAN Sample

Table 22 depicts the progress of data collection at each of the sites. At the close of the 2000-2005 grant period, the CH site was collecting Age 12 and Age 14 Interviews. The NC site was completing the Age 18 interview. And the remaining sites were collecting Age 14, 16, and 18 Interviews. By the close of the Age 8 Interview wave, 89.9% of the eligible participants for the total sample were retained. Four of the five sites had also completed the Age 12 Interview and retained 79.6% of eligible participants. Participants are considered eligible at each time point, regardless of whether they had completed a previous interview unless they explicitly state they wish to withdraw from the study or the child participant dies. Over the last ten years of the study, 126 participants (9.3%) have permanently withdrawn, 8 child participants (0.6%) have died. Given that most of the participants will have reached the age of majority at the Age 18 interview, those who have withdrawn are re-contacted for participation. To date, 7 participants at the NC site and 1 participant from the BA site have re-entered the study.

Table 22. Data Collection and Retention Information by Age and Site

| **North Carolina** | Eligible | Refused | Died | Interviewed | % Interviewed |
|---|---|---|---|---|---|
| Age 4 | 221 | 12 | 1 | 221 | 100.0 |
| [1] Age 6 | 230 | 16 | 0 | 222 | 96.5 |
| Age 8 | 214 | 4 | 0 | 190 | 88.8 |
| Age 12 | 210 | 1 | 1 | 177 | 84.3 |
| Age 14 | 208 | 1 | 0 | 176 | 84.6 |
| Age 16 | 207 | 0 | 0 | 130 | 62.8 |
| [2] Age 18* | 214 | -- | -- | 148* | 69.2* |
| **Baltimore** | | | | | |
| Age 4 | 237 | 3 | 1 | 237 | 100.0 |
| [3] Age 6 | 278 | 2 | 1 | 254 | 91.4 |
| Age 8 | 275 | 9 | 0 | 238 | 86.5 |
| Age 12 | 266 | 4 | 1 | 191 | 71.8 |
| [4] Age 14* | 262 | 1 | 0 | 196* | 74.8* |
| Age 16* | 261 | 0 | 0 | 85* | 32.6* |
| [5] Age 18* | 262 | -- | -- | 3* | 1.1* |
| **San Diego** | | | | | |
| Age 4 | 319 | 6 | 0 | 319 | 100.0 |
| [6] Age 6 | 324 | 12 | 2 | 299 | 92.3 |
| Age 8 | 310 | 10 | 0 | 274 | 88.4 |
| Age 12 | 300 | 4 | 0 | 236 | 78.7 |
| Age 14* | 296 | 0 | 1 | 139* | 47.0* |
| Age 16* | 295 | 0 | 0 | 48* | 16.3* |
| Age 18* | 295 | -- | -- | 1* | 0.3* |
| **Seattle** | | | | | |
| Age 4 | 254 | 6 | 0 | 250 | 98.4 |
| Age 6 | 248 | 10 | 0 | 235 | 94.7 |
| Age 8 | 238 | 9 | 0 | 223 | 93.7 |
| Age 12 | 229 | 2 | 0 | 192 | 83.8 |
| Age 14* | 227 | 0 | 0 | 144* | 63.4* |
| Age 16* | 227 | 0 | 0 | 45* | 19.8* |
| Age 18 | Data Collection has not started for this interview wave | | | | |
| **Chicago** | | | | | |
| Age 4 | 245 | 9 | 0 | 221 | 90.2 |
| Age 6 | 236 | 2 | 0 | 225 | 95.3 |
| Age 8 | 234 | 3 | 0 | 216 | 92.3 |
| Age 12* | 231 | 0 | 0 | 125* | 54.1* |
| Age 14* | 231 | 0 | 0 | 22* | 9.5* |
| Age 16 | Data Collection has not started for this interview wave | | | | |
| Age 18 | Data Collection has not started for this interview wave | | | | |

Table 22. Data Collection and Retention Information by Age and Site (continued)

| **Overall** | Eligible | Refused | Died | Interviewed | % Interviewed |
|---|---|---|---|---|---|
| Age 4 | 1276 | 36 | 2 | 1248 | 97.8 |
| Age 6 | 1316 | 42 | 3 | 1235 | 93.8 |
| Age 8 | 1271 | 35 | 0 | 1141 | 89.8 |
| Age 12* | 1236 | 11 | 2 | 921* | 74.4* |
| Age 14* | 1224 | 2 | 1 | 677* | 55.3* |
| Age 16* | 1221 | 0 | 0 | 308* | 25.2* |
| Age 18 | Data Collection is in progress for 3 sites, has not started for 2 sites | | | | |

Notes. Age = Age wave at which interview was administered

Eligible = Number of LONGSCAN subjects at baseline or the previous wave minus those who refused to participate or who died

* Interviews are still in progress

[1] The NC site added 22 new participants between the age 4 and age 6 interviews.

[2] 7 NC subjects who had previously refused to participate, re-entered the study and consented to participate at the age 18 interview.

[3] The BA site added 45 subjects to the sample between the age 4 and age 6 interviews

[4] 1BA participant who had originally withdrawn from the study re-entered at age 14

[5] 1 BA participant who had withdrawn from the study re-entered the study at the age 18 interview.

[6] The SD site added 11 subjects to the sample between the age 4 and age 6 interviews

This table based on data received at the CC 10/7/2005

**SUPPLEMENTARY GRANTS/FUNDING**

To the extent that the work scope of LONGSCAN has grown beyond the available support from ACYF, we have supplemented the basic project with other grants to support additional analyses and data collection. Applications to other agencies for supplemental funding have and will continue to support expanded efforts in data collection, analyses, and administrative support. These sources are described below.

*The Adolescent Interview Project.* This study, funded by the University of North Carolina Injury Prevention Research Center's Small Faculty Research Grants Program, supported pre-testing of the project-developed Age 12 child self report of abuse measures using an adolescent psychiatric in-patient population. Rates of self-report are being compared to extensive medical record information, and to clinician report of child's history of abuse to facilitate further understanding of the impact of methodology (Face-to-Face vs. Audio-Computer Assisted Self Interview) upon ease of use, respondent comfort level, and level of disclosure of abusive experience.

*Neglect and Adolescents: A Multi-site Longitudinal Study*. To enhance data collection the consortium applied to the NIH under its child neglect initiative to add a new Age 14 interview focused on neglect and psychopathology. This additional wave of data collection includes a youth face-to-face interview, the collection of Teacher Report data, and CPS record reviews for the 888 participants turning 14 during the project period, which was 09/00–06/05.

LONGSCAN funding covers the caregiver interviews at the Age 14 data collection point. This grant is now in a no-cost extension year until 06/30/06. Current plans are for the LONGSCAN investigators to submit a competitive renewal application for funding to support secondary analysis of the Age 14 data we have collected.

*Neglect and Adolescents: A Multi-site Longitudinal Study – Long-term Minority Investigator Supplement. Project: Altering Developmental Trajectories. Minority Applicant: Ernestine Briggs-King, Ph.D. Principal Investigator: Desmond K. Runyan.* Dr. Briggs-King's supplement to the *Neglect and Adolescents* grant began in 2002. The specific aims set forth in the minority supplement included differential trajectories for maltreated children and adolescents while examining resiliency in light of significant risk and protective factors. Dr. Briggs-King has produce several manuscripts that explore the negative sequelae associated with neglect and other forms of maltreatment including suicide, early developmental factors, and definitional issues of abuse type and severity. The citations for these manuscripts are listed below. Dr. Briggs-King has also presented the findings from theses studies at national and international conferences. Dr. Briggs-King is currently working on several manuscripts that explore the role of maternal victimization and domestic violence, exposure to multiple traumas including community violence and maltreatment, and exploring the impact of other forms of violent and aggressive behaviors-- including school violence and weapon carrying. Dr. Briggs-King is also seeking independent funding to continue with this line of research as well as developing interventions for ethnic minority children and adolescents facing chronic stress/adversity and maltreatment.

Publications

Dubowitz, H., Newton, R. R., Litrownik, A. J., Lewis, T. L., **Briggs, E. C.**, Thompson, R., English, D. J., Lee, L., & Feerick, M. (2005). Examination of a Conceptual Model of Child Neglect. *Child Maltreatment – Special Issue, 10* (2), 173-189.

English, D., Thompson, R., Graham, J. C., & **Briggs, E. C.** (2005). Toward Definition of Neglect in Young Children. *Child Maltreatment, 10* (2), 190-206.

Lau, A., Leeb, R. T., English, D., Graham, C., **Briggs, E. C.,** Brody, K. E., & Marshall, J. M. (2005). What's in a name? A comparison of methods for classifying predominant type of maltreatment. *Child Abuse and Neglect, 29*, 533-551.

Litrownik, A. J., Lau, A., Newton, R., English, D., **Briggs, E. C.**, Romney, S., Schneider, M.W., & Dubowitz, H. (2005). Measuring the severity of child maltreatment. *Child Abuse and Neglect, 29*, 553-573.

Thompson, R., **Briggs, E. C**., English, D. J., Dubowitz, H., Lee, L., Brody, K., Everson, M. D. & Hunter, W. M., (2005). Suicidal Ideation Among 8-Year-Olds: Findings From a Multi-site Study. *Child Maltreatment, 10* (1), 26-36.

Thompson, R., Dubowitz, H., Bangdiwala, S., English, D. J., Brody, K., Wike, T., Runyan, D. K., Everson, M., & **Briggs, E. C**., (In Press). Parents' and teachers' knowledge of pre-

adolescent children's suicidal ideation: Findings from a high-risk sample. Manuscript accepted for publication.

Presentations

**Briggs, E. C.**, Leeb, R. T., Lewis, T., Smith, J., Coyne-Beasley, T., & Kotch, J. (2003). Don't shoot! An examination of young adolescents who report perceived need for and use of a weapon. Paper presented at the 17th Annual San Diego Conference on Child and Family Maltreatment, San Diego, CA.

DeArellano, M. A., & **Briggs-King, E. C.** (November, 2002). Treating African-American and Hispanic victims of child maltreatment. Workshop presented at the18th Annual Meeting of The International Society for Traumatic Stress Studies, Complex Psychological Trauma, Baltimore, MD.

Leeb, R. T., Lau, A., English, D., Graham, C., **Briggs, E. C.**, Graham, C., Marshal, J. M., & Brody, K. E. (March, 2002). What's in a name? A comparison of methods for classifying predominant type of maltreatment. Paper presented at Collaboration Counts: Working Together to Strengthen America's Families, Washington, DC.

Leeb R. T., & **Briggs, E. C.** (March, 2002). The role of aggression in the relationship between maltreatment and peer status in early-school age children. Paper presented at the 7th National Welfare Conference, Washington, DC.

Leeb, R. T., & **Briggs, E. C.** (January, 2002). Does aggression mediate the relationship between maltreatment and peer status in early school-age children? Paper presented at the 16th Annual San Diego Conference on Child and Family Maltreatment, San Diego, CA.

*Neglect and Adolescents: A Multi-site Longitudinal Study – Long-term Minority Investigator Supplement (Adrea D. Theodore).* The specific aims set forth in this minority supplement include examining alternate definitions of neglect, exploring official determinations of maltreatment and children's experiences, and parenting behavior. Dr. Theodore has produced two manuscripts that explore alternative measures of maltreatment (alternative to social services reports). The first was entitled "*The epidemiology of the physical and sexual maltreatment of children in the Carolinas"*, and appeared in Pediatrics in March 2005[1]. Using an anonymous telephone survey, estimates of physical and sexual abuse incidence were estimated. According to maternal report, official statistics underestimated children's experiences of maltreatment by forty-fold for physical and fifteen-fold for sexual maltreatment. The study revealed no significant differences in parenting behavior between the mothers in the states surveyed, despite official statistics revealing significant differences in the rates of child maltreatment. The second manuscript, entitled "*Hungry, hurt, home alone and in harm's way: child neglect in the Carolinas"*, has been completed exploring an alternate means of measuring neglect in the same population. It was submitted but not accepted for publication, and is currently being revised. Dr. Theodore has recently submitted a letter of inquiry for a grant proposal to further analyze LONGSCAN data looking at the effects of domestic violence on parenting behavior, specifically the parenting of mothers of adolescents.

She aims to explore the mother-adolescent relationship and whether teens are at greater risk for neglect when domestic violence occurs in the home.

*Educational Risk and Resilience in Five Longitudinal Studies of Maltreated and Disadvantaged Children.* Funding to support analyses, manuscript preparation, and dissemination in the amount of $320,297 was awarded to Christine Cox, project director and co-PI, and Desmond Runyan, co-PI, through the US Department of Education Field Initiated Studies research program. This 3-year grant began July 1, 2000 and was extended for one year beyond the original study period through June of 2004. The project's goal was to produce a series of manuscripts utilizing the teacher-report data to examine educationally related outcomes among LONGSCAN participants, addressing implications for policy and practice. The grant funded a full-time research associate position at the coordinating center throughout most of the grant period, as well as a part-time research assistant position. Both of these positions supported LONGSCAN data documentation in addition to manuscript development and preparation activities. Descriptive analyses of teacher-reported data for the study were updated as additional data were collected and were completed through age 12. Some of the manuscripts initiated during the grant period remain in various stages of completion. A presentation based on grant findings was made in 2004 at the annual Victimization of Children and Youth International Research Conference sponsored by the Univ. of New Hampshire. A 104 page final report was prepared by Dr. Cox and submitted to the funding agency.

*Development and Testing of a Maltreatment Interview for Adolescents.* This project revised the LONGSCAN child self-report of maltreatment protocols to enhance its clinical utility as a forensic interviewing tool in the assessment of adolescent histories of physical, sexual, and psychological abuse. The revised instrument was tested in a clinical setting with the intent of establishing the sensitivity and specificity of the instrument, and to ascertain whether an A-CASI version of the instrument has at least equivalent sensitivity and specificity as the face-to-face administration. The project was supported by the Centers for Disease Control.

*Adolescent Pregnancy & Birth Outcomes Among Maltreated Youth.* Supported with funding from the Centers for Disease Control, analyses related to pregnancies and births among 14-18 year-olds in the LONGSCAN sample will be done. As part of the LONGSCAN Age 14, 16, and 18 interviews, adolescents who report having been pregnant, having gotten someone pregnant, or having given birth to a child or fathered a child will receive an additional module of questions related to mother's health risk behaviors during pregnancy, interpersonal violence perpetrated or experienced during pregnancy, birth outcomes, and baby's temperament. Maureen Black of the Baltimore site is the Principal Investigator, and Terri Lewis and Elizabeth Knight at the Coordinating Center are co-investigators of this project.

**REFERENCES**


Aber, J. L., & Zigler, E. (1981). Developmental considerations in the definition of child maltreatment. *New Directions for Child Development*, 11, 1-29.

Achenbach, T. M. (1991). *Manual for Child Behavior Checklist/ 4-18 and 1991 Profile.* Burlington, VT: University of Vermont, Dept. of Psychiatry.

American Humane Association (1993). *Highlights of official child neglect and abuse reporting.* Denver, CO.

Barnett, D., Manly, J. T. & Cicchetti, D. (1993). Defining Child Maltreatment: The interface between policy and research. In: D. Cicchetti and S. L. Toth (Eds.), *Advances in Applied Developmental Psychology: Child Abuse, Child Development and Social Policy* (pp. 7-73). Norwood, NJ: Ablex.

Black, M. M., Dubowitz, H., & Harrington, D. (1994). Sexual abuse: Developmental differences in children's behavior and self perception. *Child Abuse & Neglect*, 18, 85-95.

Bolger, K. E., & Patterson, C. J. (2001). Developmental pathways from child maltreatment to peer rejection. *Child Development, 72*(2), 549-568.

Briere, J. (1996). *Trauma Symptom Checklist for Children: Professional Manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Bronfenbrenner, U. (1979). *The ecology of human development: experiments by nature and design*. Cambridge, MA: Harvard.

Bronfenbrenner, U. (1993). Ecological systems theory. In R. Wozniak & K. Fisher (Eds.), *Specific environments: Thinking in contexts*, (pp. 3 - 44). Hillsdale, NJ: Erlbaum.

Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and Crime* (pp. 149-97). New York: Cambridge University.

DePanfilis, D., & Zuravin, S. J. (2001). Assessing risk to determine the need for services. Children and Youth Services Review, 23, 3-20.

Dodge, K. A., Pettit, G. S., & Bates, J. S. (1994). Effects of physical maltreatment on the development of peer relations. *Development and Psychopathology*, 6, 43-56.

Drake, B., & Pandey S. (1996). Understanding the relationship between neighborhood poverty and specific types of child maltreatment. *Child Abuse & Neglect*, 20(11), 1003-1018.

English, D. J., Graham, J. C., Litrownik, A. J., Everson, M., & Bangdiwala, S. I. (2005). Defining maltreatment chronicity: Are there differences in child outcomes? *Child Abuse & Neglect*, *29*(5), 575–595.

English, D. J., Graham, J. C., Brummel, S. C., & Coghlan, L. K. (Report, 2002). *Final report: Factors that influence the decision not to substantiate a CPS referral: Phase I: Narrative and empirical analysis.* State of Washington, Department of Social and Health Services, Children's Administration, Management Services Division, Office of Children's Administration Research.

English, D. J., Marshall, D. B., Brummel, S. C., & Coghlan, L. K. (Report, 1998). *Decision-Making in Child Protective Services: A study of effectiveness. Final Report. Phase I: Quantitative analysis.* Olympia, WA: State of Washington, Department of Social and Health Services, Children's Administration, Management Services Division, Office of Children's Administration Research.

English, D. J. & the LONGSCAN Investigators (1997). Modified Maltreatment Classification System (MMCS). For more information visit the LONGSCAN website at http://www.iprc.unc.edu/longscan/

Fletcher, R., Fletcher, S., & Wagner, E. (1996). *Clinical epidemiology, the essentials* (3rd ed.). Baltimore: Williams & Wilkins.

Hussey J. M., Marshall J. M., English D. J., Knight E. D., Lau A. S., Dubowitz H, & Kotch J. B. (2005). Defining Maltreatment According to Substantiation: Distinction without a Difference?" *Child Abuse and Neglect,* 29(5), 479-492.

Jones L. M., & Finkelhor D. (2003). Putting together evidence on declining trends in sexual abuse: a complex puzzle. *Child Abuse Neglect*, 27(2), 133-5.

Lau, A. S., Leeb, R. T., English, D., Graham, C., Briggs, E. C., Brody, K. E., & Marshall, J. M. (2005). What's in a name? A comparison of methods for classifying predominant type of maltreatment. *Child Abuse & Neglect*, *29*(5), 533–551.

Leiter, J., & Johnsen, M. C. (1997). Child maltreatment and school performance declines: An event-history analysis. *American Educational Research Journal, 34*(3), 563-589.

Levine, M., Doueck H. J., Freeman, J. B., & Compaan, C. (1998). Rush to judgment? Child protective services and allegations of sexual abuse. *American Journal of Orthopsychiatry*, 68, 101-107.

Manly, J. T. (2005) Advances in research definitions of child maltreatment. *Child Abuse Neglect*, 29(5), 425-39.

Manly, J., Cicchetti, D., & Barnett, D. (1994). The impact of subtype, frequency, chronicity, and severity of child maltreatment on social competence and behavior problems. *Development and Psychopathology, 6*, 121-143.

McGee, R. A., & Wolfe, D. A. (1991). Psychological maltreatment: Towards an operational definition, *Development and Psychopathology*, 3, 3-18.

National Research Council (1993). *Understanding child abuse and neglect.* Washington, DC: National Academy Press.

Runyan D. K., & Gould C. L. (1985). Foster care for child maltreatment: Impact on delinquent behavior. *Pediatrics,* 75, 562-568.

Runyan D. K, Leeb R., Dubowitz H., English D., Cox C., & Knight E. (2005). Describing maltreatment: do child protective service reports and research definitions agree? *Child Abuse & Neglect,* 29, 461-477.

Rutter, M. (1983). Statistical and personal interactions: Facets and perspectives. In Magnusson, D. & Allen, V. (Eds.) *Human development: An interactional perspective*. NY: Cambridge University Press.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). *Vineland Adaptive Behavior Scales: Interview Edition, Survey Form Manual.* Circle Pines, MN: American Guidance Service.

Sparrow, S. S., Carter, A. S., & Cicchetti, D. V. (1993). *Vineland Screener: Overview, Reliability, Validity, Administration, and Scoring.* New Haven, CT: Yale University Child Study Center.

Sprang G., Clark J. J., & Bass S. (2005). Factors that contribute to child maltreatment severity: a multi-method and multidimensional investigation. *Child Abuse Neglect*, 29(4), 335-50.

Theodore, A. D., Chang, J. J., Runyan, D. K., Hunter, W. M., Bangdiwala, S. I., & Agans, R. (2005). Epidemiologic features of the physical and sexual maltreatment of children in the Carolinas. *Pediatrics*, 115(3), 331-337.

## APPENDICES

Appendix A: LONGSCAN Measures: Pre-Age 4 through Age 18

| Variable/Domain | Measure (Author, Date) | Longitudinal Data Points & Sources[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 0-3 | 4 | 6 | 8 | 12 | 14 | 16 | 18 |
| *Child/Youth Characteristics* | | | | | | | | | |
| Demographics | Project developed | P | P | P | P | P | P | YP | Y |
| Birthweight/prematurity | Project developed | P | P | | | | | | |
| Separation from caregiver/first year of life | Project developed | P | P | | | | | | |
| Day care utilization | Project developed | P | P | | | | | | |
| Social competence | Child Behavior Checklist (CBCL: Achenbach, 1991)<br>Youth Self Report (YSR: Achenbach, 1991) | P | P | P | P | P<br>Y | P | P | <br>Y |
| Heath/handicapping conditions/injury | Project developed | P | P | P | P | PY | PY | PY | PY |
| Temperament | Infant Characteristics Questionnaire (Bates et al., 1979) | P | P | | | | | | |
| Developmental status & adaptive behavior | Battelle Developmental Invent. Screener (Newborg et al., 1988)<br>Vineland Screener (Sparrow, 1993) | PC | PC | <br>P | <br>P | <br>P | | | |
| Independent living skills | Ansell Casey Life Skills Assessment (2004) | | | | | | | | Y |
| Cognitive functioning | PPVT-R (Dunn & Dunn, 1981)<br>WPPSI (Wechsler, 1989)<br>WRAT3 (Wilkinson, 1993) | C | C | <br>C | | <br><br>Y | | <br><br>Y | |
| Pubertal development | Project developed | | | | | Y | Y | | |
| Ethnic identity | Multigroup Ethnic Identity Measure (Phinney, 1992) | | | | | Y | | | |
| Employment | Project developed | | | | | P | | Y | PY |
| Behavior problems | CBCL, YSR, Teacher Report Form (TRF: Achenbach, 1991, 1995) | P | P | P<br>T | P<br>T | PTY | PT | P | PY Y |
| *Risk behaviors:*<br>1. Tobacco, drugs & alcohol, including drug carrying & sales | Adapted: Youth Risk Behavior & Monitoring the Future Surveys<br>Diagnostic Interview Schedule for Children (DISC: NIMH, 1998) substance abuse/dependency modules | | | | | Y | Y<br><br>Y | Y | Y |
| 2. Delinquent & violent behavior | Adapted from Huizinga et al., 1991 & 1993 & Project developed | | | | | Y | | Y | YP |
| 3. Sexual experiences & risk behaviors | Project developed | | | | | Y | Y | Y | Y |
| 4. Suicidality | Trauma Symptom Checklist (TSC: Briere, 1996)<br>Trauma Symptoms Inventory (TSI: Briere, 1995)<br>Project developed<br>DISC: Mood Disorders Module | | | | C | Y | Y<br><br>Y<br>Y | Y | <br>Y<br>Y |
| 5. Other health risk behaviors: inactive lifestyle, weight control, run away, etc. | Project developed<br>DISC: Eating disorders module | | | | | | | Y | Y<br>Y |
| Affective symptoms | PRESS (Martini et al., 1990)<br>TSC, TSI<br>CBCL<br>YSR | | C<br><br>P | | <br>C<br>P | <br>Y<br>P<br>Y | <br>Y<br>P | <br>Y<br>P | <br>Y<br><br>Y |

| Variable/Domain | Measure (Author, Date) | Longitudinal Data Points & Sources[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 0-3 | 4 | 6 | 8 | 12 | 14 | 16 | 18 |
| Psychopathology | DISC: Anxiety disorders, mood disorders, disruptive behavior disorders, alcohol & substance abuse, schizophrenia modules | | | | | P<br>Y | | | Y |
| Child sexual behavior | Child Sexual Behavior Inventory (Freidrich, 1997) | | | | P | | | | |
| Parental relationship and expectations | Adapted from ADD Health Study (Resnick et al., 1997) | | | | | PY | PY | PY | |
| Peer relationships | Teacher Estimation of Peer Status (Lemerise & Dodge, 1990)<br>Loneliness & Social Dissatisfaction Scale (Asher et al., 1984)<br>Project Developed<br>Network of Relationships (NRI: Furman & Buhrmester, 1985) | | | T<br>C | T | T<br><br>Y | T<br><br>Y | <br><br>Y | <br><br>Y |
| Social problem solving | Behavioral Intent Scale (Slaby & Guerra, 1989) | | | | C | | | | |
| Perceived competence | Pictorial Scale of Perceived Competence (Harter & Pike, 1984) | | | C | | | | | |
| Resilience factors; Future orientation | Project developed | | | | | Y | Y | Y | Y |
| Exposure to alcohol & drugs, risk behaviors of family & friends | Project developed<br>Adapted from CHAMPS[2] (Black et al., 1999) | | | | C | <br>Y | <br>Y | <br>Y | |
| School orientation & problems | Project developed | | | | T | YT | YT | YT | |
| Academic achievement | TRF & CBCL<br>Youth Self Report<br>Project developed | | | PT | PT | PT<br>Y | PT | PT | <br>Y<br>PY |
| Delinquency & criminal/judicial involvement (inc. detention/jail) | Project developed (from CHAMPS, Black et al., 1999)<br>Project developed (adapted from Huizinga et al., 1991 &1993) | | | | | Y | | <br>Y | <br>PY |
| Exposure to/witnessed violence<br>Witnessed violence/home & community | Things I've Seen & Heard (Richters & Martinez, 1993)<br>Project developed; & Age 16 (Knight, 2000) | | | C<br>P | C<br>P | <br>P | <br>PY | <br>PY | <br>Y |
| Life events | Project developed | P | P | P | P | P | P | PY | Y |
| Parent report of child sexual abuse | Project developed | | | | P | P | | | |
| Child self report of abuse & assault: physical, psychological & sexual | Project developed (Everson & Knight, 2000) | | | | | Y | | Y | Y |
| Youth self report of neglect | About My Parents (adapted from Straus, 1996)<br>Project developed | | | | | Y | Y | <br>Y | Y<br>Y |
| Sibling/peer/dating /community violence victimization | Project developed<br>Juvenile Victimization Questionnaire (Hamby et al, 2004) | | | | | Y | | Y | <br>Y |
| Lifetime CPS history | On-going review of CPS case narratives & state central registry | | | | | | | | |
| Parenthood: pregnancy/pregnancy involvement; parenting; interpersonal violence during pregnancy; health behaviors during pregnancy, birth outcome | Adapted from PRAMS (Pregnancy Risk Assessment Monitoring System, Centers for Disease Control, 1998) | | | | | | Y | Y | Y |
| Attitudes towards parenting | Adult –Adolescent Parenting Inventory (Bavolek, 1984) | | | | | | | | Y |
| Coping style/strategies | Adolescent-Coping Orientation for Problem Experiences (McCubbin et al, 2001) | | | | | | | | Y |
| Self Esteem | Rosenberg Self Esteem Scale (Rosenberg, 1965 ) | | | | | | | | Y |
| Lifetime stability/residence, caregiver | Project developed | | | | | | | | Y |

| Variable/Domain | Measure (Author, Date) | Longitudinal Data Points & Sources[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 0-3 | 4 | 6 | 8 | 12 | 14 | 16 | 18 |
| **Caregiver Characteristics** | | | | | | | | | |
| Demographics | Project developed | P | P | P | P | P | P | P | |
| Physical health | Project developed | P | P | P | P | P | P | P | |
| Caregiver history of loss & victimization | Project developed | P | P | P | | | | | |
| Attitudes towards parenting | Adult-Adolescent Parenting Inventory (Bavolek, 1984) | P | P | | | | | | |
| Attitudes towards deviance | Attitudes towards Deviance (Huizinga, 1991) | | | | | | | P | |
| Tobacco, alcohol & drug use | CAGE (Mayfield et al., 1974)<br>Adapted from CHAMPS | P | P | | <br>P | | P | | |
| Mental health | CES-D (Radloff, 1977)<br>Health Opinion Survey (Macmillan, 1957)<br>Brief Symptom Inventory (Derogatis, 1993) | P<br>P | P<br>P | P | <br><br>P | P | P | P | |
| Caregiver religious/org. affiliation | Project developed | | | | | P | P | P | |
| Future expectations for child/youth | Project developed | | | | | PY | PY | PY | |
| **Family Microsystem** | | | | | | | | | |
| Family/household composition | Project developed | P | P | P | P | P | P | PY | PY |
| Family income, supports, welfare reform | Project developed | P | P | P | P | P | P | PY | Y |
| Hunger & poverty | Poverty Measure (Wehler, Scott & Anderson, 1992) | | | | | P | P | P | |
| Service utilization | Project developed | P | P | P | P | P | P | PY | PY |
| Family satisfaction | FAPGAR (Smilkstein et al., 1978) | P | P | | | | | | |
| Family functioning | Self-Report Family Inventory (Beavers et al., 1985) | | P | P | P | P | P | P | |
| Daily stressors | Everyday Stressors Inventory (Hall, 1985) | | | P | | | | P | |
| Quality of spouse/partner relationship | Autonomy & Relatedness Inventory (Schaefer & Edgerton, 1982) | P | P | | | | | | |
| Domestic violence, interpersonal violence | Conflict Tactics Scales (Straus, 1979 & 1996)<br>Project developed | | | P | P<br>P | P | P | P<br>P | |
| Use of physical discipline | Conflict Tactics Scales (Straus 1979, 1996) | P | P | P | P | P | P | P | |
| Quality of parents' relationship with youth | Father-Child Relationship & Mother-Child Relationship (adapted from ADD Health, Resnick, et al., 1997) | | | | | PY | PY | PY | |
| Parent involvement/support re: school | Project developed | | | T | T | T | T | | |
| Father's involvement in parenting | Project developed & Father Child Relationship | | | P | P | PY | PY | PY | |
| Future expectations for child | Project developed | | | | | | P | P | |
| Home environment | Project developed interviewer ratings | I | I | I | I | I | I | I | |
| Household rules & routines | Family Routines Scale (Jensen, 1983) | | | | | PY | PY | | |
| Parental monitoring of youth | Parental Monitoring (Patterson & Stouthamer-Loeber, 1984)<br>Project developed | | | | | PY<br>PY | PY<br>PY | P | |
| Accessibility of guns in home | Project developed | | | | | | Y | | |
| Drugs, alcohol use in family/household | Adapted from CHAMPS (Black et al, 1999) | | | | | Y | Y | Y | |
| **Macrosystem** | | | | | | | | | |
| Unemployment, income, welfare reform | Project developed | P | P | P | P | P | P | P | Y |
| Neighborhood characteristics | Project developed | P | P | P | P | P | P | P | |

| Variable/Domain | Measure (Author, Date) | Longitudinal Data Points & Sources[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 0-3 | 4 | 6 | 8 | 12 | 14 | 16 | 18 |
| 200 Geo code variables | 1990 Census | | | | | | | | |
| Social support of caregiver | Duke-UNC Functional Soc Suprt Quest. (Broadhead et al., 1988)<br>Social Provisions Scale (Cutrona & Russell, 1987) | P | P | P | P | P | P | P | |
| Social support of child/youth | Inventory of Supportive Figures (Hunter & Everson, 1990)<br>My Family & Friends (Reid et al., 1989)<br>Project developed | | | C | C | | | Y | Y |
| School safety | Project developed | | | T | T | | | | |
| Risk behaviors of family and friends | Adapted from CHAMPS (Black et al, 1999) | | | | | Y | Y | Y | Y |
| Ethnic minority status | Project developed<br>Multigroup Ethnic Identity (Phinney, 1992) | P | P | P | | P<br>Y | P | Y | Y |
| *Other* | | | | | | | | | |
| Social desirability: caregiver & child | SDR-5 (Hays et al., 1989)<br>Revised Children's Manifest Anxiety Scale (Reynolds & Reynolds, 1994) | | | | P<br>C | P<br>Y | | | |

Notes. [1]P=parent/caregiver respondent
C=child respondent
Y=youth respondent
T = teacher
I=interviewer
[2]CHAMPS=Computerized Health Assessment using Multimedia Processing Systems

**References for LONGSCAN Measures**


Achenbach. T. M. (1991). Manual for the Child Behavior Checklist/4-18 and 1991 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991). Manual for the Teacher's Report Form and 1991 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991). Manual for the Youth Self-Report and 1991 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1992). Manual for the Child Behavior Cheklist/2/3 and 1992 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Ansell Casey Life Skills Assessment (ACLSA) and Life Skills Guidebook Manual (2000-2004). Casey Family Programs. Seattle, WA.

Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child Development*, 55(4), 1456-1464.

Bates, J. E., Freeland, C. A., & Lounsbury, M. L. (1979). Measurement of infant difficultness. *Child Development*, 50, 794-803.

Bavolek, S., Kline, D. F., McLalughlin, J. A., & Publicover, P. R. (1979). Primary prevention of child abuse and neglect: Identification of high-risk adolescents. *Child Abuse and Neglect*, 3, 1071-1080.

Bavolek, S. (1984). Handbook for the AAPI (Adult-Adolescent Parenting Inventory). Park City, Utah: Family Development Resources, Inc.

Beavers, W. R., Hampson, R. B., & Hulgus, Y. F. (1985). Commentary: The Beavers Systems approach to family assessment. *Family Process*, 24, 398-405.

Black, M. M., Laliberte, J., & Santelli, J. F. (1999). Adolescent Risk-taking Behaviors: Computer assisted interviews. In B.: Hemphill-Pearson (Ed), Integrative Process in Assessments of Childhood Problems. Thorofare, NJ: Charles B. Slack, Inc., pp. 309-320.

Briere, J. (1995). Trauma Symptom Inventory, Professional Manual. Lutz, FL: Psychological Assessment Resources, Inc.

Briere, J. (1996). Trauma Symptom Checklist for Children, Professional Manual. Odessa, FL: Psychological Assessment Resources, Inc.

Broadhead, W. E., Gehlbach, S. J., DeGruy, F. V., & Kaplan, B. H. (1988). The Duke-UNC Functional Social Support Questionnaire: Measurement of social support in family medicine patients. *Medical Care*, 26 (7), 709-23.

Burge, S. K., & Figley, C. R. (1986). The Social Support Scale: Development and initial estimates of reliability and validity. Unpublished manuscript, The Child & Family Research Institute, Purdue University, West Lafayette, IN.

Cutrona, C. E., & Russell, D. (1987). The provisions of social relationships and adaptation to stress. In W. H. Jones & D. Perlman (Eds.), Advances in personal relationships (Vol. 1, pp. 37-67). Greenwich, Conn.: JAI Press.

Derogotis, L. R. (1993). Brief Symptom Inventory – Administration, Scoring, and Procedures Manual (Fourth Edition). Minneapolis, MN: National Computer Systems, Inc.

Dunn, L. M., & Dunn, L. M. (1981). Peabody Picture Vocabulary Test-Revised Manual for Forms L and M. Circle Pines, MN: American Guidance Service.

Everson, M., & Knight, E. (2000). Adolescent Physical Abuse. Unpublished measure, The University of North Carolina, Chapel Hill, NC.

Everson, M., & Knight, E. (2000). Adolescent Psychological Abuse. Unpublished measure, The University of North Carolina, Chapel Hill, NC.

Everson, M., & Knight, E. (2000). Adolescent Sexual Abuse. Unpublished measure, The University of North Carolina, Chapel Hill, NC.

Friedrich, W. N., Grambsch, P., Broughton, D., Kuiper, J., & Beilke, R. L. (1991). Normative sexual behavior in children. *Pediatrics*, 88, 456-464.

Friedrich, W. N. (1997). Child Sexual Behavior Inventory – Professional Manual. Odessa, FL: Psychological Assessment Resources, Inc.

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology*, 21(6) 1016-1024.

Guerra, N. G., & Slaby, R. G. (1989). Evaluative factors in social problem solving by aggressive boys. *Journal of Abnormal Child Psychology*, 17(3), 277-289.

Hall, L. A., Williams, C. A., & Greenberg, R. S. (1985). Supports, stressors, and depressive symptoms in low-income mothers of young children. *American Journal of Public Health*, 75(5), 518-522.

Hamby, S. L., Finkelhor, D., Ormrod, R., & Turner, H. (2004). The Juvenile Victimization Questionnaire (JVQ): Administration and Scoring Manual. Durham, NH: Crimes Against Children Research Center.

Harter, S., & Pike, R. (1984). The pictorial scales of perceived competence and social acceptance for young children. *Child Development*, 1969-1982.

Hays, R. D., Hayashi, T., & Stewart, A. L. (1989). A five-item measure of socially desirable response set. *Educational and Psychological Measurement*, 49, 629-636.

Use of Alcohol, Tobacco & Drugs (visit www.cdc.gov/Healthy/Youth/yrbs/index.htm and www.monitoringthefuture.org)

Huizinga, D., Esbensen, F., & Weiher, A.W. (1991). Are there multiple paths to delinquency. *Journal of Criminal Law and Criminology*, 82(1).

Huizinga, D., Loeber, R., & Thornberry, T. P. (1993). Longitudinal study of delinquency, drug use, sexual activity, and pregnancy among children and youth in three cities. *Public Health Reports*, 108(1), 90-96.

Hunter, W., & Everson, M. (1991). Mother's History of Loss and Harm. Unpublished measure, The University of North Carolina, Chapel Hill, NC.

Hunter, W. & Everson, M. (1988). Inventory of Supportive Figures. Unpublished measure, The University of North Carolina, Chapel Hill, NC.

Jenson, E., James, J., Boyce, W. T., & Harnett, S. (1983). The Family Routines Inventory: Development and Validation. *Society of Scientific Medicine*, 17(4), 201-211.

Lemerise, E., & Dodge, K. A. (1990). Teacher simulation of peer sociometric status. Unpublished instrument, Vanderbilt University, Nashville, TN.

Knight, E. (2000). Adult Violence in the Home. Unpublished measure, The University of North Carolina, Chapel Hill, NC.

Martini, D. R., Strayhorn, J. M., & Puig-Antich, J. (1990). A symptom self-report measure for preschool children, *Journal of the American Academy of Child and Adolescent Psychiatry*, 29(4), 594-600.

MacMillan, A. M. (1957). The Health Opinion Survey: Technique for estimating the prevalence of psychoneurotic and related types of disorder in communities. *Psychological Reports*, 3, 325-339.

Mayfield, D., McLeod, G., & Hall, P. (1974). The CAGE Questionnaire: Validation of a New Alcoholism Screening Instrument. *American Journal of Psychiatry* 131(10), 1121-1123.

Modified Pregnancy Risk Assessment and Monitoring System (PRAMS), Phase 4 Questionnaire. Center for Disease Control. (visit http://www.cdc.gov/reproductivehealth/PRAMS/Questionnaire.htm)

Newborg, J., Stock, J. R., Wnek, L., Guidubaldi, J., Svincki, J., Dickson, J., & Markley, A. (1988). Battelle Developmental Inventory with Recalibrated Technical Data and Norms: Screening Test Examiner's Manual (2nd ed.). Allen, TX: DLM, Inc.

Patterson, J., & McCubbin, H. (1983). Adolescent Coping Orientation for Problem Experiences (ACOPE). In H. I. McCubbin, A. I. Thompson, and M. A. McCubbin (1996) Family Assessment: Resiliency, coping, and adaptation – Inventories for research and practice. Madison, WI: University of Wisconsin.

Patterson, G., Stouthamer-Loeber, M. (1984) The correlation of family management practices and delinquency. Child Development, 55, 1299-1307.

Phinney, J. (1992) The Multi-group Ethnic Identity Measure: A new scale for use with adolescents and young adults from diverse groups. Journal of Adolescent Research, 7, 156-176.

Radloff, L.S. (1977) The CES-D Scale: A self-report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Reid, M., & Landesman, S., Treder, R., & Jaccard, J. (1989) My Family and Friends: 6-12 year old children's perceptions of social support. Child Development, 60, 896-910.

Resnick, M.D., Bearman, P.S., Blum, R. Wm., Bauman, K.E., Harris, K.M., Jones, J., Tabor, J., Beuhring, T. Sieving, R.E., Shew, M., Ireland, M., Bearinger, L.H. & Udry, J. R. (1997) Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. Journal of the American Medical Association, 278 (19), 823-832.

Reynolds, C., & Richmond, B. (1985). Revised Children's Manifest Anxiety Scale (RCMAS). Western Psychological Services, Los Angeles, CA.

Richters, J. E., & Martinez, P. (1993). The NIMH community violence project: II. Children as victims of and witnesses to violence. Psychiatry, 56, 7-21.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Sarason, I., Johnson, J., & Siegel, J. (1978). Assessing the Impact of Life Changes: Development of the Life Experiences Survey. *Consulting and Clinical Psychology*, 46(5), 932-946.

Schaefer, E. S., & Edgerton, M. E. (1982). Autonomy and Relatedness Inventory. Unpublished manuscript. University of North Carolina at Chapel Hill, Chapel Hill, NC.

Shaffer, D., Fisher, P., Lucas, C., & the NIMH Editorial Board (1998). NIMH DISC-IV: Diagnostic Interview Schedule for Children-Youth and Parent Informants. Division of Child Psychiatry, Columbia University, NY, NY.

Smilkstein, G. (1978). The Family APGAR: A proposal for family function test and its use by physicians. *Journal of Family Practice*, 6(6), 1231-1239.

Sparrow, S. S., Carter A. S., & Cicchetti, D. V. (1993). Vineland Screener: Overview, Reliability, Validity, Administration and Scoring. Yale University Child Study Center, New Haven, CT.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and the Family*, 41, 75-88.

Straus, M. A. (1996). The Revised Conflict Tactics Scales (CTS2): Development and Preliminary Psychometric Data. *Journal of Family Issues*, 17(3), 283-270.

Straus, M. A. (1996). About My Parents. Unpublished instrument. The Family Research Laboratory and the Crimes Against Children Research Center, Durham, NH.

Straus, M. A. (1998). Straus, M.A., Hamby, S. L., Finkelhor, D., Moore, D.W., & Runyan, D.K. Identification of Child Maltreatment with the Parent-Child conflict Tactics Scales (CTS-PC): Development and Psychometric Data for a National Sample of American Parents. *Child Abuse and Neglect*, 22 (4), 249-270.

U.S. Bureau of the Census (1990). Census of Population and Housing, 1990, Summary Tape File. Washington, D.C.: U.S. Bureau of the Census.

Wechsler, D. (1989). Wechsler Preschool and Primary Scale of Intelligence - Revised. San Antonio: The Psychological Corporation – Harcourt Brace Jovanovich. Inc.

Wehler, C. A., R. I. Scott, & J. J. Anderson (1992). The Community Childhood Hunger Identification Project: A Model of Domestic Hunger – Demonstration Project in Seattle, Washington. *Journal of Nutrition Education,* 24(1): 29S – 35S.

Wilkinson, G. (1993). The Wide Range Achievement Test. Wilmington, Delaware. Wide Range, Inc.

## Appendix B: LONGSCAN Ages 14, 16, and 18 Interview Orders of Administration

### Age 14 Youth Interview: Order of Administration

Youth Interview Cover (CICB)
After School Activity and Supervision (ASAB)
Family Routines (YFRA)
A-CASI Practice Form (CAPA)
Parental Monitoring: Child Report (PMCA)
Mother-Child Relationship: Child Report (MCCA)
Father-Child Relationship: Child Report (FCCA)
About My Parents (AMPA)
DISC-IV Modules (Current Year Timeline and Whole Life Chart)

- Module A: Anxiety Disorders
  - Social Phobia, Separation Anxiety Disorder
  - Specific Phobia, Panic
  - Generalized Anxiety Disorder
  - Obsessive Compulsive Disorder
  - Post-Traumatic Stress Disorder
- Module C: Mood Disorders
  - Major Depression/Dysthymic Disorder,
  - Mania/Hypomania
- Module E: Disruptive Behavior Disorders
  - Attention Deficit/Hyperactivity Disorder
  - Oppositional Defiant Disorder, Conduct Disorder
- Module F: Alcohol/Substance Abuse
  - Alcohol Abuse, Tobacco, Marijuana,
  - Other Substances

History of Witnessed Violence (HWVA)
Peer Relationships (PRLA)
Risk Behaviors of Family & Friends (RBFA)
Child Health & Development (CHDB)
Adolescent Sexual Experience (ASEB)
Gun Accessibility (GUNA)*
School Orientation and Behavior Problems (SCBA)
Future Events Questionnaire (FEQA)
Resilience Factors (RSFA)
Interviewer Ratings of Youth Interview (IRCC)

* Note. Level 2 - optional by site.

**Age 14 Caregiver Interview – Order of Administration**

[***NOTE:*** *Household Composition (FCHB) - Completed by telephone prior to the interview.*]

Parent Interview Cover (PRCB)

Vineland Adaptive Behavior (VSCC)*

CBCL (CBBD) [Problem Checklist is mandatory; Social Competence Items =*]

Child Health (CHLB)

Child Life Events (LECC)

Parent-Child Relationship: Parent Report (PCPA)

Parental Monitoring: Parent Report (PMPA)

Service Utilization (SRUB)

Family Demographics (DEMB)

A-CASI Practice (MAPA)

Caregiver Health (MHLC)

Discipline Tactics (CTSD)

Maternal Depression (DEPB)*

Domestic Violence (CTPC)*

Social Support (SSPC)

Poverty Measure (POMB)

Self-Report Family Inventory (SFIC)

DISC-IV Modules (Timeline, Whole Life Chart, ADHD, ODD, CD)

Family Routines (SFRB)

Neighborhood & Organization Affiliation (NOAA)

Future Expectations for Child/Self (PFEA)

Interviewer Ratings of Respondent (IRRB)

* Note. Level 2 - optional by site.

**Age 14 Teacher Interview – Order of Administration**

Achenbach's Teacher Report Form (TRFB)
Teacher's Estimation of Child's Peer Status (TRPC)
School Information Form (SIFC)

**Age 16 Youth Interview: Order of Administration**

Youth Interview Cover Page (CICC)

WRAT Reading Subtest (WRAB)

Youth Demographics (YDEA)

Network of Relationships Inventory (NRIA)

A-CASI Practice Form (CAPA)

School Orientation & Behavior (SCBB)

Youth Employment (EMPA)

Adolescent Health Status & Service Utilization (AHSA)

Trauma Symptom Checklist (TSCB)

Sexual Experiences & Parenting Status (ASEC)

Parental Monitoring (PMCA)

Quality of Relationship with Parents (QRPA)

Adolescent Neglect (ANMA)

Adolescent Witnessed Violence - Short Form (AWVA) *

Adolescent Witnessed Violence - Long Form (HWVB) *

Youth Peer Victimization (YPVA)

Adolescent Physical Abuse (PAAA)

Youth Psychological Abuse (YPAA)

Youth Sexual Abuse (YSAA)

Risk Behavior of Family & Friends (RBFA)

Use of Tobacco, Alcohol & Drugs (TADA)

Delinquent & Violent Behavior (DELA)

Future Events (FEQB)

Youth Social Support from Non-parental Adults (YSSA)

Resilience Factors (RSFB)

*Interviewer Ratings (IRCD)*

* Note. Level 2 - optional by site.

**Age 16 Caregiver Interview – Order of Administration**

Caregiver Interview Cover Page (PRCC)

Household Composition Chart (FCHB)

Caregiver Demographics (DEMB)

Caregiver Report of Adolescent Life Events (LECD)

Quality of Relationship with Child (PCPB)

Child Behavior Checklist & Social Competence (CBBD)

Parental Monitoring (PMPA)

Social Support of Caregiver (SSQC)

Everyday Stressors Inventory (ESIB)

A-CASI Practice Form (MAPA)

Poverty & Receipt of Income Supports (POMB)

Caregiver's Physical Health (MHLC)

Caregiver's Depression (DEPB)

Adult Violence in the Home (ADVA)

Domestic Violence (CTPC) *

Parent Attitudes Towards Deviance (PATA)

Parent-Child Conflict Tactics Scale (CTSD)

Self Report Family Inventory (SFIC) *

Service Utilization (SRUC)

Neighborhood & Organizational Affiliation (NOAA)

Future Expectations for Child (PFEA)

Interviewer Ratings (IRRB)

* Note. Level 2 - optional by site.

**Age 18 Youth Interview: Order of Administration**

Age 18 Interview Cover (CICC)
Young Adult Demographics (YDEB)
YA Report of Household Composition (YHCA)
Peer Relationships (NRIB)
Married Peer Relationships (MPRA)
Record of Height & Weight Measurements (AWHA)
YA Report of Social Competence from the Youth Self-Report (YSCA)
**(A-CASI format begins)**
A-CASI Practice Form (CAPA)
Behavior Problem Checklist from the Youth Self-Report (YBPA)
Attitudes Toward Parenting (APIA)
Stability of Caregiver & Residence (STBA)
Health Status (AHSB)
Health Risk Behaviors (HRBA)
Trauma Symptom Inventory (TSIA)
Service Utilization (YSUA)
Welfare Reform (AWRA)
Sexual Experiences/Parenting Status (ASEC) - *If triggered, the appropriate Adolescent Parenting Form will be administered next:*
    Female Adolescent Parent (FAPA)
    Adolescent Father (AFFA)
    Pregnant Adolescent Female (PAFA)
Neglect in the last year (YNEA)
Retrospective Report of Neglect (YRNA)
Physical Abuse (LPAA)
Psychological Abuse (PALA)
Sexual Abuse (SALA)
Non-parental Victimization (JVQA)
Delinquent and Violent Behavior (DELA)
Criminal Justice Involvement (CJIA)
Tobacco, Alcohol, & Drugs Use (TADA)
Life/Self-sufficiency Skills (SKIA)
Quality of Relationship with Parents (QRPB)
Supportive Adults (YSSB)
Community Connectedness (RCIA)
Self esteem (SEMA)
Coping Style (COPA)
**(A-CASI format ends)**
Site-specific Flagged Item Probes (FIPB)
Additional Depression Assessment being administered only at the CH Site (DEQA)
Interviewer Ratings of Youth Interview (IRCE)

**Age 18 Caregiver Telephone Interview: Order of Administration**

Domains covered in the interview:

Youth Fatality Data

Youth's Living Situation

Youth's Household Composition

Youth's Educational Status

Youth's Employment Status

Youth's Marital and Parenting Status

Youth's Health Status

Youth's Criminal Justice Involvement

Youth Characteristics and Social Relationships

Caregiver's thoughts about what have been the best and worst events in their child's life to date

What motivated them to continue participation in the study?

**Appendix C: Cross-site LONGSCAN Publications List**

Please Note: List is ordered alphabetically by first author's surname; then reverse chronological within each surname.

**LONGSCAN (L)** = A publication that uses LONGSCAN data or that used LONGSCAN funds/resources/salary support in development.

**LONGSCAN-Related (R)** = A publication that is related to an investigator's work on LONGSCAN however is not a direct LONGSCAN product/effort. A publication that is informed significantly by LONGSCAN; or on which salary support was provided from LONGSCAN funding.

**NEGLECT (N) =** A publication that uses NEGLECT data or that used NEGLECT funds/resources/salary support in development.


Amaya-Jackson, L., Socolar, R. R. S., Hunter, W. M. Runyan, D. K., & Colindres, R. (2000). Directly Questioning Children and Adolescents about Maltreatment: A Review of Survey Measures Used. *Journal of Interpersonal Violence*, 15(7), 725-759. (L)

Besinger, B. A., Garland A. F., Litrownik A. J., & Landsverk J. A. (1999). Caregiver Substance Abuse Among Maltreated Children Placed in Out-of-Home Care. *Child Welfare,* 78, 221-239. (L)

Black, M. M. (2003). Failure-to-thrive. In M.C.Roberts (Ed.), Handbook of Pediatric Psychology, 3rd edition, 499-509. New York: Guilford Press. (R)

Black, M. M., & Nabors, L. (2003). Behavioral and developmental problems of children in primary care: Opportunities for psychologists. In R. Frank, S. McDaniel, J. Braxley, M. Heldring (Eds) Psychology and Primary Care (189-207). Washington: APA. (R)

Black, M. M., & Stevenson, W. M. (2003). Adolescent parenting. In T.H. Ollendick & C.S. Schroeder (Eds.), Encyclopedia of Pediatric and Child Psychology. New York: Kluwer Academic/Plenum Publishers. (R)

Black, M. M., Papas, M. A., Hussey, J. M., Dubowitz, H., Kotch, J. B., & Starr, R. H. (2002). Behavior Problems Among Preschool Children Born to Adolescent Mothers: Effects of Maternal Depression and Perceptions of Partner Relationships. *Journal of Clinical Child and Adolescent Psychology,* 31, (1), 16-26. (L)

Black, M. ., Papas, M. A., Hussey, J. ., Hunter, W., Dubowitz, H., Kotch, J., English, D., & Schneider, M. (2002). Behavior and development of preschool children born to adolescent mothers: Risk and 3-generation households. *Pediatrics.* 109, (4), 573-580. (L)

Black, M. M. (2000). Long-Term Psychological Management of Neglect in R. M. Reese (Ed.) *Treatment of Child Abuse.* Baltimore: Johns Hopkins Univ. Press, 192-200. (R)

Black, M. M. (2000). Physical Abuse. In: L. Balter (Ed.) *Parenthood in America: An Encyclopedia,* 461-465. New York: ABC-CLIO. (R)

Black, M. M. (2000). Neglect. In: L. Balter (Ed.) *Parenthood in America: An Encyclopedia.* 394-397. New York: ABC-CLIO. (R)

Black, M. M. (2000). How do I assess a parent-child relationship? In: H. Dubowitz and D. Dipanfilis (Eds.) *Assessment in Child Abuse and Neglect.* Newbury Park, CA: Sage Publishing, 353-356. (R)

Black, M. M.,& Ponirakis, A. (2000). Computer-Administered Interventions with Children about Maltreatment: Methodological, Developmental, and Ethical Issues. *Journal of Interpersonal Violence*, 15(7), 682-695. (L)

Black, M. M. (2000). The Roots of Child Neglect. In R.M. Reese (Ed.) *Treatment of Child Abuse*. Baltimore: Johns Hopkins Univ. Press, 157-164. (R)

Black, M. M.,& Dubowitz, H. (1999). Child Neglect: Research Recommendations and Future Directions. In H. Dubowitz (Ed.). *Neglected Children: Research, Practice, and Policy*. pp. 261-277.Thousand Oaks, CA. Sage Publications, Inc. (R)

Black, M. M., Dubowitz, H., & Starr, R. H. (1999). African American Fathers in Low Income, Urban Families: Development and Behavior of Their 3 Year-Old Children. *Child Development*, 70 (4), 967-978. (L)

Black, M. M., & Krishnakumar, A. (1999). Predicting Height and Weight Longitudinal Growth Curves Using Ecological Factors Among Children With and Without Early Growth Deficiency. *Journal of Nutrition*, 129, 539S-543S. (L)

Black, M. M., Feigelman, S., & Cureton, P. L. (1999). Evaluation and Treatment of Children with Failure to Thrive: An Interdisciplinary Perspective. *Journal of Clinical Outcomes Management*, 6 (5), 60-73. (R)

Black, M. M., Gordon, J., & Santelli, J. (1999). Adolescent Risk-Taking Behaviors: Computer-Assisted Questionnaire. In B.: Hemphill-Pearson (Ed.), *Integrative Process in Assessments of Childhood Problems*. Thorofare, NJ: Charles B. Slake, Inc., 99, 309-319. (R)

Black, M. M., Danseco, E. R., & Krishnakumar, A. (1998). Understanding Pediatric Health Concerns in a social-ecological context: A review of intervention research. *Children's Services Social Policy, Research, and Practice,* 1(2), 111-126. (R)

Black, M. M., & Krishnakumar, A. (1998). Children in Low-Income, Urban Settings: Interventions to Promote Mental Health and Well-Being. *American Psychologist*, 53 (6), 635-646. (R)

Black, M. M., Hutcheson, J. J., Dubowitz, H., Starr, R. H., Jr., & Berenson-Howard, J. (1996). The Roots of Competence: Mother-Child Interaction Among Low-Income, African-American Families. *Journal of Applied Developmental Psychology*, 17(3), 367-391. (L)

Black, M. M., & Nitz, K. (1996). Grandmother Co-Residence, Parenting, and Child Development Among Urban Teen Mothers. *Journal of Adolescent Health*, 18(3), 218-226. (L)

Black, M. M. (1995). Failure to Thrive: Strategies for Evaluation and Intervention. *School Psychology Review*, 24, 169-183. (R)

Black, M. M., Dubowitz, H., Hutcheson, J., Berenson-Howard, J., & Starr, R. H., Jr. (1995). A Randomized Clinical Trial of Home Intervention Among Children with Failure to Thrive. *Pediatrics*, 95 (6), 807-814. (L)

Black, M. M., Hutcheson, J., Dubowitz, H., & Berenson-Howard, J. (1994). Parenting Style and Developmental Status Among Children with Non-Organic Failure to Thrive. *Journal of Pediatric Psychology*, 19 (6), 689-707. (L)

Black, M. M., Nair, P., & Harrington, D. (1994). Maternal HIV Infection: Parenting and Early Child Development. *Journal of Pediatric Psychology*, 19 (5), 595-616. (L)

Blumberg, E., Landsverk, J., Ellis-Macleod, E., Ganger, W., & Culver, S. (1996). Use of the Public Mental Health System by Children in Foster Care: Client Characteristics and Service Use Patterns. *The Journal of Mental Health Administration*, 23 (4), 389-405. (R)

Cox, C. E., Kotch, J. B., & Everson, M. D. (2003). A Longitudinal Study of Modifying Influences in the Relationship Between Domestic Violence and Child Maltreatment. *Journal of Family Violence*, 18(1), 5-17. (L)

Curtis, P. A., Schneider, M. W, & Lunghofer, L. (1996). Child Maltreatment and Prenatal Exposure to Alcohol and Other Drugs: Some Preliminary Findings. *8th Annual Research & Training Center Conference Proceedings*, pp. 325-329. Dept. of Child and Family Studies, Florida Mental Health Institute, University of South Florida, Tampa, Florida. (L)

Curtis, P. A., Schneider, M. W., & Calica, R. H. (1995). The Capella Project: Potential Impact on Public Child Welfare Policy and Practices. *Proceedings of the Eighth National Round Table on Risk Assessment, San Francisco.* Washington, DC: American Public Welfare Association. (L)

Curtis, P., & Schneider, M. (1992). Problems of Recruitment and Retention of Research Subjects for Longitudinal Studies. Ninth International Congress of Child Abuse and Neglect, Congress Proceedings. (L)

De Robertis, M. T., & Litrownik, A. J. (2004) The experience of foster care: Relationship between foster parent disciplinary approaches and aggression in a sample of young foster children. *Child Maltreatment*, 9, 92-102. (L)

Dubowitz, H., & Guterman, N. (2005). Prevention of Physical Abuse and Child Neglect. In A. Giardino & R. Alexander (Eds.) Child Maltreatment: A Clinical Guide and Reference (3rd ed). St. Louis: GW Medical Publications. (R)

Dubowitz, H., Pitts, S. C., Litrownik, A. J., Cox, C. E., Runyan, D., & Black, M. M. (2005). Defining Child Neglect Based on Child Protective Services Data. *Child Abuse and Neglect,* 29(5), 493-511. *(*L & N)

Dubowitz, H., Newton, R. R., Litrownik, A. J., Lewis, T., Briggs, E. C., Thompson, R., English, D., Lee, L.-C., & Feerick, M. M. (2005). Examination of a conceptual model of neglect. *Child Maltreatment,* 10(2), 173-189. (L & N)

Dubowitz, H., DePanfilis, D., Boyce, C. A., & Runyan, D. (2004). Introduction to the Special Issue entitled Child Neglect Research: Initial papers from the NIH and ACYF Neglect Projects – Issue I. *Child Maltreatment,* 9(4), 343. (N)

Dubowitz, H., Pitts, S., & Black, M. (2004). Measurement of Three Major Subtypes of Child Neglect. *Child Maltreatment,* 9(4), 344-356. (L & N)

Dubowitz, H., Papas, M. A., Black, M. M., & Starr, R. H. Jr., (2002). Child neglect: Outcomes in high- risk urban preschoolers. *Pediatrics,* 109(6), 1100-1107. (L)

Dubowitz, H. (2002). Preventing child neglect and physical abuse: A role for pediatricians. *Pediatrics in Review,* 23(6), 191-196. (R)

Dubowitz, H., & Black, M. M. (2002). Neglect of Children's Health. In J. Myers, L. Berliner, J. Briere, C.T. Hendrix, C. Jenny, & T. Reid, (Eds.) *The APSAC Handbook on Child Maltreatment*, 2nd Edition, Thousand Oaks, CA, Sage Publications, 269-292. (R)

Dubowitz, H., Black, M. M., Cox, C. E., Kerr, M. A., Litrownik, A. J., Radhakrishna, A., English, D. J., Schneider, M. W., & Runyan, D. K. (2001). Father Involvement and Children's Functioning at Age 6 Years: A Multisite Study. *Child Maltreatment*, 6(4), 300-309. (L)

Dubowitz, H., & Black, M. M. (2001). Child neglect. R. M. Reece & S. Ludwig (Eds.), *Child Abuse: Medical Diagnosis and Management, Second Edition*. Philadelphia: Lea & Febiger. 339-362. (R)

Dubowitz, H., Black, M. M., Kerr, M., Hussey, J., Morrel, T., Everson, M., & Starr, R. H. Jr. (2001). Type and Timing of Mothers' Victimization: Effects on Mothers and Children. *Pediatrics*, 107(4), 728-735. (L)

Dubowitz, H., Black, M. M., Kerr, M., Starr, R. H., Jr., & Harrington, D. (2000). Fathers and Child Neglect. *Archives of Pediatrics and Adolescent Medicine*, 154(2), 135-141. (L)

Dubowitz, H. (2000). What is Child Neglect? In H. Dubowitz, D. DePanfilis (Eds.) *The Handbook for Child Protection*. Sage Publications, Thousand Oaks, CA. (R)

Dubowitz, H., Giardino, A., & Gustavson, E. (2000). Child Neglect: Guidance for Pediatricians. *Pediatrics in Review*, 21(4), 111-116. (R)

Dubowitz, H. (1999). (Ed.) *Neglected Children: Research, Practice, and Policy*. Sage Publications, Thousand Oaks, CA. (R)

Dubowitz, H. (1999). Neglect of Children's Health Care. In H. Dubowitz (Ed.). *Neglected Children: Research, Practice, and Policy*. Thousand Oaks, CA: Sage Publications, Inc. 109-131. (R)

Dubowitz, H. (1999). Neglectful Families. In M. L. Lamb (Ed.), *Non-Traditional Families: Parenting and Child Development.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc. (R)

Dubowitz, H. (1994). Neglecting the Neglect of Neglect. *Journal of Interpersonal Violence*, 9(4), 556-560. (R)

Dubowitz, H., & Black, M. (1994). Child Neglect. In R.M. Reece (Ed.), *Child Abuse: Medical Diagnosis and Management*, Lea and Febiger, Malvern, PA, 279-297. (R)

Dubowitz, H., Black, M., Starr, R., & Zuravin, S. (1993). A Conceptual Definition of Child Neglect. *Criminal Justice and Behavior*, 20 (1), 8-26. (R)

English, D. J., Bangdiwala, S. I., & Runyan, D. K. (2005). The Dimensions of Maltreatment: Introduction, *Child Abuse and Neglect,* 29(5), 441-460. (L & N)

English, D. J., Graham, J. C., Litrownik, A. J., Everson, M. & Bangdiwala, S. I. (2005). Defining maltreatment based on chronicity: Are there differences in child outcomes? *Child Abuse and Neglect,* 29(5), 575-595. (L & N)

English, D. J., Upadhyaya, M. P., Litrownik, A. J., Marshall, J. M., Runyan, D. K., Graham, J. C., & Dubowitz, H. (2005). Maltreatment's Wake: The relationship of maltreatment dimensions to child outcomes. *Child Abuse and Neglect,* 29(5), 597-619. (L & N)

English, D. J., Thompson, R., Graham, J. C., & Briggs, E. C. (2005). Toward a Definition of Neglect in Young Children. *Child Maltreatment,* 10(2), 190-206. (L & N)

English, D. J. (2003) The Importance of Understanding a Child's Maltreatment Experience Cross-Sectionally and Longitudinally. *Child Abuse & Neglect,* 27, 877-882. (R)

English, D. J., Marshall, D. B., & Stewart, A. J. (2003). Effects of Family Violence on Child Behavior and Health During Early Childhood. *Journal of Family Violence*, 18(1), 43-57. (L)

English, D. J., & Graham, J. C. (2000) An Examination of Relationships Between Children's Protective Services Social Worker Assessment of Risk and Independent LONGSCAN Measures of Risk Constructs. *Children and Youth Services Review*, 22. (11, 12), 897-933. (L)

English, D. (1999). Evaluation and Risk Assessment of Child Neglect in Public Child Protection Services. In H Dubowitz (Ed.). *Neglected Children: Research, Practice, and Policy*. Thousand Oaks, CA: Sage Publications, Inc., 191-210. (R)

English, D. J. (1998). The Extent and Consequences of Child Maltreatment. In *The Future of Children: Protecting Children from Abuse and Neglect,* 8 (1), 39-53. (R)

English, D. J. (1995) Cultural Issues Related to the Assessment of Child Abuse and Neglect. *Contemporary Group Care, Practice, Research and Evaluation,* 5(1), 31-35. (R)

English, D. (1994). Risk Assessment: What do We Know? Findings from Three Research Studies on Children Reported to Child Protective Services, *Proceedings of Children in the Shadows: The Fate of Children in Neglecting Families*. Minneapolis, MN: University of the Minnesota, Center for Advanced Studies in Child Welfare. (L)

Garland, A. F, Hough, R. L, Landsverk, J. A., McCabe, K. M., Yeh, M., Ganger, W. C., & Reynolds, B. J. (2000). Racial and Ethnic Variations in Mental Health Care Utilization Among Children in Foster Care. *Children's Services: Social Policy, Research, and Practice, 3*, 133-146. (R)

Garland, A. F., Ellis-MacLeod, E., Landsverk, J. A., Ganger, W., & Johnson, I. (1998). Minority Populations in the Child Welfare System: The Visibility Hypothesis Re-examined. *American Journal of Orthopsychiatry*, 68 (1), 142-146. (L)

Garland, A. F., Landsverk, J., Hough, R. L., & Ellis-MacLeod, E. (1996). Type of Maltreatment as a Predictor of Mental Health Service Use for Children in Foster Care. *Child Abuse & Neglect,* 20 (8), 675-688. (L)

Gaudin, J., & Dubowitz, H. (1997). Family Functioning in Neglectful Families: Recent Research. In J. D. Berrick, R. Barth, and N. Gilbert (Eds.), *Child Welfare Research Review: Volume II.* NY: Columbia University Press, 28-62 (R)

Hall, L. A., Kotch, J. B., Browne, D., & Rayens, M. K. (1996). Self-Esteem as a Mediator of the Effects of Stressors and Social Resources on Depressive Symptoms in Postpartum Mothers. *Nursing Research*, 45 (4), 231-238. (L)

Harrington, D., Black, M. M., Starr, R. H. Jr., & Dubowitz, H. (1998). Child Neglect: Relation to Child Temperament and Family Context. *American Journal of Orthopsychiatry*, 68(1), 108-116. (L)

Harrington, D., Dubowitz, H., Black, M. M., & Binder, A. (1995). Maternal Substance Use and Neglectful Parenting: Relationships with Children's Development. *Journal of Child Clinical Psychology*, 24, 258-263. (L)

Harris, M. J., & Kotch, J. B. (1994). Unintentional Infant Injuries: Sociodemographic and Psychosocial Factors. *Public Health Nursing, 11* (2), 90-97. (L)

Herman-Giddens, M., Kotch, J. B., Browne, D., Ruina, E., Winsor, J., Jung, J., & Stewart, P. (1998). Childbearing Patterns in a Cohort of Women Sexually Abused as Children. *Journal of Interpersonal Violence*, 13(4), 504-513. (L)

Herrenkohl, R.C. (2005) The definition of child maltreatment: From case study to construct. *Child Abuse & Neglect,* 29:413-424. (L&N)

Hess, C. R., & Black, M. . . (2000). Prevention of Physical Abuse. In: L. Balter (Ed.) *Parenthood in America: An Encyclopedia*. New York: ABC-CLIO. 465-468. (R)

Hunter, W. M., Cox, C. E., Teagle, S., Johnson, R. M., Mathew, R., Knight, E. D., & Leeb, R.T. (2003). Measures for Assessment of Functioning and Outcomes in Longitudinal Research on Child Abuse. Volume 1: Early Childhood. Available at web site: http://www.sph.unc.edu/iprc/longscan (L)

Hunter, W. M., Cox, C. E., Teagle, S., Johnson, R. M., Mathew, R., Knight, E. D., Leeb, R. T., & Smith, J. B. (2003). Measures for Assessment of Functioning and Outcomes in Longitudinal Research on Child Abuse. Volume 2: Middle Childhood. Available at web site: http://www.sph.unc.edu/iprc/longscan (L)

Hunter, W. M. & Knight, E. (Eds.) (1998). LONGSCAN Research Briefs: Vol. 1. Washington, D.C.: National Clearinghouse on Child Abuse and Neglect (L)

Hussey J. M., Marshall J. M., English D. J., Knight E. D., Lau A. S., Dubowitz H, & Kotch J. B. (2005). Defining Maltreatment According to Substantiation: Distinction without a Difference?" *Child Abuse and Neglect,* 29(5), 479-492. (L & N)

Hutcheson, J. J., Black, M. M., Talley, M., Dubowitz, H., Berenson-Howard, J. B., Starr, R. H. Jr. & Thompson, B. S. (1997). Risk Status and Home Intervention Among Children with Failure-to-Thrive: Follow-up at Age 4. *Journal of Pediatric Psychology*, 22(5), 651-668. (L)

Hutcheson, J. J., & Black, M. M., (1996). Psychometric Properties of the Parenting Stress Index in a Sample of Low-Income African American Mothers of Infants and Toddlers. *Early Education and Development.* 7(4), 381-400. (R)

Hutcheson, J. J., Black, M. M., & Starr, R. H. Jr. (1993). Developmental Differences in Interactional Characteristics of Mothers and Their Children with Failure-to-Thrive. *Journal of Pediatric Psychology,* (18)4, 453-466. (R)

Johnson, R. M., Kotch, J. B., Catellier, D. J., Winsor, J. R., Dufort, V., Hunter, W., & Amaya-Jackson, L. (2002). Adverse Behavioral and Emotional Outcomes From Child Abuse and Witnessed Violence. *Child Maltreatment*, (7)3, 179-186. (L)

Kelley, S.J. (2003) Invited Commentary on: Cumulative environmental risk in substance abusing women: early intervention, parenting stress, child abuse potential, and child development. *Child Abuse & Neglect*, 27, 993-995. (R)

Kerr, M., Black, M. M., & Krishnakumar, A. (2000). Failure-to-Thrive, Maltreatment and the Behavior and Development of 6-Year-Old Children from Low-Income Urban Families: A Cumulative Risk Model, *Child Abuse & Neglect*, 24, 587-598. (L)

King, N., & Churchill, L. (2000). Ethical Principles Guiding Research on Child and Adolescent Subjects. *Journal of Interpersonal Violence*, 15(7), 710-724. (L)

Knight, E. D., Smith, J. B., Dubowitz, H., Litrownik, A. J., Kotch, J., English, E., Everson, M. D., & Runyan, D. K. (In Press) Reporting participants in research studies to child protective services: Limited risk to attrition. *Child Maltreatment*.

Knight, E.D., Runyan, D.K., Dubowitz, H., Brandford, C., Kotch, J., Litrownik, A., & Hunter, W.M., (2000). Methodological and Ethical Challenges Associated with Child Self-Report of Maltreatment: Solutions Implemented by the LONGSCAN Consortium. *Journal of Interpersonal Violence*, 15(7), 760-775. (L)

Kotch, J. B. (2000). Ethical Issues in Longitudinal Child Maltreatment Research. *Journal of Interpersonal Violence,* 15(7), 696-709. (R)

Kotch J. B., Muller G. O., & Blakely, C. H. (1999). Understanding the Origins and Incidence of Maltreatment. In T. Gullotta and S. McElhaney (Eds.) *Violence in Homes and Communities: Prevention, Intervention and Treatment*. Thousand Oaks, CA: Sage Publications, Inc. (R)

Kotch, J. B., Browne, D. C., Dufort, V., Winsor, J., & Catellier, D. (1999). Predicting Child Maltreatment in the First Four Years of Life from Characteristics Assessed in the Neonatal Period. *Child Abuse & Neglect*, 23(4), 305-319. (L)

Kotch, J. B., Browne, D. C., Ringwalt, C. L., Dufort, V., Ruina, E., Stewart, P. W., & Jung, J. -W. (1997). Stress, Social Support, and Substantiated Maltreatment in the Second and Third Years of Life. *Child Abuse & Neglect*, 21(11), 1025-1037. (L)

Kotch, J. B., Browne, D. C., Ringwalt, C. L., Stewart, P. W., Ruina, E., Holt, K., Lowman, B., & Jung, J.-W. (1995). Risk of Child Abuse or Neglect in a Cohort of Low-Income Children. *Child Abuse & Neglect*, 19(9), 1115-1130. (L)

Krishnakumar, A., & Black, M. M. (2002). Longitudinal predictors of competence among African American children: The role of distal and proximal risk factors. *Applied Developmental Psychology,* 23, 237-266. (L)

Krishnakumar, A., & Black, M. (2002). Estimating cognitive growth curves from environmental risk factors: Mediating the role of parenting and child factors. In L.M. Collins & A.G. Sayer (Eds.), New methods for the analysis of change (pp. 414-415). Washington, DC; American Psychological Association. (L)

Lamb, M. E. (2001). Male Roles in Families "at Risk": The Ecology of Maltreatment. *Child Maltreatment,* 6(4), 310-313. (L)

Lambert, S., & Black, M. M. (2001). Comprehensive community initiatives: Expanded roles for developmental scientists. *Children's Services: Social Policy, Research, and Practice,* 4(1), 25-29. (R)

Lambert, S., & Black, M. M. (2000). Prevention of Child Neglect. In: L. Balter (Ed.) *Parenthood in America: An Encyclopedia*. New York: ABC-CLIO, 397-400. (R)

Lau, A. S., Litrownik, A. J., Newton, R. R., Black, M. M, & Everson, M. D. (2006). Factors affecting the link between physical discipline and child externalizing problems in Black and White families. *Journal of Community Psychology, 34*, 89-103. (L)

Lau A. S., Leeb R. T., English D. J., Graham J. C., Briggs E. C., Brody K. E., & Marshall J. M. (2005). "What's in a name? A comparison of methods for classifying predominant type of maltreatment." *Child Abuse and Neglect*, 29(5), 533-551. (L & N)

Lau, A. S., Litrownik, A. J., Newton, R. L., & Landsverk, J. (2003). Going home: The complex effects of reunification on internalizing problems among children in foster care. *Journal of Abnormal Child Psychology*, 31(4), 345-359. (L)

Lee, L-C., Kotch, J. B., & Cox, C. (2004). Child Maltreatment in Families Experiencing Domestic Violence. *Violence & Victims,* 19(5), 573-591. (L)

Leslie, L. K., Gordon, J. N., Ganger, W., & Gist, K. (2002) Developmental delay in young children in child welfare by initial placement type. Infant Mental Health Journal, 23(5), 496-516. (L)

Leslie, L.K., Landsverk, J., Horton, M.B., Ganger, W., & Newton, R. (2000). The Heterogeneity of Children and Their Experiences in Kinship Care. *Child Welfare*, 79(3), pp. 315-334. (L)

Leslie, L. K., Landsverk, J., Ezzet-Lofstrom, R., Tschann, J. M., Slymen, D. S., & Garland, A. F. (2000). Children in Foster Care: Factors Influencing Outpatient Mental Health Service Use. *Child Abuse & Neglect*, 24, 465-476. (L)

Litrownik, A. J., Newton, R. R., & Landsverk, J. A. (2005). Assessment of depressive symptomatology in young maltreated children. *Journal of Human Behavior in the Social Environment, 11(3/4)*, 135-156. (L)

Litrownik, A. J., Lau, A., English, D. J., Briggs, E., Newton, R. R., Romney, S., & Dubowitz, H. (2005). Measuring the Severity of Child Maltreatment. *Child Abuse and Neglect,* 29(5), 553-573. (L & N)

Litrownik, A. J., Newton, R. R., Hunter, W. M., English, D. J., & Everson, M. D. (2003). Exposure to Family Violence in Young At-Risk Children: A Longitudinal Look at the Effects of Victimization and Witnessed Physical and Psychological Aggression. *Journal of Family Violence*, 18(1), 59-73. (L)

Litrownik, A. J., Newton, R. R., Mitchell, B. E., & Richardson, K. K., (2003). Long-Term Follow-Up of Young Children Placed in Foster Care: Subsequent Placements and Exposure to Family Violence. *Journal of Family Violence*, 18(1), 19-28. (L)

Lowman, B. C., Kotch, J. B., & Jung, J-W. & Browne, D. H. (1998). Using Number of Reports Adjusted for Exposure (NRAE) to Measure Child Maltreatment. *Child Maltreatment*, 3 (3), 251-261. (L)

Mackner, L. M., Black, M. M., & Starr, R. H. (2003). Cognitive Development of Children in Poverty With Failure to Thrive: A Prospective Study Through Age 6. *Journal of Child Psychology and Psychiatry*. 44(5), 743-751. (L)

Mackner, L. M., Starr, R. H. Jr., & Black, M. M. (1997). The Cumulative Effect of Neglect and Failure to Thrive on Cognitive Functioning. *Child Abuse & Neglect*, 21(7), 691-700. (L)

Manly, JT. (2005) Advances in research definitions of child maltreatment *Child Abuse & Neglect,* 29:425-439. (L&N)

Marshall, D. B., & English, D. J., (2001). The Effect of Fathers or Father Figures on Child Behavioral Problems in Families Referred to Child Protective Services. *Child Maltreatment*, 6(4), 290-299. (L)

Marshall, D. B., & English, D. J. (2000). Neural Network Modeling of Risk Assessment in Child Protective Services. *Psychological Methods*, 5(1), 102-124. (R)

Marshall D. B. & English, D. J. (1999). Survival Analysis of Risk Factors for Recidivism in Child Abuse and Neglect, *Child Maltreatment*, 4(4), 287-296. (R)

Martinez, M. L., Black, M., & Starr, R. H. Jr. (2002). Factorial structure of the Perceived Neighborhood Scale (PNS): A test of longitudinal invariance. *Journal of Community Psychology*, 30(1), 23-43. (L)

McKenry, P. C., Kotch, J. B., & Browne, D. H. (1991). Correlates of Dysfunctional Parenting Attitudes Among Low-Income Adolescent Mothers. *Journal of Adolescent Research*, 6, 212-233. (L)

McNary, S. W., & Black, M. M. (2003). Use of the Child Abuse Potential Inventory as a measure of treatment outcome. *Child Abuse & Neglect,* 27, 459-461. (R)

Morrel, T., Dubowitz, H., Kerr, M., & Black, M. (2003). The effect of maternal victimization on children: A cross-informant study. *Journal of Family Violence*, 18(1), 29-41. (L)

Nair, P., Schuler, M. E., Black, M. M., Kettinger, L., & Harrington, D. (2003). Cumulative environmental risk in substance abusing women: early intervention, parenting stress, child abuse potential, and child development. *Child Abuse & Neglect*, 27, 997-1017. (R)

Newton, R. R., Litrownik, A. J., & Landsverk, J. A. (2000). Children and Youth in Foster Care: Disentangling the Relationship Between Problem Behaviors and Number of Placements, Child *Abuse & Neglect*, 24(10), 1363-1374. (L)

Radhakrishna, A., Bou-Saada, I., Hunter, W., Catellier, D., & Kotch, J. B. (2001) Are Father Surrogates a Risk Factor for Child Maltreatment? *Child Maltreatment*, 6(4), 281-289. (L)

Romney, S., Litrownik, A. J., Newton, R. R., & Lau, A. S. (In press) The Relationship Between Child Disability and Living Arrangement in Child Welfare. *Child Welfare*. (L)

Runyan D. K., Cox C. E., Dubowitz H., Newton R. R., Upadhyaya M., Kotch, J. B., Leeb R. T., Everson M. D., & Knight E. D. (2005). Describing Maltreatment: Do Child Protective Service Reports and Research Definitions Agree? *Child Abuse and Neglect*, 29(5), 461-477. (L & N)

Runyan, D. (2003). Child abuse around the world: local data are needed to drive local policy. *Child Abuse & Neglect* 2003. (R)

Runyan, D. K., & Litrownik, A. J. (2003). Introduction to Special Issue: LONGSCAN and Family Violence. *Journal of Family Violence*, 18(1), 1-4. (L)

Runyan, D. K., (2000). The Ethical, Legal, and Methodological Implications of Directly Asking Children About Abuse. *Journal of Interpersonal Violence*, 15(7), 675-681. (L)

Runyan, D. K. (1999). Maltreatment in Families: A Research Dilemma. In N.M.P. King, G.E. Henderson, & J. Stein (Eds.), *Beyond Regulations: Ethics in Human Subjects Research*. Chapel Hill: The University of North Carolina Press. pp. 163-170. (L)

Runyan, D. K., Curtis, P., Hunter, W. M., Black, M. M., Kotch, J. B., Bangdiwala, S., Dubowitz, H., English, D., Everson, M., & Landsverk, J. (1998). LONGSCAN: A Consortium for Longitudinal Studies of Maltreatment and the Life Course of Children. *Aggression and Violent Behavior: A Review Journal*, 3 (3), 275-285. (L)

Runyan, D. K., Hunter,W. M., Socolar, R. S., Amaya-Jackson, L., Browne, D. H., English, D., Landsverk, J., Dubowitz, H., Bangdiwala, S. I., & Mathew, R. M. (1998). Children Who Prosper in Unfavorable Environments: The Relationship to Social Capital. *Pediatrics*, 101, 12-18. (L)

Saluja, G., Kotch, J., & Lee L-C. (2003). Effects of child abuse and neglect: Does Social Capital Really Matter? *Archives of Pediatric and Adolescent Medicine,* 157, 681-686. (L)

Schneider, M. W., Ross, A. J., Graham, J. C., & Zielinski, A. (2005). Do Allegations of Emotional Maltreatment Predict Developmental Outcomes Beyond That of Other Forms of Maltreatment. *Child Abuse and Neglect,* 29(5), 513-532. (L & N)

Schneider, M. W., & Curtis, P.A. (1997). The Capella Project: Collecting Data in a War Zone. In Proceedings of 5th Annual Cultural Impact Conference*: Promoting Healthy Families and Community Support Systems.* Chicago, IL. (L)

Silver-Isenstadt, A., & Dubowitz, H. (2005). Child Neglect. In L. Osborn, T. DeWitt, L. Firs, J. Zenel (Eds.) Pediatrics, Elsevier Mosby. (R)

Socolar, R., Winsor, J., Hunter, W., Catellier, D., & Kotch, J. (1999). Maternal Disciplinary Practices in an At-Risk Population. *Archives of Pediatric and Adolescent Medicine*, (153), 927-934. (L)

Socolar, R., Runyan, D. K., & Amaya-Jackson, L. (1995). Methodological and Ethical Issues Related to Studying Child Maltreatment. *Journal of Family Issues*, 16(5), 565-586. (L)

Taussig, H. N. (2002). Risk behaviors in maltreated children placed in foster care: A longitudinal study of protective and vulnerability factors. *Child Abuse and Neglect,* 26 (11), 1179-1199. (R)

Taussig, H. N., Clymen, R. B., & Landsverk, J. (2001). Children Who Return From Foster Care: A Six-Year Prospective Study of Behavioral and Emotional Outcomes in Adolescence. *Pediatrics,* 108(1), E10. (R)

Taussig, H. N., & Litrownik, A. J. (1997). Self- and Other-Directed Destructive Behaviors: Assessment and Relationship to Type of Abuse. *Child Maltreatment*, 2(2), 172-182. (R)

Taussig, H. N., & Litrownik, A. J. (1997). Methodological Issues in Classifying Maltreatment: an Examination of "Protective Issue" Children. In G. Kaufman-Kantor & J. Jasinski (Eds.) *Out of the Darkness: Contemporary Perspectives on Family Violence*. Newbury Park: Sage Publications, 136-147. (R)

Thompson, R. (In press) Exploring the link between maternal history of childhood victimization and child risk of maltreatment. *Journal of Trauma Practice.* (L)

Thompson, R., Dubowitz, H., English, D. J., Brody, K., Wike, T., Bangdiwala, S. I., Runyan, D. K., & Briggs, E. C. (In press). Parents' and Teachers' Knowledge of Pre-adolescent Children's Suicidal Ideation: Findings from a high-risk sample. *Suicide and Life-Threatening Behavior.* (L)

Thompson, R., Briggs, E. English, D. J., Dubowitz, H., Lee, L.-C., Brody, K., Everson, M. D., & Hunter, W. M. (2005). Suicidal ideation among 8-year-olds who are maltreated and at risk: Findings from the LONGSCAN studies. *Child Maltreatment,* 10(1), 26-36. (L)

Thompson, R. (2005). The course and correlates of mental health care received by young children: Descriptive data from a longitudinal urban high-risk sample. *Children and Youth Services Review*, 27, 39-50. (L)

Thompson, R., Henkel, V., & Coyne, J. C. (2004). Suicidal ideation in primary care: Ask a vague question, get a confusing answer. *Psychosomatic Medicine*, 66, 455-456. (R)

Zolotor, A., Kotch, J., Dufort, V., Winsor, J., & Catellier, D. (1999). School Performance in a Longitudinal Cohort of Children At Risk of Maltreatment, *Maternal and Child Health Journal,* 3(1), 19-27. (L)