Longitudinal Studies in Child Abuse And Neglect

LONGSCAN

The Second Five Years at the Coordinating Center, the North Carolina Site & the Seattle Site 1996 – 2000

Final Report to the Office of Child Abuse and Neglect

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EXECUTIVE SUMMARY

LONGSCAN (LONGitudinal Studies in Child Abuse and Neglect) is a consortium of five cohort studies addressing the antecedents and consequences of child abuse and neglect. This report summarizes the progress and results for the second five years of funding from the Office on Child Abuse and Neglect of the Children's Bureau. This report will summarize the successful recruitment of participants, fielding of interviews, and describe some of the findings.

LONGSCAN was formed in response to a 1989 request for proposals from the National Center on Child Abuse and Neglect for a multi-site longitudinal study of child maltreatment. Planning grants were awarded to the University of North Carolina and the Juvenile Protective Association of Chicago. The core elements of LONGSCAN were designed over the ensuing nine months and funding for the projects began in 1991. Using samples that were designed to systematically vary by level of risk and social service involvement, five studies were developed that would share common measures, definitions, training, data entry, data management and a coordinating center. The variety of samples were chosen to allow examination of the risk and protective factors shared by children at risk for or having been maltreated, as well as to permit the examination of the impact of intervention for a range of interventions. A multi-site study was needed to achieve adequate statistical power and ensure that findings were not idiosyncratic for a specific sample or specific intervening agency.

Studies were initiated in four primarily urban sites (Baltimore, Chicago, San Diego, and Seattle) and one statewide site (North Carolina). The studies samples vary in level of risk for or actual maltreatment histories. All of the children were enrolled during their first four years of life. Baltimore's sample was derived from medical center criteria for risk in the first year and North Carolina's sample was identified from a state public health effort to define high-risk infants at birth. The other sites were recruited after varying levels of social service involvement for reported child abuse. The Seattle sample was identified from children reported to social services for suspected child maltreatment prior to determining if maltreatment had occurred. Chicago's exposed sample consists of children whose families were reported to authorities and the maltreatment was confirmed but whose children were referred for family intervention. Chicago also enrolled a sample of substantiated children not referred for family intervention and a group of neighborhood controls. The San Diego sample consists of children removed from the home and placed in foster care in the first 4 years of life because of confirmed child maltreatment.

The consortium is coordinated through the LONGSCAN Coordinating Center (CC) at the University of North Carolina at Chapel Hill. The CC staff are responsible for developing the common core instruments, code books and measurement manuals, training for interviewers and study coordinators, continuing email, conference call and web-based communications, building the analysis files, coordinating publication plans, and conducting or confirming analyses for publications. The biostatistics staff at the CC receives data from the sites monthly, coordinates cleaning the data with the site coordinators, and periodically distributes CDs containing the combined data to each of the sites. The consortium has established governance and publication agreements and uses biweekly PI telephone calls to move the project along. In addition, the CC coordinates biannual national meetings, one rotating among the LONGSCAN sites and one in Washington, D.C. with the Children's Bureau.

In 1995, LONGSCAN set out the following objectives for the second 5 years of funding:

1. Determine the impact of maltreatment on latency-age children and early adolescent psychological well-being, including risk-taking behavior such as smoking, drug abuse, aggressive and violent behavior, and sexual activity.
2. Develop longitudinal models of the psychological and developmental impact for different types of maltreatment at different ages while controlling for family composition, socioeconomic status, other violence in the home, maternal functioning, and service intervention.
3. Describe the patterns and impact of mental health services and other services provided to at-risk or maltreated children by child, family, community, and agency characteristics.
4. Expand knowledge of maltreatment histories of participants using a multiple method, multiple source approach including caregiver report, record review, and beginning at Age 12, self reports from the children.
5. Advance measurement in the field through the identification, use and dissemination of age-appropriate and culturally sensitive outcome measures.
6. Develop further recommendations for the field that address the ethical, legal and methodological barriers to successful child maltreatment research.

Each of these objectives has been addressed over the past five-year period. Objective 1) was addressed through the development of improved means of ascertaining maltreatment. An audio computer-assisted self-interview was designed and fielded for study children as they reached 12 years of age. Data were collected with this interview for all of the study children in North Carolina and with the first 12-year-olds at the Seattle, San Diego and Baltimore sites. Analyses on the impact of maltreatment on the children at age 8 are currently underway and selected findings are presented in this report. Age 12 data have been examined only for the North Carolina site and these analyses will be completed during the next grant period.

The analyses for objective 2) are also underway and a manuscript is being developed for JAMA on the differential impact of maltreatment at different ages. Patterns of intervention and service utilization have been examined and will be summarized below addressing objective 3).

Objective 4) is addressed in this report with the self-report data from the children at age 12. We will be able to compare these data with our other sources of data including parent report of discipline and official DSS reports as recorded by DSS and as coded by LONGSCAN staff using the LONGSCAN Maltreatment Coding System (LMCS) and NIS-II coding systems. The LMCS, a modified version of the Barnett, Manly, & Cicchetti coding system, is rapidly becoming the standard for research nationally. Objective 5) has been addressed through extensive analyses of the responses to our measures, which are to be published as a book and placed on the web by the Child Welfare League of America. Finally, objective 6) has been extensively addressed in a volume of the *Journal of Interpersonal Violence* published in July 2000. LONGSCAN sponsored a national meeting addressing ethical issues and published a series of six papers on aspects of ethics.

Statistical considerations have been given considerable attention during the most recent grant period. The LONGSCAN database consists of repeated measures on the same individuals. Attrition of participants and missing individual forms or instruments have to be accommodated. Further, there is variation in the timing of interviews and systematic variation in the samples. The cross-site analyses involve examining data by site and then, where appropriate, pooling the data. There are few standard directives guiding the pooling of data from different sites. Our process has involved careful examination within sites and then inspection for systematic differences between sites. Where there are systematic differences, the sites are not combined but rather examined independently. Modeling techniques appropriate for testing hypotheses are used to pool the data using multi-level modeling (hierarchical linear modeling) and in some cases, Generalized Estimating Equations (GEE's). A discussion of statistical issues appears in this report.

During the 4.5 years of the last grant period, LONGSCAN investigators completed 1891 face-to-face interviews of children and parents in addition to 6219 annual contact interviews of the parents during years when a major child interview was not scheduled. Because of the absence of telephones in homes, a significant number of the annual contacts were administered face-to-face with a parent or caregiver.

LONGSCAN has worked very hard to capture thorough maltreatment data with frequent reviews of state central registries and local DSS records for all study participants. Record reviews were coded using the original classifications by social service agencies, the NIS-2 coding scheme, and a modified version of the Barnett, Manly, and Cicchetti coding scheme developed by Diana English (See Appendix A).

The CC took its responsibility for standardizing data collection procedures seriously and held 6 cross-site training workshops for coordinators and interviewers. Training has been held on the ages 6, 8, 12, and 14 protocols, and in standardized coding of CPS reports. These training workshops occurred in Chicago, North Carolina, Seattle, and Baltimore.

Baseline data were transmitted to the National Child Abuse and Neglect Data Archive in May of 2000. Data will be transmitted every two years, as interview waves are completed, to maintain a public data archive. We have been very conscious of the potential for privacy violations associated with archival records. Data have been stripped of all primary and secondary identifiers. We have negotiated a User's Agreement with Cornell that further protects participant privacy and helps assure appropriate use of the data set.

The LONGSCAN investigators have taken seriously former NCCAN Director David Lloyd's caution at the time that LONGSCAN was initiated that the agency was not in a position to fully support a "Cadillac" study, and his recommendation that we should constantly seek additional opportunities that would allow us to expand and extend the data collection. We have been fortunate to obtain small amounts of support from the UNC Injury Prevention Center for ancillary work. We have also participated in the NICHD Family and Child Well-Being Network, which supported our exploration of the ethical issues surrounding asking children about their maltreatment experiences, as well as the development of our health status measures. We have been active in the network and extended its interests in the areas of social capital and the impact of fathers on child development.

Recently, we have obtained support for an age 14 interview of the children using the Diagnostic Interview Schedule for Children in an effort to look explicitly at the adverse effects of Neglect. This NIH R01 grant will extend from 2000 to 2005 and will look explicitly at adolescent aggression as an extension of childhood neglect. Other additional projects include a secondary analysis of the educational data with Department of Education support; and support from the CDC for an examination of the potential for developing the age 12 audio-CASI questions about maltreatment history into a clinical instrument useful in medical and mental health settings.

The primary results of the earliest analyses of impact on maltreatment on latency age children are presented in Table 5 of this report. Controlling for socio-economic status, race, and study site, we found strong adverse effects of sexual abuse on the Trauma Symptom Checklist for girls in the areas of anger, anxiety and total score. Adverse effects were also documented on the CBCL for sexual abuse. Physical and psychological aggression had less pervasive impacts although chronic physical and psychological aggression by a caregiver were very strongly related to Child Behavior Checklist total problem scores. Interestingly, boys have far fewer adverse effects, as indicated by the TSCC, although all forms of maltreatment produced strong adverse effects on the CBCL total problems scores. Chronicity, rather than severity, appeared to drive these relationships although the two dimensions cannot be completely separated.

We were able to demonstrate a rather low concordance of abuse reports by parents and children. For the most severe physical assaults, 9% of the NC children had either a self-report or a parent report of severe physical assault. However, there were no cases in which both the parent and the child reported severe assault. Overall 29% of adolescents reported a history of any type of maltreatment. However, 53% of all the NC sample children had an official report of child maltreatment. Almost 47% of the sample had either a DSS report of maltreatment or a child report of maltreatment without both sources agreeing.

Our data on service utilization are among the first for a high risk or abused sample. Overall, 28% of caregivers thought that their children in this sample needed mental health services and almost all of these children actually received some services. By age 7, the gap had widened as 43% of the parents felt that the children needed services and only 36% received them. There was a black-white difference in services received and in need, as perceived by caregivers; black children received services less often than other children which mirrored the lower perception of need by caregivers. At age 5, 29% of the children received services for behavioral issues. Interestingly, 86% of the children received routine medical care during the year at age 5 and 6% had been hospitalized for medical, emotional or psychological services at age 5. The rate of hospitalization was lower for the 6 and 7 year olds with the 7 year old children having a hospitalization rate of 2.8%.

LONGSCAN extensively examined the role of fathers in the children's lives and has submitted a group of papers on these relationships to *Child Maltreatment*. A summary of these papers is presented. An analysis conducted at the Chicago site found a lower risk of child maltreatment when a biological father was in the home and, conversely, the presence of an unrelated male in the home as a risk factor. The Seattle site noted lower levels of aggression among children at age 6 when the child had a relationship with a male in the home. In addition, the Seattle site noted that fathers in the home were significantly associated with lower rates of maternal depression. The pooled cross-site analysis of the impact of fathers on children demonstrated that children growing up with fathers had higher cognitive function.

LONGSCAN also examined the impact of domestic violence on children. The studies together found little direct effect on child psychological function for exposure to domestic violence when children were age 4 and a slightly greater impact, although still relatively minimal, at age 6. What the investigators did conclude however, was that domestic violence has a profound effect on maternal depression and that maternal depression has a strong effect on the children. We remain interested in determining whether the presence of domestic violence in the home will have a much stronger direct effect as the children grow older. Overall, there is a strong relationship between DV and child maltreatment with the risk for a maltreatment report doubling within two years of reported domestic violence. The rates of domestic violence appeared to range from 8-10% at the two sits in which child abuse had the lowest prevalence, to 46% of children among children either in placement or reunited after a foster care placement for maltreatment.

One of the most salient criticisms of longitudinal studies of a child welfare population is that the risk of attrition is high. With the exception of the Chicago site, we have been able to maintain more than 80% of the original sample after eight years of study enrollment. Approximately 10% loss was noted between major interview points and subsequent interviews have been able to locate children lost to intermediate interviews. The Chicago sample attrition is due, in large part, to the policy decision which resulted in the tearing down of major public housing projects and we expect to be able to relocate the majority of these children over time.

This report includes an annotated bibliography of the publications authored by investigators at the Coordinating Center and at the Seattle and North Carolina sites. The publication rate is rapidly increasing with two special journal volumes of multiple papers currently in press and another planned for this year.

In summary, LONGSCAN has established itself as a major national resource and data collection has proceeded well. The next phase of the project will be important as longitudinal data are now available for nearly all participants with almost 900 children having completed the ages 4, 6, and 8-year-old interviews, and with additional children attaining this milestone each month at the Chicago site. We are proud of our successes to date and look forward to what will be the most productive five years of LONGSCAN yet.

BACKGROUND

A. Introduction, History, and Organization of LONGSCAN

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 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, the North Carolina site and the Seattle site for years 6-10 of the project; April 1, 1996 through September 30, 2000. (NOTE: Year 10 of the project was shortened to six months by mutual agreement between OCAN and the three sites reporting here. This decision was made so that the Coordinating Center and all five data collection sites will now have the same annual funding cycle dates of October 1st through September 30th.)

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, 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 LONGSCAN modifications to Barnett, Manly and Cicchetti's maltreatment definitions developed by Dr. English appear in Appendix A).

Currently in its tenth 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 III. 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. It is interesting to note that LONGSCAN has collected data throughout the majority (66% to 100%) of each participant child's life. The age range of our child participants is broad, with the oldest children currently 14 years old and the youngest child approaching 6 years.

B. **Consortium Structure:** Participation in a multi-site consortium has meant that both the Coordinating Center (CC) and sites have had to negotiate with 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 increased 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 9 data points running concurrently across five sites is extensive. The CC investigators have dedicated themselves to these development and implementation issues over the last 10 years, and we will continue to so.

After ten years, LONGSCAN investigators have emerged as a cohesive team: successfully maximizing each member's expertise, trusting members to advocate for site-specific needs and increasingly willing to relinquish autonomous decision making for the good of the Consortium. Fundamental to this process was the development of a Governance Agreement (included in the previous Final Report dated 08/20/96) and a Publications Policy (finalized 12/17/98 and included in this document as Appendix B) which 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.

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 children at least one year, and up to four years, prior to field entry at other sites. With use in the field and because there is significant lag in the timing of each site's entry into data collection, changes to the protocol 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 collection procedures. The A-CASI methodology used for all youth respondent interviews starting with Age 12 assures the highest standard of uniformity of data collection across sites. It is our intention to continue 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 Archive, data analyses and manuscript preparation, production and dissemination of research briefs, and grant preparation and submission.

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 Consortium Committees, and coordination of consortium-wide meetings. A major accomplishment of this funding period was to establish a LONGSCAN website at: http://www.sph.unc.edu/iprc/longscan/about/about.html The website provides information about LONGSCAN to the general public as well as offering a password-protected communication area for use only by LONGSCAN investigators.

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 involves identifying and researching existing measurement options and developing new instrumentation when necessary, submitting proposals to the CC-led Measures and Executive Committees for approval; and once approved, acquiring the instruments or 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 National Archives. 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 Archives 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. Participation in LONGSCAN mandates a commitment to shared management.

C. Objectives as Stated in 1995

Objectives. 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 long-term objectives of the LONGSCAN Consortium are to:

(1) Examine the antecedents of different and combined forms of maltreatment considering the child, family, and environmental factors that either increase the risk for, or protect from, maltreatment;
(2) Ascertain the risk of adverse developmental, behavioral, cognitive and social outcomes from different and combined forms of maltreatment;
(3) Determine the child, family, and community factors that are associated with resilience in maltreated children, as well as the factors that exacerbate the harms of maltreatment;
(4) Establish a prospective study of the impact of child sexual abuse with baseline data on child behavioral status before the onset of sexual victimization;
(5) Examine the impact of societal intervention on maltreated children including social service intervention, foster care placement, mental health services, and court intervention.
(6) Facilitate replication of analyses across sites to explore the cultural, regional, and sample-specific variations in the impact of maltreatment and societal intervention.

The Phase 2 objectives for LONGSCAN during 1995 through 2000 include:

(1) Determine the impact of maltreatment on latency-age and early adolescent psychological well-being including risk-taking behavior such as smoking, drug abuse, aggressive and violent behavior, and inappropriate sexual activity;
(2) Develop longitudinal models of the psychological and developmental impact for different types of maltreatment at different ages while controlling for family composition, socioeconomic status, other violence in the home, maternal functioning, and service intervention.
(3) Describe the patterns and impact of mental health services and other services provided to at-risk or maltreated children by child, family, community, and agency characteristics.
(4) Expand knowledge of maltreatment histories of participants using a multiple method, multiple source approach, including caregiver report, record review and, beginning at age 12, self reports from the children.
(5) Advance measurement in the field through the identification, use, and dissemination of age-appropriate and culturally sensitive outcome measures.
(6) Develop further recommendations for the field that address the ethical, legal, and methodological barriers to successful child maltreatment research.

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 effect 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 own environment. LONGSCAN's Conceptual Model of development appears in Figure 1.

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.

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 were recruited from families reported to CPS, with half of these 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. See additional Site Specific Information section for discussion of risk assessment work being done at the Seattle Site.)

Although there were some early differences between site-specific cohorts, and while we expect some differences by original cohort to remain, several recent analyses examining children's experiences with violence and their family circumstances have noted few significant site differences. We predict that these original differences between site-specific cohorts will continue to diminish in importance in the cross-site and replication analyses of risk and protective factors related to maltreatment.

Throughout this report the names of our LONGSCAN Sites will be used as follows:

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

Table 1: Brief Description of the LONGSCAN Samples

Site (n)	Cohort birth year	Race/ ethnicity #		Geographic location		Risk groups	Comparison group(s)
San Diego (330)	1989-91	A-A White Hisp. Mixed Other	36% 31% 17% 12% 4%	Urban	100%	Early foster care (n=320)	(1/3 of foster children have returned home by age 4)
Seattle (261)	1988-94*	A-A White Hisp. Mixed Other	20% 50% 2% 24% 4%	Urban Rural	90% 10%	CPS report/mod. risk & substantiated (n=159)	CPS report/mod. Risk NOT substantiated
North Carolina (243)	1986-87	A-A White Hisp. Mixed	62% 37% 14% 1%	Urban Suburban Rural	53% 24% 23%	Reported to CPS by age 4 years (n=74)	Not reported to CPS (n=147)
Baltimore (282)	1988-91	A-A White Mixed Other	93% 5% 1% 1%	Urban	100%	(1) Failing to thrive (n=123) or (2) prenatal drug use of HIB infected mother (n=83)	Same pediatric clinic, no extra risk factors (n=116)
Chicago (319)	1991-94*	A-A White Hisp. Mixed	47% 15% 14% 22%	Urban	100%	Family reported to CPS & (1) 6 mo. family Rx *or* (2) usual CPS care	Neighborhood Controls (n=100)

A-A = African-American, Hisp. = Hispanic
*these cohorts were identified and recruited following the 1990 onset of LONGSCAN funding. # Hispanics may be any race.

C. **Measurement Development:** The Coordinating Center, Measures Committee, and Principal Investigators developed extensive face-to-face interviews for children aged 12 and caregivers of children ages 12 and 14[1] during the this project period. Annual telephone interviews were developed for caregivers of children ages 10, 11 and 13. Teacher Report protocols were developed to coincide with the ages 10, 12 and 14 interviews.

Interviews were developed to capture key age-specific child 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. See Appendix C for the set of Age 12 Interviews. Table 2 lists all measures used at each age-related data-collection contact, and Table 3 summarizes cross-site data collection (number of interviews completed) since LONGSCAN started.

The development and data collection of the Age 14 youth and teacher interviews is supported by the National Institute of Child Health and Development.[1]

TABLE 2 - LONGSCAN Common Measures: Baseline through Age 14

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Child Characteristics									
Demographics	*Child Demographics* (1991)	x	x	x					P
birthweight/prematurity	*Perinatal Form* (1991)	x	x						P
separation from caregiver in first year of life	*Separation, (1991)*	x	x						P
Day Care Utilization	*Daycare (1991)*	x	x						P
social competence	*Child Behavior Checklist (Achenbach),1991* *Youth Self-Report (Achenbach, 1991)*				x	x x			P C
health/handicapping conditions/injury	*Child Health Status (1991, 1993, 1998)* *Child Health & Development (1998)* *Child Injuries & Accidents (1991)*	x x	x x	x	x	x x	x x**	x	P C
Temperament	*Infant Characteristics Questionnaire* (Bates et al., 1979)	x							P
developmental status	*Battelle Developmental Inventory Screening Test* (Newborg et al., 1988)	x	x						P & C
intellectual functioning	*PPVT-R* (Dunn & Dunn, 1981) *WPPSI* (Wechsler, 1989) *WRAT-III-Reading & Arithmetic* (Wilkinson, 1993) *Arithmetic* (Wilkinson)	x	x	 x		 x x	 x		C C C C

[1] No author indicates that the measure was project-developed.
[2] P = parent; C = child; T = teacher ratings; I = interviewer ratings; R=record abstraction
O*=indicates a measure in the common battery that is optional.
**=Data collection on partial sample funded by National Institutes for Health.
(Note: The Age 13 Annual Contact Interview is optional by site with Executive Committee Approval; the SO, EA, and SW sites are not administering this interview.)

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Child Characteristics (cont'd)									
adaptive behavior & development	*Battelle Developmental Inventory Screening Test* (Newborg et al., 1988)	x	x						P & C
	Vineland Screener (Sparrow, 1993)			x	x	x	o*		P
global report of child's well-being	*Parent Global Report*							Ages 10.11.13	P
behavior problems	*Child Behavior Checklist* (Achenbach, 1992, 1991)	x	x	x	x	x	x	Age 10	P
	Youth Self-Report (Achenbach, 1991)					x			C
	Teacher Report Form (Achenbach, 1991)			x	x	x	x**	Age 10, 0*	T
aggressive behavior	*Child Aggressive Behavior Inventory* (1992)							x	P
affective symptoms	*Preschool Symptom Self-Report* (Martini, et al., 1990)	x	x	x					C
	Trauma Symptom Checklist for Children (Briere, 1996)				x	x			C
	Youth Self-Report (Achenbach, 1991)					x			C
	CBCL Internalizing Scale (Achenbach, 1991)		x	x	x	x	x**		P
	Teacher Report Form (Achenbach, 1991)			x	x	x	x**	Age 10, 0*	T
pubertal development	*Child Health & Development* (1998)					x	x**		C

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Child Characteristics (cont'd)									
ethnic identity	*Multigroup Ethnic Identity Measure* (Phinney, 1992)					x			C
sexual behavior	*Child Sexual Behavior* (Friedrich, 1991) *Adolescent Sexual Experiences Inventory* (adapted from CHAMPS, 1998)				x	 x	 x**		P C
parent expectations (re: education)	*Parent Expectations for Child* *Mother-Child Relationship* *Father-Child Relationship* (adapted from ADD Health Study, 1998)					x x x	x x** x**	x	P C C
perceived competence	*Pictorial Scale of Perceived Competence* (Harter & Pike, 1984)			x					C
social problem solving	*Behavioral Intent Scale* (Slaby & Guerra, 1989)				x				C

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Child Characteristics (cont'd)									
peer relationships	*Teacher Estimation of Peer Status* (Lemerise & Dodge, 1990) *Loneliness & Social Dissatisfaction Scale* (Asher et al., 1984) *Peer Relationships* (1998)			x x	x	x x	x** x**		T C C
social development	*Vineland & Battelle*			x	x	0*			
exposure to alcohol & illicit drugs	*Exposure to Substances* (1994) *Adolescent Substance Involvement* (1998) *Risk Behaviors of Family & Friends*				x	x x	x**		C C C
exposure to violence	*Things I've Seen & Heard* (Richters & Martinez, 1993) *History of Witnessed Violence* (1998) *Life Events, (1992)*			x x	x x	x x	x**	9, 10, 11	C C P
Resilience	*Resilience Factors* (1998)					x	x**		C
school orientation	*School Orientation* (1998)					x	x**		C
school absenteeism, tardiness	*School Information Form (1993)*			x	x	x	x**	Age 10, 0*	T
school suspensions	*School Information Form-revised (1998)* *Teacher Report Form* (Achenbach, 1991)			x	x	x x	x** x**		T T
Delinquency	*Adolescent Delinquency Survey* (adapted from CHAMPS, 1998)					x			C
psychological maltreatment self-report	*History of Psychological Abuse* (1998)					x			C

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Child Characteristics (cont'd)									
physical abuse self-report	*History of Physical Abuse* (1998)					x			C
neglect self-report	*About My Parents (modified from Straus, 1996)*					x	x**		C
sexual abuse self-report	*History of Sexual Abuse (1998)*					x			C
sexual abuse parent report	*Child Sexual Behavior (Friedrich, 1991)*				x				
central registry maltreatment reports	*Maltreatment Data Form*s	records review 1994 – 1995; 1996 – 1997 site-specific schedule 2000-2005; o*							r
lifetime history of CPS allegations and substantiations	*Case Narrative Record Reviews*	records review 1997-99 two reviews to be conducted 2000-2005 age 14 record review **							r
psychopathology (NIMH, 1998)	*DISC: Diagnostic Interview Schedule for Children IV, Youth Information Modules:* *1. Anxiety disorders (social phobia, separation anxiety disorder, specific phobia, panic disorder, obsessive-compulsive disorder, PTSD)* *2. Mood disorders(major depression, dysthymic disorder, mania, hypomania)* *3. Disruptive Disorders (attention deficit/hyperactivity disorder, oppositional defiant disorder, conduct disorder* *4. Alcohol/substance abuse* *DISC, Parent Informant Modules: Disruptive Behavior Disorders*						x** x		C P

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Caregiver Characteristics (cont'd)									
demographics	*Parent Demographics* (1991, 1993)	x	x	x	x	x	x		P
physical health	*Caregiver Physical Health* (1991, 1994)	x	x	x	x	x	x		P P
parent history of victimization and loss	*Mother's History of Loss & Harm* (Hunter & Everson, 1991)	x	x	x (only new care-giver)					P
Parenting attitudes	*Adult-Adolescent Parenting Inventory* (Bavolek, 1979)	x	x						P
Substance use/abuse	*CAGE* (Mayfield, et al., 1974) *Caregiver Substance Use* (1994)	x	x		 x		x		P P
Mental health	*CES-D* (Radloff, 1977) *Health Opinion Survey* (Macmillan, 1957) *Brief Symptom Index* (Derogatis, 1975)	x x	x x	x	 x	x	0**		P P P

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Family Microsystem									
family composition	*Household Composition and Family Chart* (1992)	x	x	x	x	x	x	x	P
family income	*Parent Demographics* (1991)	x	x	x	x	x	x	x	P
family satisfaction	*FAPGAR* (Smilkstein et al., 1978)	x	x						P
family functioning	*Self-Report Family Inventory* (Beavers et al., 1985)			x	x	x	x	x	P
father involvement in parenting	*Father Involvement Form* (1992)			x	x				P
quality of spouse/partner relationship	*Autonomy & Relatedness Inventory* (Schaefer & Edgerton, 1982)	x	x						P
quality of child's relationship with caregiver	*Mother-Child Relationship Form* *Father-Child Relationship Form* *Parent-Child Relationship Form* (adapted from ADD Health Study, 1997)					x x x	x** x** x		C C P
parent involvement/support related to school	*School Information Form* (1993) *School Information Form-Revised* (1998)			x	x	 x	 x**	 Age 10, 0*	T T
daily stressors	*Everyday Stressors Inventory* (Hall, 1985)			x					P
services utilization	*Service Utilization* (1991, 1992, 1994, 1997) *Perinatal Form (1991)*	x x	x x	x	x	x	x	x	P

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Family Microsystem (cont'd)									
domestic violence	*Conflict Tactics Scale* (Straus, 1979)			x	x				P
	Conflict Tactics Scale 2 (Straus, 1996)					x	0*		P
life events	*Life Experiences Survey* (Sarason et al.,1978)	x	x					Age 5, 7	P
	Child Life Events (1992)			x	x	x	x	Age 9,10,11,13	P
caregiver organizational affiliation	*Neighborhood & organizational affiliation (1997)*					x	x	Age 12	
accessibility of guns in home	*Accessibility of guns in home (1999)*						x		
use of physical discipline	*Conflict Tactics Scale* (Straus, 1979)	x	x	x	x				P
	Discipline Methods (1994)				x				P
	PC-CTS, Revised (Straus, 1998)					x	x		P
risk behaviors: presence of drugs/alcohol use in home	*Risk Behaviors of Family and Friends* (adapted from CHAMPS)					x	x**		C
parental monitoring of child	*Parental Monitoring* (Patterson and Stouthamer-Loeber, 1984)					x	x	Age 13	P C
	After School Activity & Supervision, (1998)					x	x	Age 11, 13	P, C
household rules & routines	*Family Routines Scale* (from Jensen, 1983)					x	x x		P C
hunger and poverty	*Poverty Measure* (Wehler, Scott, & Anderson, 1992; partly project developed)					x	x		p

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Family Microsystem (cont'd)									
home environment	*Interviewer Ratings of Home Environment* (1991)	x	x	x	x	x	x		I
Income supports	*Demographics* (1991, 1993)	x	x	x	x	x	x		P
	PovertyMeasure(WehlerScott,& Anderson,1992; partly project developed)					x	x		P

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE[2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Exosystem									
Unemployment	*Demographics* (1991, 1993)	x	x	x	x	x	x		P
family income	*Demographics* (1991, 1993)	x	x	x	x	x	x		P
impact of welfare reform	*Welfare Reform Measure (1998)*		Administered yearly beginning 9/1/98						p
neighborhood characteristics and social environment	*Neighborhood Short Form* (1991)	x	x		x				P
	Neighborhood Risk Factors (1992)			x					P
	Neighborhood and Organization Affiliation (1997)					x	x		P
	1990 census geocoding of 200 variables								R
School safety	*School Safety Questionnaire* (1992)			x	x				T
social support of caregiver	*Duke-UNC Functional Social Support Questionnaire* (Broadhead et al., 1988)	x	x	x					P
	Social Provisions Scale (Russell & Cutrona, 1984)				x	x	x		P
social support of child	*Inventory of Supportive Figures* (Hunter & Everson, 1990)			x					C
	My Family & Friends (Reid et al., 1989)				x				C

VARIABLE/DOMAIN	MEASURE (AUTHOR[1], DATE)	LONGITUDINAL DATA POINTS							DATA SOURCE [2]
		BASELINE	AGE 4	AGE 6	AGE 8	AGE 12	AGE 14	ANNUAL	
Macrosystem									
risk behaviors of family and peers	*Risk Behaviors of Family and Friends* (adapted from CHAMPS)					x	x**		C
Ethnic minority status	*Parent Demographics* (1991, 1992)	x	x	x		x	x		P
	Child Demographics	x	x	x					P
	Multigroup Ethnic Identity Measure (Phinney, 1992)					x			C
Child's first language	*Child Demographics*	x	x	x		x			P
Other									
Social desirability/caregiver	*SDRS-5* (Hays et al., 1989)				x	x			P
Social desirability/child	Lie Scale, *Revised Children's Manifest Anxiety Scale* (Reynolds & Richmond, 1994)				x	x			C
relationship of respondent to child	Interview cover sheets	x	x	x	x	x	x	x	P

Table 3.

Count of LONGSCAN Interviews – by Year* and Site

April, 1991 – September 30, 2000

EAST

VISIT /YEAR*	*1991*	*1992*	*1993*	*1994*	*1995*
4	5	70	60	88	14
5	-	-	-	-	-
6	-	-	14	55	75
7	-	-	-	-	60
8	-	-	-	1	9
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
TOTAL	5	70	74	144	158

EAST

VISIT /YEAR*	*1996*	*1997*	*1998*	*1999*	*April 1, 2000 – September 30, 2000*
4	-	-	-	-	-
5	-	-	-	-	-
6	93	18	-	-	-
7	40	53	28	1	-
8	69	72	72	14	1
9	-	26	50	64	11
10	-	1	32	40	18
11	-	-	10	20	5
12	-	-	-	16	6
TOTAL	202	170	192	155	41

*A year is defined as a LONGSCAN fiscal year of April 1st to March 31st .
However, the 2000 year was cut short by 6 months.

Table 3. (cont'd.)

Count of LONGSCAN Interviews – by Year* and Site
April, 1991 – September 30, 2000

MIDWEST

VISIT /YEAR*	*1991*	*1992*	*1993*	*1994*	*1995*
0	1	2	20	6	6
1	12	110	101	53	41
2	-	6	80	48	81
3	-	-	-	19	100
4	-	-	-	1	19
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
TOTAL	13	118	201	127	247

MIDWEST

VISIT /YEAR*	*1996*	*1997*	*1998*	*1999*	*April 1, 2000 – September 30, 2000*
0	-	-	-	-	-
1	2	-	-	-	-
2	37	13	-	-	-
3	65	53	14	-	-
4	79	71	39	15	-
5	27	84	38	48	13
6	-	15	76	71	29
7	-	-	-	93	47
8	-	-	-	27	46
9	-	-	-	-	18
10	-	-	-	-	-
TOTAL	210	236	167	254	153

*A year is defined as a LONGSCAN fiscal year of April 1st to March 31st .
However, the 2000 year was cut short by 6 months.

Table 3. (cont'd.)

Count of LONGSCAN Interviews – by Year* and Site

April, 1991 – September 30, 2000

SOUTH

VISIT /YEAR*	*1991*	*1992*	*1993*	*1994*	*1995*
4	90	102	29	-	-
5	-	-	88	-	-
6	-	30	159	33	-
7	-	-	37	149	-
8	-	-	-	113	77
9	-	-	-	-	18
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
TOTAL	90	132	313	295	95

SOUTH

VISIT /YEAR*	*1996*	*1997*	*1998*	*1999*	*April 1, 2000 – September 30, 2000*
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	157	4	-	-	-
10	47	124	4	-	-
11	1	120	25	-	-
12	-	-	77	95	5
TOTAL	205	248	106	95	5 **Completed interviews through age 12

*A year is defined as a LONGSCAN fiscal year of April 1st to March 31st .
However, the 2000 year was cut short by 6 months

Table 3. (cont'd.)

Count of LONGSCAN Interviews – by Year* and Site
April, 1991 – September 30, 2000

SOUTHWEST

VISIT/ YEAR*	*1991*	*1992*	*1993*	*1994*	*1995*
3		-	50	84	17
4		51	52	74	142
5		2	39	36	46
6		-	15	56	46
7		-	-	18	29
8		-	-	-	-
9		-	-	-	-
10		-	-	-	-
11		-	-	-	-
12		-	-	-	-
TOTAL		53	156	268	280

SOUTHWEST

VISIT /YEAR*	*1996*	*1997*	*1998*	*1999*	*April 1, 2000 – September 30, 2000*
3	-	-	-	-	-
4	-	-	-	-	-
5	92	6	-	-	-
6	52	121	9	-	-
7	35	55	98	5	-
8	43	62	67	96	-
9	-	28	42	23	30
10	-	8	28	1	-
11	-	1	13	6	1
12	-	-	-	10	26
TOTAL	222	281	257	141	57

*A year is defined as a LONGSCAN fiscal year of April 1st to March 31st .
However, the 2000 year was cut short by 6 months.

Table 3. (cont'd.)

Count of LONGSCAN Interviews – by Year* and Site
April, 1991 – September 30, 2000

NORTHWEST

VISIT /YEAR*	*1991*	*1992*	*1993*	*1994*	*1995*
0	-	10	-	-	-
1	5	27	19	-	-
2	4	32	87	15	-
3	5	26	84	77	16
4	-	22	61	73	76
5	-	-	28	66	70
6	-	-	-	31	60
7	-	-	-	2	29
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
TOTAL	14	117	279	264	251

NORTHWEST

VISIT /YEAR*	*1996*	*1997*	*1998*	*1999*	*April 1, 2000 – September 30, 2000*
0	-	-	-	-	-
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	18	-	-	-	-
5	71	17	-	-	-
6	61	67	16	-	-
7	60	66	65	21	-
8	31	58	53	67	15
9	2	27	60	55	1
10	-	1	26	57	1
11	-	-	2	19	1
12	-	-	-	1	12
TOTAL	243	236	222	220	30

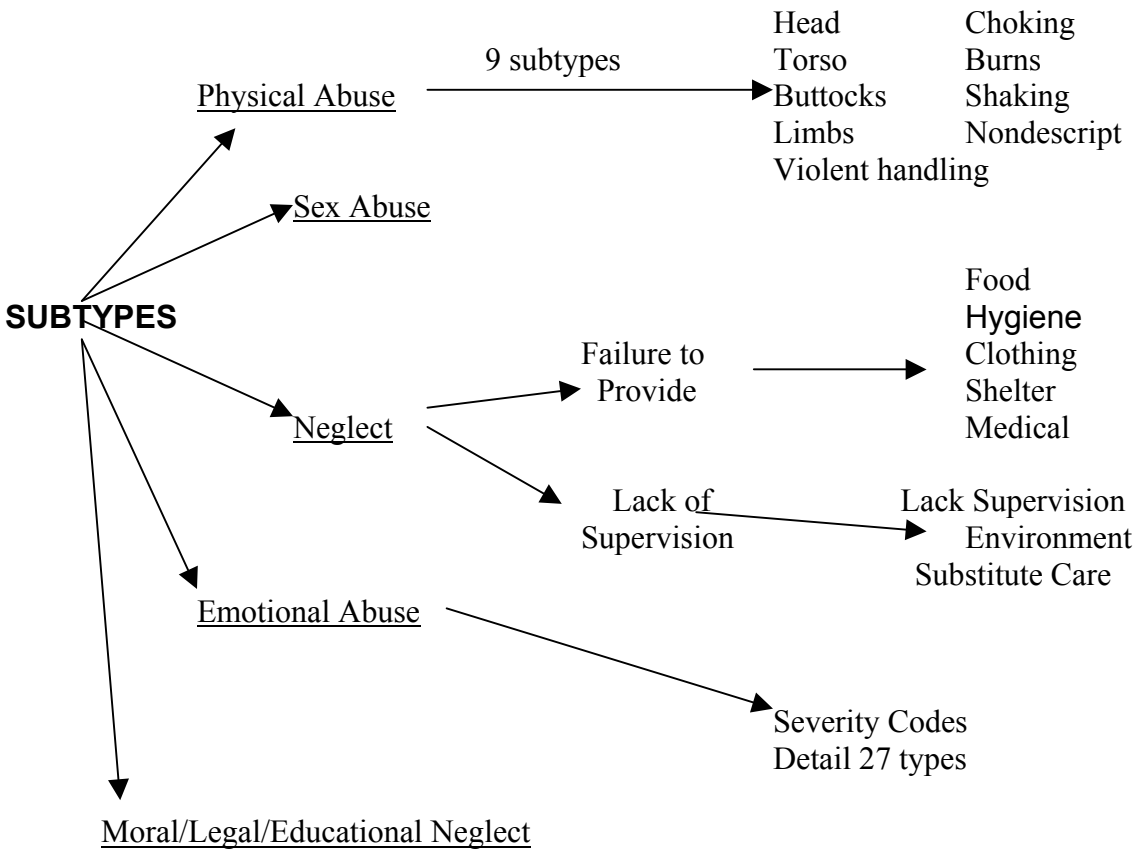
*A year is defined as a LONGSCAN fiscal year of April 1st to March 31st .
However, the 2000 year was cut short by 6 months.

Development of maltreatment data collection protocols. The LONGSCAN Study has adopted a multiple-method approach to the collection of data associated with maltreatment, including parent and child report, and review of official records. Parent report includes data on discipline practices, conflict tactics, child sexual abuse, quality of child relationship and monitoring of child. The Age 12 youth interview includes project-developed protocols for youth self-report of physical, sexual, and psychological abuse. This work was initiated in the first five years of the LONGSCAN project with the convening of the ELM (Ethical, Legal and Methodological Implications of Directly Asking Children about Histories of Maltreatment) Conference, which brought together ethicists and experts in the legal, clinical, and research aspects of child maltreatment. The conference was convened, in part, to guide LONGSCAN investigators in deciding whether to ask children for self report and if so, when and how. It was recognized that LONGSCAN should ask children for self report, as it was critical to our efforts to describe each participant's full maltreatment history. Investigators reviewed existing conceptualizations, definitions and self-report measurement batteries and identified key variables necessary for child self report. Definitions based upon the work of Barnett, Manly, and Cicchetti (1993) and Hart, Brassard, and Karlson (1996) were utilized to create questions on specific adult behaviors and injury experienced by the child. These variables are integrated into a set of three measures designed to assess: 1) psychological abuse, 2) sexual abuse, and 3) physical abuse/assault. Peer assault and resulting injury comprise a fourth domain. The measures also assess threat of harm and endangerment; experienced injury; different and combined types of maltreatment; developmental stage/age at occurrence; child's relationship to perpetrator; frequency/duration of maltreatment; disclosure history, including caregiver response; and child's attribution of maltreatment. Pretesting was conducted with clinical and community samples, and confirmed that the measures had face validity and were comprehensible to 12-year-old study participants. Self report data of neglect included "About My Parents" (Strauss, 1995), as well as measures of quality of relationships with parents and parental monitoring. The Age 12 child self-report measures are administered using an A-CASI (Audio-Computer Assisted Self Interview) format developed specifically for LONGSCAN at the Coordinating Center.

Diana English, PI of the Seattle site, has a specific interest in maltreatment classification and took the lead in the development of a revised maltreatment coding scheme (LMCS) based upon the work of Barnett, Manly and Cicchetti (1993) for LONGSCAN use in CPS case narrative record reviews. The revisions allow for further specification of sub-types of maltreatment and expanded severity ratings. This specification of sub-types includes an additional nine sub-types of physical abuse, an additional two sub-types of neglect, further sub-type specification within the category of neglect, and the coding of 27 sub-types of emotional maltreatment. Seattle site staff took the lead in training and overseeing cross-site data extraction from CPS records. CPS allegations and findings are first coded using official CPS designations, then recoded utilizing the LMCS and NIS-II definitions. (see Appendix A for the LONGSCAN Maltreatment Coding Scheme).

Figure 2

LONGSCAN Maltreatment Coding Scheme*



*Modified Barnett, Manly, Cicchetti Coding Scheme (1993)
The underlined headings in Figure 2 indicate the original sub-types in the BMC-MCS. The additional sub-type coding categories were added in the LONGSCAN revision.
In addition the LONGSCAN revisions allow for a severity rating for each sub-type. The list below provides an example of severity ratings for one sub-type of physical abuse.

LONGSCAN Maltreatment Coding* For Severity

- Severity is coded on a scale of 1 (low) through 6 (high)
- Each severity code has specific meaning
- Example: Physical Abuse to the Head/Face/Neck
  - Severity 1 = No marks indicated
  - Severity 2 = Minor marks
  - Severity 3 = Numerous or non-minor marks
  - Severity 4 = Emergency Room or medical treatment
  - Severity 5 – Hospitalization for more than 24 hours
  - Severity 6 = Permanent Disability or Death

Table 4 provides information for the 27 sub-types of emotional maltreatment coded from CPS administrative records.

Table 4 - LMCS – Sub-Types of Emotional Maltreatment

Inappropriate responsibility	Binds hands and feet
Undermines child's relations	Exposes to violent behavior
Belittles child	Negativity or hostility
Uses fear or intimidation	Threatens suicide
No age appropriate socialization	Exposes to marital violence
Role Reversal	Blames child for other's suicide
Thwarts sense of maturity	Confines five to eight hours
Rejects need for affection	Binds < two hours
Exposes to nonviolent marital conflict	Attempts suicide in front of child
Blames for family problems	Attempts homicide in front of child
Excess expectations	Abandons + 24 hours
Serious threat to injure	Binds > two hours
Derogatory names	Confines > eight hours

D. **Training:** The CC 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 booklets, 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 reassessed and to date has been robust. For example, in coding verbatim narrative responses, the North Carolina site achieved excellent interrater reliability (.94) with the CC gold standard scorer on a random sample of 20% of the completed Age 8 Discipline Methods Instrument.

Training meetings include interviewers/coordinators 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:

Chicago Site Training for Age 6 Protocols	July 1996
Age 12 Pilot Study Interviewer Training	May 1998
North Carolina Site Interviewer Training for Age 12 Protocols	August 1998
Seattle, Baltimore, & San Diego Coordinators Training for Age 12 Protocols	March 1999
Chicago Site Training for Age 8 Protocols	May 1999
Cross-site Training for Maltreatment Coding Reliability	April 2000
North Carolina Site Interviewer Training for Age 14 Protocols	September 2000
Coordinating Center Training in Maltreatment Coding Reliability Protocol	October 2000

E. **Retention/Attrition & Tracking Strategies:**
Although varied across sites, tracking and participant retention methods have been carefully developed and implemented to assure the least possible attrition throughout the years of the study. All sites have gathered complete tracking information annually. These data include complete contact information for the family's home and caregiver's place of employment, and similar information on three additional people who will "always know where [subjects] are." Other shared tracking strategies include birthday and holiday cards which include an invitation to update address information; small

"thank-you" gifts (such as gift certificates) sent to subjects who return self-addressed, stamped change of address cards; project newsletters; pens and refrigerator magnets printed with project telephone numbers provided to participants at the time of the interview; and review of State Eligibility System data and other public databases. Three sites have identified staff who function as "community trackers," a tracking strategy which has proved robust and cost-effective. Typically members of the community in which they are tracking, these staff go into neighborhoods knocking on doors and talking to neighbors in their efforts to find participants. All but the NC site have the added tracking benefit of association with the agencies that provide services to some if not all of the sample families; and in North Carolina, the Division of Social Services allows access to its computerized information system to help locate Food Stamp, Medicaid and AFDC recipients. (See Findings and Discussion section for discussion of sample retention to date.)

Operational procedures: Participant retention is of the highest priority to the Consortium. A participant is not considered permanently lost to follow-up unless the child dies or a child's caregiver asks to permanently withdraw from the study. Regarding participants who are not currently being followed due to firm caregiver refusal, it is likely that LONGSCAN will attempt to locate these participants when they turn 18 years of age and can participate regardless of caregiver consent. Participants who have moved from one LONGSCAN site to an area proximal to another site have been contacted and interviewed by site staff in their new location, enabling retention in their original sample. Participants who have moved to an area of the country that is not near any LONGSCAN site continue to receive annual telephone interviews and some portion of the face-to-face interview by telephone. If funding permits, site staff will travel out of state to conduct major face-to-face follow-up interviews at the established data collection points.

F. **Statistical Considerations.** The LONGSCAN database consists of repeated measures on the same individuals, which results 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. Furthermore, the sampling procedures for the cohorts were complex and varied across sites. Each cohort should be considered a purposive, convenient sample of a particular geographic area in the United States. Finally, the five sites have recruited cohorts across a spectrum of risk for maltreatment, resulting in heterogeneous samples that affect the ability to aggregate the data. These complexities make the statistical analyses challenging and interesting.

When considering cross-site analyses, other methodological issues include cross-site variance in the distribution of the variable under study, and slight variations or departures from the common protocol. There are several approaches to analyses to deal with site variability. Ignoring the problem is not acceptable and may result in wrong conclusions. One valid approach is to analyze the sites individually, which then raises the concern of adequate statistical power. It also implies that a single site's data have stand-alone interest, which is very pertinent in many situations. However, most research questions of LONGSCAN involve cross-site data, and the aggregation analyses must consider the comparability of sites and the consistency of results across sites. One should keep in mind that aggregating data may also impact statistical power, not in terms of its adequacy, but in terms of the possibility of overstating statistical significance given the much larger sample size.

There are very few standard directives that guide researchers in evaluating whether data from multiple sites can be combined for analyses. Given site differences, individual sampling designs, and confounding variables within each site, it is important to first determine if the sites should be combined at all. If multiple sites are to be successfully combined, there must be consistency among samples, the methods of data collection, and the goals of the individual research projects. Additionally, the results of the analyses must be reliable and allow for generalization.

In order to determine if data from multiple sites can be combined, the relationship between site and the dependent and independent variables, as well as any interactions, should be evaluated before conducting further analyses. There are two possible site effects that should be explored: (a) interactions between site and the dependent and independent variables in the model and (b) main effects of site. If interactions between site and the dependent variable are significant, then site should be accounted for in any regression model. The approaches to accounting for the sites include entering interaction terms into the models, including dummy-coded variables to represent sites, or fitting prediction and cross-validation models. A possible spurious relationship may exist between site and the dependent variable and this should be explored as well. If there are significant interactions between site and the psychosocial predictor variables, the sites should not be combined. After evaluating site interactions, the main effects of site should be assessed.

If the main effects of site are significant, they must be accounted for in the final model. The site differences in the direct influences that we have modeled in the past have been relatively small. The aggregation analysis itself can be performed with a variety of methods, including simply combining data from all of the sites, use of Mantel-Haenszel methods, meta-analysis methods, replication methods, or modeling methods.

Another statistical consideration is that individual and ecological factors are correlated and thus interact so that outcomes for children with a particular set of characteristics vary across family and cultural contexts. If these interactions between individual-level characteristics and developmental contexts are ignored, individual-level effects are distorted due to "averaging" their effects across contexts. Separate estimates of the effects of different patterns of maltreatment experiences (e.g., varying severity and chronicity) can be obtained for children across different ecological contexts (depressed caregivers, high and low levels of social capital, etc.) and the effect sizes compared across these contexts.

Modeling techniques appropriate for testing hypotheses with LONGSCAN data include multilevel modeling techniques, often referred to as HLM (hierarchical linear models) (Bryk & Raudenbush 1992), which calculate separate covariance components for the within subject level and the between subject level. Individual, family, and community effects can be incorporated into the same model. These modeling techniques use all available information so that missing data does not compromise the robustness of the estimates. Generalized Estimating Equations (GEEs), a subset of these models, are particularly useful for providing efficient estimates for repeated measures data in which the covariance structure is characterized by correlated responses (i.e., there is clustering within individuals) (Liang and Zeger, 1986). GEEs can be used to estimate models with continuous, ordinal, or binary scaled outcomes (Diggle, Liang, & Zeger, 1994). The general linear mixed model (GLMM) is also able to handle both correlated observations and irregularly timed data.

Because of the age range in the LONGSCAN samples (8 years) and site-specific differences in implementing interview protocols and completing data collection, measures have been obtained for a particular data point (e.g. "Age 6") over a relatively long time span and at varying chronological ages of the children (e.g., some "4 year olds" had already turned 5 by the time they were interviewed). Iterative estimation procedures (e.g., the Expectation-Maximization [EM] algorithm (Dempster, Laird, & Rubin 1977)) can be applied which will minimize the error resulting from this feature of the data collection design resulting in unbiased, efficient parameter estimates. With any modeling technique used, appropriate cautions and model-specification criteria are applied (Wothke, 1993; Kaplan and Wenger, 1993; MacCallum, Roznowski and Necowitz, 1992).

G. **Data Management, Documentation, and Transfer to Data Archive:** Data management, processing, documentation, and distribution of data to the sites is conducted for LONGSCAN by a unit within the Department of Biostatistics at the University of North Carolina at Chapel Hill with two decades of experience in performing analyses for external investigators. Data entry software and data management systems have been developed and centrally maintained by this unit for LONGSCAN since its inception.

The CC provides data collection software to the sites that includes built-in range checks, skip patterns, and within- and across-instrument consistency checks. User support and software maintenance is provided on an on-going basis, and sites send data to the CC on an established schedule. The central database is updated continuously with the most recently received data, and retrievals of the data are distributed quarterly to all sites. Also included in the distribution to sites are scored datasets containing scales created from raw data files for the instruments, which contain scales, such as the CBCL. The data retrieval process includes checking data for consistency, including across forms and time points. Periodically, reports of data inconsistencies and errors are sent to each site, and sites are requested to correct these errors. Older versions of retrieved data are saved so that analyses may be rerun on older versions of the data when needed. Data are backed up regularly in compliance with formally established procedures.

Documentation. Retrieval procedures, changes in retrieval code, and all programming activities are well documented. A Statistical Computing Request detailing the analyses needed is submitted by investigators or prepared at the request of investigators by the programming staff at the CC. All code developed for analyses is saved permanently for documentation and to allow analyses to be rerun as children at sites age into analyses.

Providing Consortium datasets to the National Data Archive on Child Abuse and Neglect. During the week of June 5, 2000, compact disks containing Consortium datasets for Baseline/Age 4 LONGSCAN data were sent to the National Archive as SAS files. All names of people and places, as well as any other direct identifiers were removed from the data prior to sending it to the Archive. Although dates of birth were included in the data, they will be recoded by the National Archive to protect participant identities per the Archive standard procedure. 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.

In addition, the following items accompanied the datasets to the Archive: a codebook, copies of the data collection instruments, the LONGSCAN project description, summary statistics, and a bibliography of reports, articles and other publications related to the datasets.

H. **Human Subjects:** All LONGSCAN staff are scrupulously trained in data confidentiality and protection issues. All interview protocols are approved by local site IRB's as well as the IRB of the CC. All LONGSCAN consents and assents fully inform parents and participants that new incidents of maltreatment will be reported as necessary. Need for CPS report is determined through careful data review by site LONGSCAN investigators.

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 IRB's. 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.

I. **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.

Family Functioning and Child Well-Being. Dr. Runyan's participation in the NICHD Family and Child Well-being Network enriched the process and products of LONGSCAN by providing resources for additional investigators, geocoding of census data, secondary data analyses, and conferences of researchers working in related fields. The support permitted the CC to host the ELM (Ethical, Legal and Methodological Implications of Directly Asking Children About Histories of Maltreatment). Conference, which brought together ethical, legal, clinical, and research experts in the field of child maltreatment to begin examining if and how to ask children for direct report of maltreatment in a research context.

Precursors of Violent Behavior in Young Children. Support was provided by the Center for Disease Control to enhance LONGSCAN measurement of, and analyses related to, witnessed violence, and investigation of the development of aggressive and violent behavior in young children.

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. A-CASI) 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 sites applied to the NIH under its child neglect initiative, to add a new age 14 interview focused on neglect and psychopathology for LONGSCAN. 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 in the proposed project period (09/00–06/05). LONGSCAN funding will cover the caregiver interviews at the Age 14 data collection point.

Educational Risk and Resilience in Five Longitudinal Studies of Maltreated and Disadvantaged Children. Funding to support analyses, manuscript preparation, and dissemination over the next three years has been obtained through the US Department of Education Field Initiated Studies research program. This grant began in June 2000. The study involves cross-site analyses of LONGSCAN data collected to date, with new data to be included as it becomes available. The project will examine educationally related outcomes with the goal of producing a series of manuscripts examining the academic performance of maltreated and at-risk students, with implications for policy and practice.

Development and Testing of a Maltreatment Interview for Adolescents. This project revises the LONGSCAN child self-report of maltreatment protocols to enhance its clinical utility as a forensic interviewing tool in the assessment of adolescents' histories of physical, sexual, and psychological abuse. The revised instrument will be tested in a clinical setting to establish 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 FTF administration. The project is supported by UNC Injury Prevention Research Center, funded by the Centers for Disease Control.

FINDINGS AND DISCUSSION

A. Impact of Child Maltreatment

Our longitudinal research design includes a comprehensive, multi-method, multi-informant assessment of child maltreatment, using official CPS records, caregiver reports of abusive behaviors, and child descriptions of their experiences. We have conducted some preliminary analyses on the impact of child maltreatment as assessed by the caregiver report.

The Conflict Tactics Scale (with some modifications) was used at ages 4, 6 and 8 to assess caregiver reports of a range of discipline practices, including those that are clearly physically and psychologically abusive in nature. There have been too few endorsements to date of the more severe and likely physically abusive behaviors to be analyzed (e.g., "Kick, bite or hit him/her with a fist;" "Beat him/her up"). The use of less severe forms of corporal punishment (e.g., "Grab him/her;" "Spank him/her") are common forms of discipline reported in our sample, and compose a "Corporal Punishment" subscale. The Conflict Tactics scale, however, does not assess the presence or extent of physical injury resulting from such practices, so determination of whether these less severe forms of physical punishment constitute physical abuse by any legal definition is unclear.

A second subscale of the Conflict Tactics scale, "Psychological Aggression" includes discipline practices that are potentially psychologically abusive (e.g., "Yell or scream at him/her;" "Insult or swear at him/her"), depending on the severity of the behaviors as well as other factors.

For the purposes of the current preliminary analyses, reported and suspected child sexual abuse were assessed through a brief interview of the child's caregiver at age 8. Children were classified as "Reported Sexually Abused" if the caregiver indicated, "To the best of your knowledge," the child had been sexually abused, molested or touched in a sexual way by an adult or older child. Children were classified as "Suspected Sexually Abused" if the caregiver endorsed such a belief that the child had been sexually abused or indicated that the child had been investigated or evaluated, regardless of outcome, as a possible sexual abuse victim by CPS or a medical or mental health professional.

Four Age 8 instruments were used to assess child outcomes that might be affected by the "abusive" or "potentially abusive" experiences the children had reportedly experienced. Two of the instruments involved caregiver reports of the child's behaviors: the Child Behavior Checklist (CBCL) and the 26-item LONGSCAN version of the Child Sexual Behavior Inventory (CSBI). The remaining two instruments included two child self-reports: the Trauma Symptom Checklist (TSCC), which measures the frequency of trauma-related symptoms, and a LONGSCAN-developed instrument entitled "Exposure to Substances" which assesses personal experimentation with alcohol, tobacco or other drugs or illegal substances.

Table 5 presents the preliminary findings for girls from individual regression models predicting the Age 8 child outcome variables from each independent, "abuse-related" variable, controlling for caregiver's education, family income, child's race, and the study site. As can be seen, both reported and suspected sexual abuse are significant predictors of a broad range of adverse outcomes for girls at age 8. These adverse outcomes include sexual behavior problems, both externalizing and internalizing behavior problems, trauma-related symptoms, and experimentation with alcohol. Caregiver report of the use of corporal punishment at age 8 and the chronicity of the use of corporal punishment were predictive of behavior problems on the CBCL, sexual behaviors on the CSBI, and increased anger as measured by the TSCC anger subscale. The caregiver's report of the use of psychologically aggressive discipline strategies (e.g., yelling, swearing at child) and the chronic use of these practices was predictive of a similar pattern of child outcomes. Chronicity was measured by summing binary indicators of whether or not the practices were endorsed at ages 4, 6 and 8.

The relationship between the use of corporal punishment and psychological aggressive discipline techniques to reported increases in child sexual behaviors especially warrants further examination. The causal direction of this relationship is unclear. It is possible, for example, that parents use more physical punishment and adverse emotional techniques in an attempt to extinguish the sexual acting out of their children.

Table 6 presents a summary of similar regression models for the sample of 423 boys for whom age 8 data are available. The pattern of findings for boys is similar, though not as strong or extensive, as for girls. Specifically, "suspected sexual abuse," but not "reported sexual abuse," was related to the outcome variables, possibly reflecting the fact that there were relatively few boys in the latter category. There were few significant relationships among the boys for the TSCC scales in comparison to the girls, possibly because boys may be less expressive of their internal states such as anger, depression, and anxiety as girls.
We are continuing in our analysis plan to examine these preliminary findings.

Table 5. Effects of corporal punishment, psychological aggression, and reported and suspected sexual abuse on sexual acting out, drug use, trauma symptoms, and behavior problems at Age 8 (metric OLS regression coefficients) for girls (n = 448)
All models control for caregiver's education, family income, child's race, and study site

Independent variable Dependent variable	Reported Sexual Abuse	Suspected sexual abuse	Corporal punishment, Age 8	Chronicity of Corporal punishment	Psychological Aggression, Age 8	Chronicity of Psychological Aggression
CSBI Total score	2.87***	2.38***	1.06**	1.61**	1.57**	2.78***
CSBI Sexual aggression	0.52***	0.41***	0.08	0.07	0.13	0.29
CSBI SASIGIRL	1.76***	1.35***	0.81***	1.20***	1.06***	1.86***
Alcohol use	0.13**	0.08*	-0.00	0.04	0.05	0.07
Tobacco use	0.05	0.02	0.00	0.03	0.00	-0.01
Other drug use	0.01	-0.01	0.03	0.04	0.02	0.07
Any substance use	0.16**	0.08	0.01	0.08	0.08	0.12
TSCC Total score	9.18**	7.51**	2.92	1.77	6.82*	8.15
TSCC Anger	1.97**	1.37*	1.17*	1.78*	1.98**	3.30**
TSCC Anxiety	2.19**	1.97**	0.66	0.19	1.29	1.03
TSCC Depression	1.25	0.78	0.29	-0.17	1.15	1.78
TSCC Dissociation	1.82*	1.66*	0.32	0.03	1.15	1.23
TSCC PTS	2.36**	1.98*	0.37	-0.38	1.67*	1.15
CBCL Total problems	9.78***	10.01***	10.12***	17.20***	11.28***	21.06***
CBCL Externalizing	2.59*	3.02**	4.44***	7.16***	5.28***	9.52***
CBCL Internalizing	3.74***	3.22***	2.44***	4.21***	2.70**	5.16***

† Chronicity is measured as the number of data points (Age 4, 6, & 8) at which the use of this discipline tactic was reported by the caregiver.
* $p < .05$
** $p < .01$*** $p < .001$

Table 6. Effects of corporal punishment, psychological aggression, and reported and suspected sexual abuse on sexual acting out, drug use, trauma symptoms, and behavior problems at Age 8 (metric OLS regression coefficients) for boys (n = 423)

All models control for caregiver's education, family income, child's race, and study site

Independent variable Dependent Variable	Reported Sexual Abuse	Suspected sexual abuse	Corporal punishment, Age 8	Chronicity of Corporal punishment†	Psychological Aggression, Age 8	Chronicity of Psychological Aggression†
CSBI Total score	0.88	1.67**	1.84***	3.10***	2.30***	3.59***
CSBI Sexual aggression	0.26	0.34*	0.27*	0.54**	0.31*	0.45
CSBI SASIBOY	0.58	1.26**	1.12***	1.92***	1.51***	2.43***
Alcohol use	-0.13	-0.10	0.08	0.14*	0.04	0.08
Tobacco use	-0.01	0.00	0.04	0.06	0.02	0.07
Other drug use	0.03	0.01	0.03	0.05	-0.00	0.01
Any substance use	-0.11	-0.11	0.10*	0.16*	0.05	0.12
TSCC Total score	-1.97	0.46	2.61	4.20	-1.54	1.62
TSCC Anger	0.70	0.34	1.40*	2.15*	0.67	2.36
TSCC Anxiety	-1.00	0.08	0.49	1.01	-0.70	-0.36
TSCC Depression	0.10	0.28	0.51	1.04	-0.26	0.59
TSCC Dissociation	-0.69	0.03	0.47	0.74	-0.87	-0.26
TSCC PTS	-1.35	-0.46	-0.03	-0.20	-0.47	-0.46
CBCL Total problems	18.98***	14.19***	12.64***	20.52***	13.96***	20.12***
CBCL Externalizing	6.17***	4.53**	5.79***	8.84***	6.41***	9.68***
CBCL Internalizing	5.44***	4.27***	2.49***	4.92***	3.13***	4.32**

† Chronicity is measured as the number of data points (Age 4, 6, & 8) at which the use of this discipline tactic was reported by the caregiver.

* $p < .05$

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

* For data as of 12/01/2000

B. Measuring Maltreatment - Differences by Reporting Source - Preliminary Findings at the North Carolina Site

Results from preliminary analysis of the Age 12 data from North Carolina (N = 180) are consistent with the widely held belief that official reports underestimate the true level of maltreatment that is occurring. Rates of maltreatment appear to vary when comparing official reports, parent/caregiver reports, and adolescent self-reports. Table 7a compares caregiver and adolescent reports of very severe physical assault (lifetime). While only 2% of caregivers report that they have ever severely physically assaulted their child, 7% of the adolescents report having been victimized by this form of maltreatment. One possible explanation for this discrepancy is that the perpetrator of the assault is someone other than the caregiver. Further analysis will examine this difference in more depth. Table 7b displays a comparison of adolescent self-reports of physical abuse causing injury with official administrative reports. It is important to note that about 30% of adolescents who report having been injured by maltreatment (i.e., 4%/13%) have never been the subject of an official maltreatment report. Similarly, as can be seen in Table 7c, approximately 40% of adolescents who report that they have ever been victimized in their lifetime (12%/29%) have never been the subject of an official maltreatment report. These results suggest that it is valuable to collect maltreatment data from multiple sources in order to get an accurate estimate of the occurrence of maltreatment.

Table 7a. CTS Very Severe Physical Assault* in Lifetime: Parent vs. Adolescent Report

	Adolescent Report			
		No	Yes	Total
Parent Report	No	92%	7%	98%
	Yes	2%	0%	2%
	Total	93%	7%	100%

*Choked; beaten up; intentionally burned/scalded; threatened with knife or gun. Citation: Straus, MA, Hamby, SL, Finkelhor, D & Runyan D. 1995. The Parent-Child Conflict Tactics Scales (PCCTS), Form A. Durham, NH: Family Research Laboratory, Univ. of New Hampshire.

Table 7b. Adolescent Report of Physical Abuse Causing Injury* vs. Official Report of Any Maltreatment in Lifetime

	Child Report of Physical Injury			
		No	Yes	Total
Official Report	No	43%	4%	47%
	Yes	44%	9%	53%
	Total	87%	13%	100%

* burned scaled; cut/stabbed; bruised/black eye; broken bone; etc.)

Table 7c. Lifetime Maltreatment: Adolescent Report vs. Official Report (n=180)

	Adolescent Report			
		No	Yes	Total
Official Report	No	36%	12%	47%
	Yes	35%	18%	53%
	Total	71%	29%	100%

Note: Adolescent report includes measures of physical, sexual, and emotional abuse and of physical neglect

C. Services Utilization

Mental Health and Developmental Services Utilization

Tables 8, 9, 10 and 11 display caregiver report of utilization of services related to behavioral, emotional or school problems for LONGSCAN children at ages 4, 5, 6 and 7. At Age 4, 28% of caregivers felt their child needed help with behavioral, emotional or school problems, while 24% reported having taken their child for help for such problems. These percentages increased to 43% and 36%by Age 7, confirming the high rate of mental health services usage among LONGSCAN children. Overall, both caregiver perception of need for mental health services and children's utilization of mental health services increased as children aged, not surprising given that during this time period children began elementary school and thus likely experienced increased demands for performance and increased surveillance by school staff. The gap between perceived need for services and receipt of services also increased as children aged, ranging from 4% at age 4 and increasing to 11% at age 7 for the sample overall.

Overall, caregivers of black children felt their children needed mental health services and black children received services less often than other children. Black children who received services, however, did not necessarily have fewer mental health visits per year than other ethnic and racial groups. The Seattle and San Diego participant children were consistently more likely to have been perceived by caregivers as needing services, to have received services, and to have received them more frequently than children at other sites. More of the children at these sites were in placement. Foster parents may be more likely to perceive the need for services because children placed in foster care are more likely to have more serious behavior problems.

Table 8 - Child Mental Health and Developmental Services Use, Visit 4

	N*	CG ever felt child needed help with behavioral, emotional, or school problems	Child was taken for help with behavioral, emotional, or school problems	Number of visits (to one or more MH providers) N	Mean	SD	Child currently taking any medication to help control an emotional or behavioral problem
Total:	1246	348 (27.9%)	296 (23.8%)	292	35.5	38.4	29 (2.3%)
Race/Ethnicity**							
White	336	136 (40.5%)	119 (35.4%)	119	34.8	36.8	14 (4.2%)
Black	652	124 (19.0%)	98 (15.0%)	94	31.6	38.9	10 (1.5%)
Hispanic	94	27 (28.7%)	24 (25.5%)	24	31.8	37.8	1 (1.1%)
Multiracial	140	55 (39.3%)	50 (35.7%)	50	46.5	41.1	4 (2.9%)
Other	24	6 (25%)	5 (20.8%)	5	32.6	38.3	0 (0.0%)
Study Site							
EA (Baltimore)	236	30 (12.7%)	18 (7.6%)	18	21.3	36.2	1 (4%)
MW (Chicago)	221	36 (16.3%)	31 (14.0%)	31	6.9	29.1	3 (1.4%)
SO (N. Carolina)	221	46 (20.8%)	31 (14.0%)	28	15.9	26.2	8 (3.6%)
SW (San Diego)	318	133 (41.8%)	122 (38.4%)	121	32.3	33.4	15 (4.7%)
NW (Seattle)	250	103 (41.2%)	94 (37.6%)	94	54.3	42.8	2 (.8%)

*This N includes only those children for whom there was data on the TXU10. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Table 9 - Child Mental Health and Developmental Services Use, Visit 5

	N*	In the past year, CG ever felt child needed help with behavioral, emotional, or school problems	In the past year, CG consulted regarding child's behavioral, emotional, or school problems	Number of visits during the past year family members had regarding child's problems N	Mean	SD
Total:	671	240 (35.8%)	194 (28.9%)	192	21.5	28.7
Race/Ethnicity**						
White	219	99 (45.2%)	83 (37.9%)	83	22.7	28.3
Black	255	59 (23.1%)	44 (17.3%)	44	18.1	24.8
Hispanic	61	25 (41.0%)	19 (31.1%)	19	10.4	9.4
Multiracial	118	48 (40.7%)	40 (33.9%)	39	27.8	36.4
Other	18	9 (50.0%)	8 (44.4%)	7	23.3	38.2
Study Site***						
MW (Chicago)	199	44 (22.1%)	32 (16.1%)	31	11.7	20.4
SW (San Diego)	220	82 (37.3%)	71 (32.3%)	70	25.8	29.0
NW (Seattle)	252	114 (45.2%)	91 (36.1%)	91	21.6	30.3

* This N includes only those children for whom there was data on the CSUA. A few missing values on particular. Variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data. ***The EA (Baltimore) site did not have an Age 5 interview. The SO (N. Carolina) site did not collect data from the CSUA instrument at visit 5 (because visit 4 had so recently occurred there).

Table 10 - Child Mental Health and Developmental Services Use, Visit 6

	N*	In the past year, CG ever felt child needed help with behavioral, emotional, or school problems	In the past year, CG consulted regarding child's behavioral, emotional, or school problems	Number of visits during the past year family members had regarding child's problems N	Mean	SD
Total:	1174	456 (38.8%)	374 (31.9%)	360	19.8	28.5
Race/Ethnicity**						
White	310	162 (52.3%)	141 (45.5%)	138	21.4	29.6
Black	626	181 (28.9%)	140 (22.4%)	131	16.1	26.6
Hispanic	86	41 (47.7%)	30 (34.9%)	30	17.8	25.1
Multiracial	133	63 (47.4%)	55 (41.4%)	53	27.0	31.8
Other	19	9 (47.4%)	8 (42.1%)	8	12.8	21.6
Study Site						
EA (Baltimore)	253	61 (24.1%)	36 (14.2%)	33	12.0	24.4
MW (Chicago)	168	51 (30.4%)	42 (25.0%)	38	22.8	31.1
SO (N. Carolina)	220	77 (35.0%)	68 (30.9%)	64	9.0	15.5
SW (San Diego)	299	154 (51.5%)	131 (43.8%)	131	24.9	31.0
NW (Seattle)	234	113 (48.3%)	97 (41.5%)	94	21.4	29.9

* This N includes only those children for whom there was data on the CSUA. A few missing values on particular. Variables were treated as "no indication of service" for the sake of calculating percentages.
** Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Table 11 - Child Mental Health and Developmental Services Use, Visit 7

	N*	In the past year, CG ever felt child needed help with behavioral, emotional, or school problems	In the past year, CG consulted regarding child's behavioral, emotional, or school problems	Number of visits during the past year family members had regarding child's problems N	Mean	SD
Total:	958	413 (43.1%)	345 (36.0%)	334	21.0	28.1
Race/Ethnicity**						
White	285	157 (55.1%)	134 (47.0%)	130	24.9	29.6
Black	498	165 (33.1%)	133 (26.7%)	129	17.6	27.0
Hispanic	53	24 (45.3%)	20 (37.7%)	20	16.1	24.2
Multiracial	107	58 (54.2%)	51 (47.7%)	48	22.5	29.2
Other	15	9 (60.0%)	7 (46.7%)	7	12.4	12.9
Study Site						
EA (Baltimore)	181	62 (34.2%)	46 (25.4%)	44	13.1	19.6
MW (Chicago)	112	32 (28.6%)	23 (20.5%)	20	23.2	29.5
SO (N. Carolina)	186	50 (26.9%)	44 (23.7%)	39	10.2	15.0
SW (San Diego)	237	138 (58.2%)	119 (50.2%)	119	22.4	29.8
NW (Seattle)	242	131 (54.1%)	113 (46.7%)	112	25.8	30.9

* This N includes only those children for whom there was data on the CSUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages. ** Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Mental Health Service Utilization At Age 8

Table 12 displays rates of utilization of services related to learning developmental, psychological and behavior problems. White children and multiracial children were more likely than other racial and ethnic groups to have received outpatient or school based mental health services. Black children were less likely than others to have received special help for a learning or developmental problem or counseling or therapy than white, Hispanic, or multiracial children. White children were most likely to have been hospitalized for an emotional, psychological problem or any reason other than an accident or illness. There were no significant ethnic or racial differences among caregivers' perceptions of children having needed psychiatric hospitalization but not having received this service. Children of all ethnic and racial groups and at all sites except MW were more likely to have received services related to school or developmental problems than they were to have received counseling or therapy outside of school for psychological or behavioral problems. At the Midwestern site, children were more likely to have received counseling or therapy for psychological or behavioral problems than they were to have received help for learning or developmental problems. Caregivers at the Midwestern site were most likely to feel their child had needed a psychiatric hospitalization in the last year, but not have received such care.

Table 12 - Child Mental Health and Developmental Services Use, Visit 8

	N'	In past year, child received special help for a learning or developmental problem	In past year, child received type of counseling or therapy, outside school, for psychological or behavioral problem	During past year, child stayed overnight in hospital for an emotional or psychological problem, or any reason other than an accident or illness	Child did not receive help defined by question SUA (#23a), but caregiver felt there was a time when that kind of care was needed
Total:	914	246 (26.9%)	150 (16.4%)	6 (0.7%)	10 (1.1%)
Race **					
White	254	91 (35.8%)	57 (22.4%)	4 (1.6%)	3 (1.2%)
Black	500	106 (21.2%)	56 (11.2%)	2 (0.4%)	6 (1.2%)
Hispanic	49	14 (28.6%)	9 (18.4%)	0 (0.0%)	0 (0.0%)
Multi-racial	97	31 (32.0%)	27 (27.8%)	0 (0.0%)	1 (1.0%)
Other	14	4 (28.6%)	1 (7.1%)	0 (0.0%)	0 (0.0%)
Study Site					
EA	235	51 (21.7%)	23 (9.8%)	1 (0.4%)	3 (1.3%)
MW	20	3 (15.0%)	6 (30.0%)	0 (0.0%)	1 (5.0%)
SO	184	36 (19.6%)	10 (5.4%)	0 (0.0%)	2 (1.1%)
SW	266	75 (28.2%)	61 (22.9%)	2 (0.8%)	1 (0.4%)
NW	209	81 (38.8%)	50 (23.9%)	3 (1.4%)	3 (1.4%)

* This N includes only those children for whom there was data on the SUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.** Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Child Medical Services Utilization

Tables 13 through 16 describe caregivers report of five to eight-year-old children's use of medical services. Ninety-five percent of caregivers report that they had regular place to secure medical care for their child at ages 5-7. 85% of LONGSCAN children ages 5 and 6 had a well-child visit; this number dropped to 77% at age 7 and 66% at age 8. Overall, caregivers of white children were less likely to report having taken their child for a well-child visit but were more likely to have sought medical help for the child within the past year. Hispanic children had the highest number of visits with health care providers, were more likely to be taking medication regularly, and were hospitalized overnight at a higher rate than other ethnic groups. Black children were the least likely to have a regular place to be taken for medical care, to have been taken for help with a medical problem, and to have had fewer visits with health care providers, or to be taking medication regularly than other racial and ethnic groups. At age 8, they were also the least likely to have received dental care. Children in the North Carolina cohort were least likely to have been taken for a well-child visit or check-up in the last year, were least likely to be taking medication on a regular basis, and had the fewest number of visits with health care providers in the last year compared to children at other sites.

Table 13 - Child Medical Services Use, Visit 5

	N*	CG has regular place where child is taken for medical care	During past year, CG has taken child for well-child visit i.e.visit for check-up or immunizations	During past year, CG has taken child for help with medical problem	Approximate number of visits child had (during past year) with health care provider(s) N	Mean	SD	Child currently is taking medication on regular basis	During past year, child has been hospitalized (overnight) for medical, emotional or psychol. problems
Total:	671	638 (95.1%)	573 (85.5%)	339 (50.6%)	339	4.8	7.4	99 (14.8%)	38 (5.7%)
Race/ Ethnicity**									
White	219	209 (95.4%)	179 (81.7%)	141 (64.4%)	141	5.3	9.5	40 (18.3%)	10 (4.6%)
Black	255	239 (93.7%)	224 (87.8%)	99 (38.8%)	98	3.4	2.7	28 (11.0%)	15 (5.9%)
Hispanic	61	60 (98.4%)	54 (88.5%)	32 (52.5%)	32	7.3	9.7	12 (19.7%)	7 (11.5%)
Multiracial	118	112 (94.9%)	100 (85.5%)	56 (47.9%)	57	5.2	5.8	16 (13.6%)	5 (4.2%)
Other	18	18 (100%)	16 (88.9%)	11 (61.1%)	11	3.5	2.9	3 (16.7%)	1 (5.6%)
Study Site***									
MW (Chicago)	199	190 (95.5%)	182 (91.5%)	80 (40.2%)	80	5.0	5.4	25 (12.6%)	16 (8.0%)
SW (San Diego)	220	209 (95.0%)	186 (84.9%)	98 (44.7%)	98	6.2	11.6	32 (14.5%)	10 (4.5%)
NW (Seattle)	252	239 (94.8%)	205 (81.3%)	161 (63.9%)	161	3.9	4.4	42 (16.7%)	12 (4.8%)

*This N includes only those children for whom there was data on the CSUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.
*** The EA (Baltimore) site did not have an Age 5 interview. The SO (N. Carolina) site did not collect data from the CSUA instrument at visit 5 (because visit 4 had so recently occurred there).

Table 14 - Child Medical Services Use, Visit 6

	N*	CG has regular place where child is taken for medical care	During past year, CG has taken child for well-child visit i.e. for checkup or immuniza-tions	During past year, CG has taken child for help with a medical problem	Approximate number of visits child had (during past year) with health care provider(s) N	Mean	SD	Child currently taking medication on regular basis	During past year, child has been hospitalized (overnight) for medical, emotional or psychol. problems
Total:	1174	1120 (95.4%)	1003 (85.4%)	496 (42.2%)	489	4.4	7.4	166 (14.1%)	46 (3.9%)
Race/ Ethnicity**									
White	310	293 (94.5%)	250 (80.6%)	173 (55.8%)	169	4.6	7.1	49 (15.8%)	11 (3.5%)
Black	626	603 (96.3%)	539 (86.1%)	214 (34.2%)	211	3.9	7.6	75 (12.0%)	25 (4.0%)
Hispanic	86	81 (94.2%)	80 (93.0%)	37 (43.0%)	37	5.8	6.1	14 (16.3%)	6 (7.0%)
Multiracial	133	125 (94.0%)	119 (89.5%)	63 (47.4%)	63	4.9	8.7	26 (19.5%)	4 (3.0%)
Other	19	18 (94.7%)	15 (78.9%)	9 (47.4%)	9	3.4	2.2	2 (10.5%)	0 (0.0%)
Study Site									
EA (Baltimore)	253	241 (95.3%)	232 (91.7%)	79 (31.2%)	77	5.5	12.2	41 (16.2%)	15 (5.9%)
MW (Chicago)	168	160 (95.2%)	147 (87.5%)	67 (39.9%)	67	3.7	3.4	23 (13.7%)	6 (3.6%)
SO (N.Carolina)	220	211 (95.9%)	151 (68.6%)	87 (39.5%)	83	3.6	3.3	13 (5.9%)	8 (3.6%)
SW (San Diego)	299	284 (95.0%)	264 (88.3%)	136 (45.5%)	136	5.4	9.1	60 (20.1%)	9 (3.0%)
NW (Seattle)	234	224 (95.7%)	209 (89.3%)	127 (54.3%)	126	3.7	4.4	29 (12.4%)	8 (3.4%)

*This N includes only those children for whom there was data on the CSUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Table 15 - Child Medical Services Use, Visit 7

	N*	CG has regular place where child is taken for medical care	During past year, CG has taken child for well-child visit i.e. visit for check-up or immunizations	During past year, CG has taken child for help with medical problem	Approximate number of visits child had (during past year) with health care provider(s) N	Mean	SD	Child currently taking medication on regular basis	During past year, child has been hospitalized (overnight) for medical or emotional, psychological problems
Total:	958	909 (94.9%)	738 (77.0%)	376 (39.2%)	374	4.4	7.1	160 (16.7%)	27 (2.8%)
Race/Ethnicity**									
White	285	270 (94.7%)	196 (68.8%)	158 (55.4%)	157	4.7	7.6	61 (21.4%)	8 (2.8%)
Black	498	474 (95.2%)	404 (81.1%)	149 (29.9%)	148	4.0	6.9	66 (13.3%)	12 (2.4%)
Hispanic	53	52 (98.1%)	40 (75.5%)	20 (37.7%)	20	3.6	3.5	12 (22.6%)	1 (1.9%)
Multi-racial	107	99 (92.5%)	87 (81.3%)	41 (38.3%)	41	4.8	6.2	19 (17.8%)	5 (4.7%)
Other	15	14 (93.3%)	11 (73.3%)	8 (53.3%)	8	5.6	9.9	2 (13.3%)	1 (6.7%)
Study Site									
EA (Baltimore)	181	176 (97.2%)	166 (91.7%)	52 (28.7%)	50	6.3	11.3	33 (18.2%)	8 (4.4%)
MW (Chicago)	112	109 (97.3%)	92 (82.1%)	32 (28.6%)	32	4.9	5.9	21 (18.8%)	3 (2.7%)
SO (N. Carolina)	186	175 (94.1%)	116 (62.4%)	61 (32.8%)	60	2.5	1.6	14 (7.5%)	2 (1.1%)
SW (San Diego)	237	221 (93.2%)	172 (72.6%)	100 (42.2%)	101	4.2	6.1	58 (24.5%)	7 (3.0%)
NW (Seattle)	242	228 (94.2%)	192 (79.3%)	131 (54.1%)	131	4.5	7.4	34 (14.0%)	7 (2.9%)

*This N includes only those children for whom there was data on the CSUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Table 16 - Child Medical Services Use, Visit 8

	N*	In past year, child received health care check-up or immunizations	In past year, child received dental care	In past year, child received medical care (or home health care) for serious or ongoing health problem	In past year, child received medical care for an accident or injury
Total:	914	609 (66.6%)	589 (64.4%)	90 (9.8%)	66 (7.2%)
Race/Ethnicity**					
White	254	172 (67.7%)	182 (71.7%)	30 (11.8%)	34 (13.4%)
Black	500	328 (65.6%)	300 (60.0%)	44 (8.8%)	16 (3.2%)
Hispanic	49	27 (55.1%)	34 (69.4%)	3 (6.1%)	2 (4.1%)
Multiracial	97	72 (74.2%)	62 (63.9%)	10 (10.3%)	13 (13.4%)
Other	14	10 (71.4%)	11 (78.6%)	3 (21.4%)	1 (7.1%)
Study Site					
EA (Baltimore)	235	186 (79.1%)	143 (60.9%)	25 (10.6%)	9 (3.8%)
MW (Chicago)	20	11 (55.0%)	13 (65.0%)	2 (10.0%)	0 (0.0%)
SO (N. Carolina)	184	91 (49.5%)	111 (60.3%)	14 (7.6%)	13 (7.1%)
SW (San Diego)	266	170 (63.9%)	186 (69.9%)	22 (8.3%)	21 (7.9%)
NW (Seattle)	209	151 (72.2%)	136 (65.1%)	27 (12.9%)	23 (11.0%)

*This N includes only those children for whom there was data on the SUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Caregiver Rating of Own and Child's Health at Age 8

At Age 8, 93% of caregivers described their children as in excellent or good health compared to other children his/her age, while 7% described them as in fair or poor health (Table 17). Baltimore site caregivers described their children as having poorer health status than did caregivers at other sites, while 100% of the Chicago cohort was rated as having either excellent or good health. Sixty-eight percent of caregivers described their own health as excellent or good, while 30% described it as fair or poor (Table 18). Twenty-six percent of caregivers had received help for a serious or ongoing health problem in the last year. Multiracial caregivers rated their own health more poorly, received more medical care, and were most likely to have seen someone for mental health services or participated in a self-help group than other caregivers. Caregivers in Chicago rated their own physical health more poorly overall than did caregivers at other sites.

Table 17 - Child's Health Rating (By Caregiver), Visit 8

"Right now, how would you describe [child's] health compared to other children his/her age?"
"Would you say that his/her health is":

	N*	Excellent (1)	Good (2)	Fair (3)	Poor (4)
Total:	914	496 (54.3%)	351 (38.4%)	56 (6.1%)	11 (1.2%)
Race/Ethnicity**					
White	254	132 (52.0%)	106 (41.7%)	13 (5.1%)	3 (1.2%)
Black	500	259 (51.8%)	199 (39.8%)	35 (7.0%)	7 (1.4%)
Hispanic	49	30 (61.2%)	16 (32.7%)	2 (4.1%)	1 (2.0%)
Multiracial	97	67 (69.1%)	26 (26.8%)	4 (4.1%)	0 (0.0%)
Other	14	8 (57.1%)	4 (28.6%)	2 (14.3%)	0 (0.0%)
Study Site					
EA (Baltimore)	235	118 (50.2%)	91 (38.7%)	22 (9.4%)	4 (1.7%)
MW (Chicago)	20	14 (70.0%)	6 (30.0%)	0 (0.0%)	0 (0.0%)
SO (N. Carolina)	184	83 (45.1%)	87 (47.3%)	12 (6.5%)	2 (1.1%)
SW (San Diego)	266	169 (63.5%)	86 (32.3%)	9 (3.4%)	2 (0.8%)
NW (Seattle)	209	112 (53.6%)	81 (38.8%)	13 (6.2%)	3 (1.4%)

*This N includes only those children for whom there was data on the SUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Table 18 - Caregiver Health Rating and Medical Care, Visit 8

"How would you describe your own health in the last year?"
"Would you say that your health has been":

	N*	No Response	Excellent (1)	Good (2)	Fair (3)	Poor (4)	In the past year, caregiver received medical care (including home health care) for a serious or ongoing health problem
Total:	914	2 (0.2%)	193 (21.1%)	431 (47.2%)	234 (25.6%)	54 (5.9%)	236 (25.8%)
Race/Ethnicity**							
White	254	2 (0.8%)	51 (20.1%)	125 (49.2%)	58 (22.8%)	18 (7.1%)	79 (31.1%)
Black	500	0 (0.0%)	107 (21.4%)	231 (46.2%)	135 (27.0%)	27 (5.4%)	107 (21.4%)
Hispanic	49	0 (0.0%)	11 (22.4%)	28 (57.1%)	6 (12.2%)	4 (8.2%)	11 (22.4%)
Multiracial	97	0 (0.0%)	18 (18.6%)	43 (44.3%)	31 (32.0%)	5 (5.2%)	38 (39.2%)
Other	14	0 (0.0%)	6 (42.9%)	4 (28.6%)	4 (28.6%)	0 (0.0%)	1 (7.1%)
Study Site							
EA (Baltimore)	235	0 (0.0%)	50 (21.3%)	112 (47.7%)	65 (27.7%)	8 (3.4%)	37 (15.7%)
MW (Chicago)	20	0 (0.0%)	5 (25.0%)	3 (15.0%)	9 (45.0%)	3 (15.0%)	6 (30.0%)
SO (N. Carolina)	184	0 (0.0%)	36 (19.6%)	95 (51.6%)	40 (21.7%)	13 (7.1%)	38 (20.7%)
SW (San Diego)	266	2 (0.8%)	66 (24.8%)	130 (48.9%)	52 (19.5%)	16 (6.0%)	71 (26.7%)
NW (Seattle)	209	0 (0.0%)	36 (17.2%)	91 (43.5%)	68 (32.5%)	14 (6.7%)	84 (40.2%)

* This N includes only those caregivers for whom there was data on SUA. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.
** Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Caregiver Mental Health Service Use at Age 4

At the time of the Age 4 interview, 28% of caregivers had considered seeking help with a personal or emotional problem, while 25% saw someone for help or participated in a self-help group in the past year (Table 19). Nearly 10% of caregivers had been hospitalized for emotional or psychological problems, and 13.5% had entered a residential substance abuse treatment center at some point in their lives. Caregivers at the North Carolina site were most likely to have been hospitalized for emotional or psychological problems or to be taking medication for emotional or psychological reasons than were other caregivers. Baltimore caregivers were least likely to have considered seeking mental health services, to have experienced a psychiatric hospitalization, or to be taking psychotropic medication. Black caregivers were the least likely to have considered seeking mental health services or to have utilized mental health services other than residential programs for substance abuse treatment.

Table 19 - Caregiver Mental Health Services Use, Visit 4

	N*	In past year, CG considered seeking outside help with personal/ emotional problems	In past year, CG saw someone for help or joined self-help group (i.e. AA, Parents Anonymous)	Number of visits or times participating N Mean SD	Caregiver hospitalized for emotional or psychol. problems	CG, at some time entered residential program for substance. abuse treatment	CG currently taking any medication to control nervousness, depression, or other emotional condition
Total:	1245	349 (28%)	307 (24.7%)	306 41.0 38.2	95 (9.7%)	131 (13.5%)	81 (8.2%)
Race/ Ethnicity**							
White	336	139 (41.4%)	112 (33.3%)	111 37.8 38.0	35 (13.7%)	34 (13.4%)	32 (12.5%)
Black	651	129 (19.8%)	119 (18.3%)	119 41.7 40.0	39 (8.1%)	71 (14.9%)	22 (4.6%)
Hispanic	94	20 (21.3%)	19 (20.2%)	19 48.0 40.4	4 (4.6%)	5 (5.8%)	10 (11.6%)
Multiracial	140	52 (37.1%)	49 (35.0%)	49 44.3 34.4	16 (11.9%)	20 (14.9%)	15 (11.2%)
Other	24	9 (37.5%)	8 (33.3%)	8 39.1 32.4	1 (4.3%)	1 (4.3%)	2 (8.7%)
Study Site							
EA (Baltimore)	236	32 (13.6%)	32 (13.6%)	32 37.4 38.8	14 (7.4%)	19 (10.1)	5 (2.7%)
MW (Chicago)	221	67 (30.3%)	54 (24.4%)	54 38.2 35.0	23 (10.5%)	24 (10.9%)	17 (7.7%)
SO (N. Carolina)	221	43(19.5%)	26 (11.8%)	26 13.2 20.9	7 (16.7%)	4 (9.8%)	7 (14.3%)
SW (San Diego)	317	72(22.7%)	82 (25.9%)	82 53.9 40.4	22 (7.9%)	41 (14.9%)	21 (7.6%)
NW (Seattle)	250	135(54%)	113 (45.2%)	112 40.4 37.4	29 (11.6)	43 (17.3%)	31 (12.4%)

*This N includes only those children for whom there was data on the TXU10. A few missing values on particular variables were treated as "no indication of service" for the sake of calculating percentages.

**Race/Ethnicity (of child) was mainly based upon the Visit 4 interview, as supplemented by Baseline and Visit 6 data.

Perceived Need and Receipt of Mental Health Services in a Child Welfare Population. Diana English of the Seattle site conducted an examination of maternal report of perceived need and receipt of mental health services for young children who had been previously reported to CPS for maltreatment. This study compared children who received mental health services and those who did not in the Seattle and San Diego cohorts. It was found that perceived need for mental health services was greater if the child exhibited more behavioral problems, more physical health needs, or seriously delayed communication skills. Receipt of mental health services was greater if the child exhibited more behavioral problems, more physical health needs, or seriously delayed communication skills. Older caregivers were more likely than younger ones to perceive need of mental health services. The presence of a biological father reduced the likelihood of perception of need and receipt of mental health services. Children were more likely to receive mental health services if they were with a foster mother as opposed to a biological mother and if the service plan included out-of-home care. Caucasian caregivers were more likely to perceive a need for mental health services, and the oldest child in the family was more likely to be considered as needing services. Further investigation is required to understand factors that precipitate mental health service referral and service usage among high-risk populations.

D. Ethical, Legal and Methodological Challenges in Child Maltreatment Research

In July, 2000, a special issue of the Journal of Interpersonal Violence dedicated to issues related to the ethical, legal, and methodological implications of asking children directly about maltreatment in a research context was published. [Journal of Interpersonal Violence, 15 (7), 675-775]. The issue begins with an editorial (Runyan, 2000) which includes recommendations from the 1994 ELM Conference convened by Dr. Runyan. Other articles contributed by LONGSCAN investigators Runyan, Hunter, Amaya-Jackson, Kotch, Black, and Knight, discuss methodological variations, ethical principles, and technical innovations relevant to asking children for direct report of maltreatment.

Amaya-Jackson et al. provide a review of the published and unpublished literature to date on directly asking children about maltreatment experiences. This article reveals the wide variation in the way children have been questioned and the impact of this variation on reported prevalence, as well as recommendations for researchers questioning children about abuse. King and Churchill review the ethical principles relevant to conducting research about maltreated children, discuss the origins of ethical principles in human research, and examine how those principles may be interpreted. Kotch describes both the difficulties faced by the LONGSCAN investigators in asking children for self-report of maltreatment and the approach taken to asking 12 year-old children for direct report of maltreatment. Knight et al. discuss the different approaches taken at each of the five LONGSCAN sites. Black and Ponirakis discuss new innovations in interview technology and their implications for asking children for direct report of maltreatment.

Implications of LONGSCAN Findings Related to These Issues for Future Research Include:

1. Self-report of maltreatment is necessary for the field of child maltreatment research to enhance knowledge about abuse and neglect, its precursors, prevalence, and outcomes.
2. Research should be undertaken to ascertain when and if children younger than 12 years of age may be asked for self-report of maltreatment in a research context.
3. Consent forms should not actively deceive children and parents. However it is acceptable for the wording of consent forms to vary.
4. Careful, thoughtful consideration of the competing ethical principals of justice, beneficence, autonomy, utility, and justice guiding human subjects research may serve to clarify and justify varied decisions regarding human subjects procedures within different research contexts. The wide methodological variation between studies that have asked children for direct report of maltreatment suggests that investigators need to carefully weigh project-specific aspects such as relationship to subjects, nature of the study sample, site resources and legal responsibilities in determining how to most ethically ask children for self-report.
5. Technological advances such as talking computers may enhance the ability to ethically ask children for self-report of abuse, provided careful consideration is given to methodological, developmental and ethical concerns specific to the use of such technology.
6. Additional research is needed to assess the impact of research procedures related to self-report of maltreatment.

Implications for Policy:

1. It is recommended that the federal government establish an advisory body on ethical and legal aspects of child maltreatment and violence exposure research.
2. The Children's Bureau of the United States Department of Health and Human Services should facilitate research on maltreatment, and should try to address issues that will lower the costs of including maltreatment as a topic in other federal and private studies.
3. Legislation authorizing certificates of confidentiality should be rewritten to explicitly address the protection this certificate can offer with respect to reporting child maltreatment. The Certificate should be amended to explicitly include protection of data as well as protection of participant identity. Data collected under the protection of a Certificate need be inadmissible in all legal proceedings.
4. Child abuse and neglect research requires increased funding as outlined in the National Academy of Sciences 1993 report Understanding Child Maltreatment.
5. Large federally supported longitudinal studies of child health and well-being should be encouraged to include child maltreatment exposure as part of their data collection.
6. The children's bureau of the DHHS Office of Child Abuse and Neglect should require all grantees to obtain a certificate of confidentiality.

E. Role of Fathers

LONGSCAN investigators have authored a group of four papers examining the role of fathers in the child participants lives. These papers are under review for publication as a focus section in Child Maltreatment. A summary of the results of these four papers follows.

A study based on the Chicago sample found associations between maternal and paternal histories of childhood victimization, their adult functioning, and child outcomes. Mothers' history of abuse and neglect was associated with clinical symptoms of depression, but fathers' history of abuse was not. For fathers, a history of victimization was significantly related to decreased levels of family satisfaction, more stressful life events, and the level of social support they received. Fathers with a history of victimization showed more appropriate empathy and family role expectations but more use of verbal aggression when disciplining their children. Victimized mothers reported significantly more use of reasoning in disciplining, but also significantly more use of verbal aggression and minor physical violence with children.

The results also suggested that the presence of a biological father in the home may be associated with decreased rates of child abuse and/or neglect, while the presence of an adult man in the home who is not the biological father, may be associated with increased rates of child abuse and/or neglect. No statistically significant associations were found between paternal victimization measures and poor child outcomes.

The presence of the biological father had a positive effect on child outcomes, specifically lower levels of abuse of the child, even when the father reported a history of abuse. Actively involved fathers who have suffered a history of abuse and neglect as children may actually have a mitigating effect in families where both parents have suffered a cruel history.

The study showed that victimized fathers share some but not all of the risk factors that victimized mothers' experience, and that maternal and paternal histories of victimization may be differentially linked to parenting and short term child outcomes. Implications of these findings are that clinicians and other child care specialists need to make special efforts to draw the father into an interactive relationship with their children, and that coercive government policies that rely on financial penalties for 'deadbeat dads' may actually undermine the positive effects of father child interactions.

A study conducted at the Seattle site of families reported to Child Protective Services examined the effects of the presence and quality of parent-child interaction of fathers and father figures on the behavior of young children. While the presence or absence of a father or father figure seemed to make little difference in child behavioral problems at age four, lower levels of aggression and depression were observed for children by age six if an adult male in some form of father-like relationship was present in the child's life. The level of supportive involvement of this male figure in the child's life, as reported by the child's mother, was high for this chronically troubled sample but did not significantly influence child behavioral problems.

When controlling for mother's ethnicity, child's gender, the number of referrals to Child Protective Services, and the presence of domestic violence, the direct effect of the presence of a father/figure was no longer significant, but remained in the multivariate models as a significant interaction term: elevated levels of child aggression occurred in African-American families with an absent father or father figure. This may be attributable to the greater lack of resources in these families, but also possibly because of other social or cultural differences that were not measured.

Another indirect effect of fathers, or at least of adult male partners, is the significant, positive association of the (caregiver-reported) father involvement score with the caregiver's depression score (CES-D): higher levels of father involvement in the child's life are associated with lower caregiver depression. Lower caregiver depression is in turn significantly associated with lower use of minor violence and verbal aggression in the conflict tactics that female caregivers use with their children. The indirect and rather weak effect of the father or father figure on child behavior is not in itself cause to minimize the role of fathers; besides the usual limitations of social science measurement, data were not gathered directly from the fathers or father figures, or directly from the child about the adult male influences in their life.

Other reasons why the effect of fathers or father figures could be difficult to determine include the wide variety of types and relationships of males that act as father figures, and the varying duration of the relationship of the adult men to the children in this sample, which is unknown, but likely much more transient than in normative samples.

The North Carolina site conducted a longitudinal analysis of whether the presence of the mother's partner in the home who is not the biological father of the child increases the risk of a child maltreatment report. The results indicate that the presence of a non-biological father figure in the home with the biological mother increases the risk of maltreatment more than two times above that for families with both biological parents in the home. The risk of maltreatment given the presence of the mother's partner (non-biological father figure) in the home was twice that of single female-headed families. Although the risk of a child maltreatment report for mothers who were living with the biological father was less than that for single mothers, this difference was not statistically significant. The significant effect of the presence of the mother's partner in the home remained after adjusting for possible confounding factors, including AFDC and maternal education. The actual perpetrator of the maltreatment in this sample was not ascertained, so no conclusion can be drawn about whether the mothers partner is directly responsible for the maltreatment; however, the study does show that there is something about having a mother's partner in the home that increases the risk of child maltreatment, no matter who is actually doing the maltreating.

A study using data drawn from all of the LONGSCAN sites examined: 1) whether presence of a father (or father figure) was associated with better child functioning, 2) whether children's perceptions of fathers' support was associated with better child functioning, and 3) whether the above association was moderated by the father's relationship to the child (i.e., biological or not), the child's race, and child's gender. Father presence was associated with better cognitive development and greater perceived competence and social acceptance by the children. For the children who had a father figure, those who described greater father support not only had a stronger perceived sense of competence and social competence, but also fewer depressive symptoms. The associations did not differ by child's gender, race, or relationship to the father figure. These findings support previous research that demonstrates the value of fathers' presence and support to their children's functioning.

F. LONGSCAN's Contributions to Understanding the Relationships Between Domestic Violence and Child Abuse

LONGSCAN investigators have authored a group of papers addressing the relationships between domestic violence and child abuse in our samples of children. These papers are from the LONGSCAN sites having older children in the samples, and together provide a comprehensive look at the epidemiology, risk, impact, and pathways of the relationship between violence directed against the mothers and adverse effects upon the children.

The five papers, and an accompanying editorial, will be published in an upcoming issue of the Journal of Family Violence. The series of five papers include one cross-site analysis and four site-specific investigations that examine the epidemiology of the co-occurrence of domestic violence and child abuse, the impact of domestic violence on the development of behavioral problems in children at ages 6 and 8, and potential pathways. The epidemiology of the co-occurrence of domestic violence was the topic of both the paper by Cox, et al., (2001) from the southern LONGSCAN site and the paper by Litrownik, et al., (2001) for the southwestern sample. Data from the combined paper illustrate the rather dramatic differences in rates of domestic violence between samples.

Southern site authors, Cox, et al., (2001) write about LONGSCAN's oldest sample of children. Because the measurement approach to assess the presence of domestic violence changed between the ages 4, 6, and 8 year-old interviews, the authors constructed a binary indicator of presence or absence of domestic violence that could be used for all three interviews. While the measure suffers from lack of consistency across ages, it proved to be a powerful predictor of maltreatment reports. The authors noted that there was some indication of domestic violence for 46% of the sample of mothers at age 6 and for 41% of mothers at the child age 8 interview.

They noted that there were contemporaneous reports of child maltreatment near each of the age 6 and age 8 interviews for about 19% of the children. Cox, et al., (2001) concluded that there was a two-fold increased risk of maltreatment for families in which domestic violence was indicated.

The paper from the southwestern LONGSCAN site (Litrownik, et al., 2001) is also quite instructive. The children in this sample had all been reported for maltreatment and in foster care at some point in their early years. At age 6, about one third had been reunited with their families. The reunited children reported that they had seen physical domestic violence in 47% of their families while only 23% of the parents of reunited children disclosed physical domestic violence. Adopted children reported a rate of physical domestic violence of 15.5% in their adoptive families (the parents again reported only 1/2 as much violence as the children reported). Foster care children experienced intermediate rates. Children in relative placements reported lower levels of physical violence (26%) compared to children in non-relative placements (32.5%).

This data are instructive about the comparative prevalence of violence in the various environments in which children find themselves after a substantiated report It appears that the process of screening adoptive parents identifies families with lower risk for domestic violence. Foster homes, whether relative or non-relative, don't provide absolute protection from domestic violence exposure. The discrepancy between child-reported domestic violence prevalence and parent-reported prevalence in foster homes is much greater than the difference in report rates in adoptive homes and re-united families; foster parents may be disinclined to report violence that could compromise their ability to remain foster providers. As the socio-economic status of the family is a strong predictor of domestic violence; some of the differences between adoptive and reunited families may be explained by economics.

The paper by English, et al., (2001) examines the impact of domestic violence on children at the northwestern LONGSCAN site. This paper found little evidence for a direct impact of domestic violence early in children's lives and noted that the child maltreatment variables were much more important influences on child behavior problems. They also note relatively little impact of fathers on the children and that the principal influence on child functioning is the maternal-child relationship.

English, et al., (2001) do note however that the domestic violence variables have slightly more explanatory power at age 6 than at earlier ages. This may well be among the most important findings among these projects and leads to a hypothesis that the impact of domestic violence exposure may be increasingly detectable as the children age. Older children and teens may be at much greater risk for adverse consequences because their world is no longer dominated by the mother-child relationship. Older children may better understand domestic violence or model their own relationships after those that they have observed in the home. It remains to be shown that the direct impact of domestic violence is greater for older children. If so, it will also be important to understand the longitudinal nature of the exposure and at whether there is a latent impact to domestic violence observed as a younger child.

This conclusion is supported by the data from the eastern LONGSCAN project as reported by Morrel, Dubowitz, Kerr and Black. (2001). These authors indicate that the adverse effects on young children from domestic violence are mediated almost entirely by maternal depression. Morrel, et al., describe a very high level of depression among the mothers in their sample (39%). They note a strong association between maternal domestic violence victimization report at child age 4 and maternal report of child internalizing and externalizing problems at age 6. Interestingly, there was no similar finding when the maternal self-report of victimization was used to predict child function on teacher report. Teachers either didn't see the same problems at school or perhaps the mothers project their own feelings as their children's feelings. Morrel, et al., analyses suggest that the relationship between maternal depression and child behavior problems may be linked to increased verbal and physical aggression by the mothers.

The data from the northwestern site (English, et al., 2001) are instructive on another dimension; official child protective service investigations are a very poor source of data on the prevalence of domestic violence. While 64% of the biological mothers told LONGSCAN interviewers about domestic violence when the children were age 4, careful review of child protective service records revealed that less than 1/4 of these had this information in the child protective service record. One wonders why this information is not explicitly collected as a part of the investigation process.

Because each of the authors chose different outcome periods or different measures, it was left to the cross-site paper (Litrownik, Newton, Hunter, English, & Everson, 2001) to develop relative measures of the rates of domestic violence among the sites and children. At age 6, the children reported rates of seeing adults hit each other in the home at the lowest rate in the northwestern and eastern samples (27% and 29%) and at higher rates in the southern and southwestern sites (37% and 46%). By parent report, the rates were lowest at the eastern and southern sites (10% and 8%). Higher rates were reported by parents at the two western sites, 19% for the northwestern site and 25% for the southwestern site. The eastern site had consistently lower rates by

both child and parent report while the southwestern site children and parents both reported the highest rates.

Children consistently reported higher rates of domestic violence than the parents did, although the questions were not exactly comparable. The children were asked if they had seen "grownups in the home hit each other" and the parents reported on whether the children had ever witnessed physical violence between the parents.

The question for children may have elicited positive responses for violence between adults other than spouses while the caregivers may have been reporting on information known before the children came to DSS attention. Cox, et al., (2001) noted the higher risk of child abuse in families with domestic violence and the variation between sites were consistent with this observation. All of the children in the northwestern and southwestern sites were reported for child abuse or neglect whereas there are children without reports in both the eastern and southern samples.

In sum, these collected reports from LONGSCAN together address risk, consequences and mechanisms of the association between domestic violence and child maltreatment. They argue for more attention to the issue of domestic violence by child advocates and careful attention to maternal mental health. Further studies, looking at the longitudinal effects of early exposure to domestic violence will be needed to separate out the latent versus contemporary influences on child well-being.

G. Retention of LONGSCAN Sample

Table 20 depicts the percentage of eligible subjects interviewed at each age-specific interview. With the exception of the Chicago site, where data collection is still in progress for children ages 6 and above, at least 81.5% of eligible subjects were interviewed at all sites for each age-specific interview. At most 10% of subjects were lost at any site between two interview points. On average, 7% of subjects did not participate in successive interviews. Participants who miss one interview are often interviewed in subsequent interviews, and are not considered withdrawn from the study sample unless they have died or the caregiver has explicitly stated they have permanently withdrawn from the study.

Table 20 - LONGSCAN Interview Rates By Site and Age

North Carolina

Age	Eligible	Refused/Died	Interviewed	% Interviewed
Age 4	221	0	221	100%
Age 6	243	13	222	91.4%
Age 8	230	8	190	82.6%
Age 12	222	13	181	81.5%
Age 14	209		* in progress	

Baltimore

Age	Eligible	Refused/Died	Interviewed	% Interviewed
Age 4	237	0	237	100%
Age 6	282	3	255	90.4%
Age 8	279	1	238	85.3%
Age 12	278	2	22 *in progress	

San Diego

Age	Eligible	Refused/Died	Interviewed	% Interviewed
Age 4	319	0	319	100%
Age 6	330	1	299	90.3%
Age 8	329	2	268 * in progress	81.5%*
Age 12	327		52 *in progress	

Seattle

Age	Eligible	Refused/Died	Interviewed	% Interviewed
Age 4	261	1	250	95.8%
Age 6	260	4	239	91.9%
Age 8	256	3	227	88.7%
Age 12	253	11	15 *in progress	

Chicago

Age	Eligible	Refused/Died	Interviewed	% Interviewed
Age 4	319	5	223	69.9%
Age 6	314	1	191* (in progress)	60.8%*
Age 8	313		73* (in progress)	

Overall

Age	Eligible	Refused/Died	Interviewed	% Interviewed
Age 4	1357	6	1250	92.1%
Age 6*	1429	22	1206	84.4*
Age 8*	1407	14	996	70.8*
Age 12*	1080[a]	13	270	25.0*

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
Refused/Died = Number of LONGSCAN subjects who died or explicitly refused (or a caregiver on his/her behalf) to continue participating in the study. Interviewed = Number of LONGSCAN subjects interviewed at each age
% Interviewed = the Number of LONGSCAN subjects interviewed divided by the number of Eligible subjects at each age.
* Interviews are still in progress in these Interview Waves a Does not include Chicago since none of Chicago's subjects are old enough to have an Age 12 Interview
This table based on data received at the CC as of 12/01/2000.

Table 21 displays the distribution of data collected at the Ages 4, 6, and 8 interviews. The counts represent participants with either a caregiver or child interview. Overall, 69% of participants eligible completed each of the three interviews. It is expected that this percentage will increase when the Chicago site completes Ages 6 and 8 data collection, as a portion of the eligible participants who have not completed these interviews will do so before they age out of eligible status. The rate of participation in all three interviews at the four sites who have completed Age 4, 6 and 8 data collection ranged from 66% in Baltimore to 83% in Seattle. Seventy-four percent of participants at these four combined sites completed all three interviews

Data collection and retention rates at the Chicago site reflect the fact that data collection is still in progress for the ages 6 and 8 interviews. Additionally, a portion of the sample eligible for these interview waves was dislocated with the demolition of the Cabrini Greene housing complex, and will be re-contacted when new addresses are available.

Table 21. LONGSCAN - Distribution of Data Collected on Eligible Age 8 Subjects
[Based on the presence of a Caregiver or Subject Child Interview]

	Baltimore		Chicago		North Carolina		San Diego		Seattle		All Sites	
	N	%	N	%	N	%	N	%	N	%	N	%
Age 4,6,& 8 Interviews	189	67.5	71	34.9	168	69.4	249	75.9	216	82.7	893	67.9
Age 4 & 6 Interviews	21	7.5	61	30.0	32	13.2	37	11.2	19	7.2	170	12.9
Age 4 & 8 Interviews	15	5.3	2	0.9	4	1.6	10	3.0	9	3.4	40	3.0
Age 6 & 8 Interviews	34	12.1	0	0	18	7.4	9	2.7	0	0	61	4.6
Only Age 4 Interview	11	3.9	69	33.9	16	6.6	21	6.4	17	6.5	134	10.1
Only Age 6 Interview	10	3.5	0	0	4	1.6	2	0.6	0	0	16	1.2
Total	280	100.0	203	100.0	242	100.0	328	100.0	261	100.0	1314	100.0

Based on data received through 12/06/2000

This is where Charts 1 & 2 (graphs) go!!!!

H. **Maltreatment Data Collected to Date.** Tables 22 and 23 summarize maltreatment data collected to date by source, type, and timing, for allegations and substantiations, respectively. The first four columns of each table summarize maltreatment coded from CPS case record narratives only, using the LONGSCAN Maltreatment Coding Scheme (LMCS) modified from Barnett, Manly, and Cicchetti (1993). The second four columns summarize reports found in either case narratives or central registry tapes, coded using the NIS2 coding scheme. Hence the data in these columns is more complete than for data based on case record narratives alone. Sources of missing data for case record data include missing dates, records searched for but not found, and record searches that have not been completed for the child's entire lifetime. Thus, the percentages shown in cells for subtypes may be slightly underestimated because of cases not represented in the denominator. Percentages for subtypes of maltreatment add to greater than 100 percent because records could be coded with multiple types of maltreatment. The completeness of data and available sources of data vary by site. At the Southwest site, for example, record reviews have not been completed through age 8 for approximately one-third of the sample. The Eastern site has only case records and does not have access to state central registry data to supplement the reports found in DSS records. Efforts are underway to collect information for each LONGSCAN participant on the date on which the last search for records was conducted and the reason records were not found, so that in future analyses we can better adjust for nonexistent data.

The tables show that the percentage of LONGSCAN participants with maltreatment reports is quite high: 58% based on records with LMCS codes and 64% based on records from any source. The bulk of the reports of every type occurred before age four and declined as children became older. Neglect was by far the most common type of report (51-52%). Sexual abuse was reported most infrequently. Physical abuse was the type of allegation least likely to be substantiated.

Table 22. Maltreatment reports by source, type, and timing: Allegations

	LONGSCAN maltreatment coding scheme from Case record Narrative reviews				NIS2 codes from either Case record Narrative reviews or Central Registry tapes			
Maltreatment type	Before Age 4 Interview % (n)	Between Age 4 and Age 6 Interviews % (n)	Between Age 6 and Age 8 Interviews % (n)	Lifetime % (n)	Before Age 4 Interview % (n)	Between Age 4 and Age 6 Interviews % (n)	Between Age 6 and Age 8 Interviews % (n)	Lifetime % (n)
Any Abuse	22 (275)	10 (112)	10 (94)	29 (416)	30 (377)	12 (133)	11 (108)	37 (537)
Physical	18 (230)	8 (87)	9 (83)	25 (357)	22 (275)	8 (87)	9 (82)	28 (403)
Sexual	7 (92)	4 (42)	2 (23)	11 (153)	9 (107)	4 (42)	3 (28)	12 (175)
Emotional	*	*	*	*	9 (111)	3 (35)	3 (30)	13 (180)
Any Neglect	39 (485)	16 (174)	12 (119)	49 (706)	45 (564)	18 (195)	15 (142)	52 (742)
Physical	29 (367)	11 (119)	8 (81)	40 (572)	40 (496)	15 (170)	12 (115)	47 (669)
Emotional	*	*	*	*	14 (181)	5 (54)	4 (42)	19 (269)
Emotional Maltreatment	21 (257)	8 (84)	6 (59)	26 (371)	19 (239)	7 (79)	6 (60)	24 (350)
Any report	47 (586)	22 (245)	18 (176)	55 (796)	56 (698)	23 (256)	19 (185)	64 (916)

Notes: Age 4 interviews N = 1,251; Age 4 and Age 6 interviews N = 1,107; Age 6 and Age 8 interviews N = 953; and Age 8 interviews N = 993 (Age 8 data collection is incomplete.)
Lifetime percentages using the LONGSCAN coding scheme are based on case record reviews conducted to date for 848 LONGSCAN subjects. Lifetime percentages using the NIS2 coding scheme are based on records for 911 LONGSCAN subjects from either case records or state central registries. The base N is 1,435 for both columns.
*Emotional maltreatment is not separated into abuse and neglect in the LONGSCAN maltreatment coding scheme.

Table 23. Maltreatment reports by source, type, and timing: Substantiations

	LONGSCAN maltreatment coding scheme from Case record Narrative reviews				NIS2 codes from either Case record Narrative reviews or Central Registry tapes			
Maltreatment type	Before Age 4 Interview % (n)	Between Age 4 and Age 6 Interviews % (n)	Between Age 6 and Age 8 Interviews % (n)	Lifetime % (n)	Before Age 4 Interview % (n)	Between Age 4 and Age 6 Interviews % (n)	Between Age 6 and Age 8 Interviews % (n)	Lifetime % (n)
Any Abuse	21 (263)	10 (111)	10 (91)	24 (344)	24 (298)	12 (128)	9 (103)	33 (467)
Physical	17 (210)	8 (85)	8 (78)	29 (409)	17 (218)	8 (85)	7 (77)	25 (354)
Sexual	7 (93)	4 (39)	3 (24)	11 (154)	7 (93)	4 (40)	2 (27)	11 (164)
Emotional	*	*	*	*	7 (84)	3 (31)	2 (27)	11 (155)
Any Neglect	39 (482)	15 (168)	12 (117)	49 (706)	41 (515)	16 (179)	12 (136)	49 (696)
Physical	29 (360)	10 (112)	8 (79)	40 (568)	37 (467)	15 (161)	10 (114)	45 (642)
Emotional	*	*	*	*	12 (155)	4 (46)	3 (35)	17 (244)
Emotional Maltreatment	21 (259)	7 (82)	6 (59)	26 (371)	17 (207)	6 (69)	5 (54)	(322)
Any report	47 (583)	21 (234)	18 (174)	56 (803)	52 (651)	21 (238)	16 (177)	61 (875)

Notes: Age 4 interviews N = 1,251; Age 4 and Age 6 interviews N = 1,107; Age 6 and Age 8 interviews N = 953; and Age 8 interviews N = 993 (Age 8 data collection is incomplete.)
Lifetime percentages using the LONGSCAN coding scheme are based on case record reviews conducted to date for 848 LONGSCAN subjects. Lifetime percentages using the NIS2 coding scheme are based on records for 911 LONGSCAN subjects from either case records or state central registries. The base N is 1,435 for both columns.
*Emotional maltreatment is not separated into abuse and neglect in the LONGSCAN maltreatment coding scheme.

ANNOTATED PUBLICATIONS LISTS

LONGSCAN Coordinating Center
PUBLICATIONS
April 1996 - September 2000

The following list describes papers submitted or accepted for publication. Authors who are either current or former members of the Coordinating Center staff are shown in bold and the abstract from each paper is included.

2000 or Pending for 2001

1. **Amaya-Jackson, L., Socolar, R. R. S., Hunter, W. M. V. 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.

   It is widely recognized that maltreatment research should include a more child-oriented perspective. Although there are guidelines for directly interviewing children about their maltreatment experiences, oftentimes children's ability to respond to sensitive questions may be hindered by embarrassment, shame, and/guilt. With technological advances in talking computers, computer-administered questionnaires may be an optimal way to interview children about maltreatment because questions can be presented in two modalities - aurally, through headphones, and visually on the screen. This method ensures privacy and presents questions in a gender-specific format that can be tailored to the developmental level and specific experiences of each child. This article reviews the advantages and disadvantages of using computer-administered questionnaires to ask children about their maltreatment history. Attention is also directed toward the methodological, developmental, and ethical aspects of interviewing children about maltreatment.

2. Black, M., Kerr, M., Hussey, J.**, Hunter, W.,** English, D., Schneider, M., Dubowitz, H., & Kotch, J. (under expedited review) Preschool children born to adolescent mothers: Effects of maltreatment, maternal depression, and three-generational households. Archives of Pediatrics & Adolescent Medicine.

   Thirty-nine percent of the children had a history of maltreatment. Thirty-two percent of the mothers had depression scores in the clinical range, 63% reported a history of victimization, and 26% lived in three-generation households. Multiple regression analyses revealed that children were least likely to experience behavior problems when they had no history of maltreatment, when their mothers had few depressive symptoms, and when they did not live in three-generation households.

The relationship between grandmother co-residence and children's behavior and development varied by the outcome measure. Among children who had been maltreated, grandmother co-residence was associated with *more* behavior problems, but a tendency toward better cognitive development. Policies for women who gave birth as adolescents should emphasize identification and treatment for depression and provide support that promotes the development of autonomy and independence.

3. **Cox, C.E**., Kotch, J.B., & **Everson, M.D**. (under review). A longitudinal study of modifying influences in the relationship between domestic violence and child maltreatment. Journal of Family Violence (Special Issue).

   The increased risk of child maltreatment in the presence of domestic violence is well documented, but much remains unknown about factors that modify this relationship. This study investigates the roles of risk and protective factors in the relationship between domestic violence and being reported to the Department of Social Services for child maltreatment. Consistent with the literature, we find a significant overlap between domestic violence and maltreatment. Young maternal age, low education, low income, and lack of involvement in a religious community add to the risk for maltreatment associated with domestic violence. Separation between the maternal caregiver and her partner significantly reduces the risk for maltreatment when domestic violence is reported. A significant reduction in the risk for maltreatment is also found with higher levels of support from the maternal caregiver reported by the child in the context of domestic violence.

4. Dubowitz, H., Black, M.M., **Cox, C.E**., Kerr, M.A., Litrownik, A.J., Radhakrishna, A., English, D., Schneider, M., & **Runyan, D.K.** (submitted for review). Father involvement and children's functioning at age 6 years: A multi-site study. Child Maltreatment. (Focus section).

   Research to date suggests that fathers', involvement in their children's lives is associated with enhanced child functioning. However, little of this research has been conducted on high-risk families, or using children's perceptions. The current study examined: 1) whether presence of a father (or father figure) was associated with better child functioning; 2) whether children's perceptions of fathers support was associated with better child functioning; and 3) whether the above association was moderated by the father's relationship to the child (i.e., biological or not), the child's race, and child's gender. Participants included 855 six-year old children and their primary caregivers, participating in 5 longitudinal studies of high-risk families and child maltreatment. Father presence was associated with better cognitive development and greater perceived competence and social acceptance by the children.

For the children who had a father figure, those who described greater father support not only had a stronger perceived sense of competence and social acceptance, but also fewer depressive symptoms. The associations did not differ by child's gender, race, or relationship to the father figure. These findings support previous research that demonstrates the value of fathers', presence and support to their children's functioning. Priorities for future research include clarifying what motivates fathers to be positively involved in their children's lives, and finding strategies to achieve positive father involvement.

5. Dubowitz, H., Black, M., Kerr, M., Hussey, J., Morrel, T., **Everson, M.**, & Starr, R. (In press) Different types of maternal victimization: Effects on mothers and children, Pediatrics.

   Objectives. There is mounting concern about how mothers' own victimization experiences affect their children. This study examines the effects of mothers' victimization on their own mental health and parenting and on their children's behavior, development, and health. The effects of both timing and type of victimization are assessed. A related objective was to determine whether there was a cumulative risk effect produced by victimization during both childhood and adulthood, or both physical and sexual.

   Setting. Urban families in an Eastern state and urban and rural families in a Southern state.

   Participants. 419 mothers and their children aged 6-7 years were identified from two sites. The Eastern sample was recruited in the first two years of life from three pediatric clinics: one for children at high risk for Human Immunodeficiency Virus disease, one for children with failure to thrive, and a third providing pediatric primary care. The Southern sample was derived from a cohort of children at risk for adverse health or developmental outcomes, plus a systematic sampling of controls, recruited from area hospitals. At age four, a random sample of children from the original cohort who had been maltreated along with a matched comparison group of non-maltreated children were selected.

Results. In general, mothers victimized during both childhood and adulthood had poorer outcomes than mothers victimized during either childhood/adolescence or adulthood who in turn had worse outcomes than mothers with no history of victimization . This manifested as more maternal depressive symptoms, harsher parenting, and more externalizing and internalizing behavior problems in their children. There were no significant differences in maternal functioning or child outcomes between those abused in childhood and those abused in adulthood. These findings were similar for type of victimization. Mothers' depression and harsh parenting were directly associated with their children's internalizing and externalizing behavior problems.

Conclusions. Maternal victimization appears to be a highly prevalent problem in high risk samples and is associated with harmful implications for mental health and parenting, as well as for the offspring. Pediatricians need to consider past and current victimization of mothers. Routine screening for these problems, followed by appropriate evaluation and intervention may reduce maternal depression, improve parenting, and reduce the incidence of behavior problems in children.

6. **Hunter, W. M., Cox, C. E., Teagle, S. E., Johnson, R. M., Mathew, R., Knight, E. D., & Leeb, R.** (accepted pending revisions). Measurement, Assessment, and Outcomes for Longitudinal Studies in Child Abuse and Neglect, Volume 1: Childhood Measures. *Child Welfare League of America.*

The Longitudinal Studies in Child Abuse and Neglect (LONGSCAN) Consortium has developed interview protocols for measuring etiologic and outcome variables related to child maltreatment in response to recommendations for longitudinal research in child abuse and neglect made by the National Research Council. This manual, the first of two volumes, describes measures used by the LONGSCAN Consortium at the Pre-age 4, Age 4, Age 6, Age 8, and Annual Contact interviews through Age 9. Measures used from Age 10 forward will be described in the second volume. Each entry includes a description of the measure, its origin, administration and scoring information, norms and comparative data, descriptive statistics from the LONGSCAN samples, data on reliability and validity, and a copy of the instrument items as used by LONGSCAN when permissible. The manual serves as an essential reference for LONGSCAN investigators and outside investigators who use LONGSCAN data, as well as for all researchers who seek useful measures related to child and family well-being.

7. Hussey JM, Kotch JB, Dubowitz H, English D, **Hunter W,** Litrownik A, Schneider MW, Wang J, Catellier D, Winsor J, Bou-Saada I, Radhakrishna A. Maltreatment, Attention Problems, and Childhood Aggression: A Longitudinal Study. To be revised and resubmitted to Journal of Family Psychology.

   Longitudinal data are used to examine the relationships among child maltreatment, attention problems, and aggressive behavior in children. The sample consists of 699 children either maltreated or at high risk for maltreatment recruited from three U.S. regions. Data collected from the child's primary caregiver (at child ages 4, 6, and 8) and teacher (at ages 6 and 8), supplemented with maltreatment reports from state child protective services (CPS) central registries, are analyzed using generalized linear mixed model (GLMM) estimation techniques. Official maltreatment reports, attention problems, minor caregiver aggression toward the child, caregiver depression, and household structure are significantly associated with caregiver-rated child aggression. There are no main effects for maltreatment or attention problems when teacher-rated child aggression is modeled. Possible explanations for the dissimilar findings by rater are discussed.

8. Johnson, R. M., Kotch, J. B., Catellier, D., Winsor, J., Dufort, V., **Hunter, W., & Amaya-Jackson, L.** (accepted pending revision). Adverse behavioral and emotional outcomes from child abuse and witnessed violence. Child Maltreatment.

   This paper examines adverse behavioral and emotional outcomes among 167 8-year-old children who witnessed violence and/or were physically abused. We examined subsequent levels of depression, anxiety, aggression and anger. Employing a strict set of controls, we then conducted regression analyses and found that both predictors were related to adverse outcomes among subjects. Child victimization had significant effects on caregiver report of both aggression ($p<0.05$) and depression ($p<0.01$). The corresponding patterns of least-square means of the adjusted scores showed that levels of aggression and depression jumped sharply from no victimization to any victimization, with only a slight difference between moderate and high levels of victimization. Child report of witnessed violence was significantly associated with all five outcome variables ($0.0001<p<0.05$). The least-square means for the child-reported variables (depression, anger, and anxiety) increased linearly as the amount/severity of violence increased. Caregiver report of violence witnessed by the child emerged as a significant predictor of aggression ($p<0.05$), and anxiety ($p<0.05$), but not depression or anger. Aggression levels increased significantly from minimal to moderate levels of witnessed violence, declining slightly from moderate to severe. However, more severe anxiety was reported at the lowest level of witnessed violence, and the least severe anxiety at moderate levels of witnessed violence.

9. **King, N. & Churchill, L**. (2000) Ethical principles guiding research on child and adolescent subjects. Journal of Interpersonal Violence, 15(7), 710-724.

   Understanding the ethical principles that should guide research with child and adolescent participants is an essential task for researchers. Principles do not always yield final or uncontroversial answers, but they do serve to clarify and justify decisions, and their use makes individual decisions and research policies more public and open to examination. The principles of scientific importance, scientific soundness, respect for autonomy, beneficence, nonmaleficence, utility, and justice are described herein. The embodiment of these principles in the federal guidelines governing research is discussed, with attention to the differences between wronging and harming subjects and the meaning of informed consent.

10. **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.

    The conduct of research in the area of child abuse and neglect may be one of the most difficult tasks in social science research. One requirement for valid research is knowledge of the type and amount of exposure. Official reports have been demonstrated to provide a serious undercount of the frequency of maltreatment, and parent report is of limited usefulness. LONGSCAN, a consortium of longitudinal studies of abuse and neglect, made the decision to ask children for self-report, but with five independent study sites with unique study-to-sample relationships, ethically implementing this choice demanded customized participant protocols. This article describes the consortium's approach to asking children for direct reports at age 12, the relevant methodological and ethical challenges, and solutions developed with institutional review boards at four of the five study sites. The wording of consents and the variations in protocol related to reporting to Child Protective Services are discussed.

11. Litrownik, A.J., Newton, R.R., **Hunter, W.M., & Everson, M.D.** (under review). 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 (Special Issue).

    The present study examines the contribution of specific types of family violence exposure (e.g., victim vs. witness; physical vs. psychological) to aggressive and anxious/depressed problem behaviors in young (i.e., 6-year old) at-risk children. This multi-site prospective study of 682 children from four different regions of the country asked mothers and their 6-year old children to report on violence exposure in their families. After controlling for mother reports of child problem behaviors on

the CBCL at Age 4, it was found that subsequent exposure to family violence predicted reported problem behaviors at Age 6. While mothers' report of child victimization predicted subsequent problem behaviors, witnessed violence was related to these problems only when both mothers and children reported its occurrence. The results of the present study suggest that even though there was a relationship between witnessed and directly experienced family violence both had independent, non-interactive effects on subsequent behavior problems.

12. Ruina E, Winsor J, **Mathew R**, Herman-Giddens M, Kotch JB**.** (Submitted to Child Abuse and Neglect.) Child Neglect and Externalizing Behavior in School-Age Children.

This study examines the relationship between child neglect and externalizing behavior (aggression and delinquency) in school-aged children. Substantiated neglect was significantly associated with higher levels of externalizing behavior ($p<.05$) in the final multivariate model. The variable for SES, household poverty level, was not significant. Other variables significantly associated with externalizing behavior were low maternal age, non-biological caregiver, exposure to minor violence in the home, and lower child intelligence. Interpreting these results, however, is limited by inconsistencies in the definitions of child neglect among local social services agencies, state central registries, and researchers. Nevertheless, the prevalence of child neglect and the possibility that childhood externalizing behaviors persist into adolescence suggest that the relationships among child neglect, externalizing behavior and poverty bear further examination.

13. **Runyan, D.K.,** (2000). The ethical, legal, and methodological implications of directly asking children about abuse. Journal of Interpersonal Violence, 15(7), 675-681.

This article is the introduction to a Special Issue of the Journal of Interpersonal Violence for which Dr. Runyan was the Guest Editor. The special issue contains six LONGSCAN-related articles focusing on research questions related to asking children/youth about their own maltreatment experiences. The article describes a 1994 conference hosted by the LONGSCAN Coordinating Center entitled "Ethical, Legal, and Methodological Implications of Directly Asking Children About Histories of Maltreatment." Also outlined are the 21 recommendations that resulted from the conference directed toward the areas of federal policy and legal changes, institutional review boards, and the research community.

1999

14. **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 (pp. 163-170). Chapel Hill: The University of North Carolina Press.

    This chapter addresses a series of complex consent and confidentiality issues in child abuse research. Dr. Runyan discusses a problem common to much child abuse research: the statutory requirement that suspected abuse be reported to child protection authorities. The specific question of whether and how the possibility of reporting should be disclosed to potential subjects - both parents and children - is considered.

15. **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.

    A measure based on coded parental responses was used to assess discipline practices for 6 different misbehaviors. Limit-setting was the most commonly used disciplinary practice for 4 of 6 misbehaviors, and 63% of parents reported that this worked best. The frequency of spanking increased for each misbehavior as a secondary technique when the primary one had not succeeded, whereas the frequency of teaching always decreased as a secondary technique. Each disciplinary practice was examined to find which misbehavior elicited this practice most often. Teaching was used more commonly for lying than for any other misbehavior, limit-setting for disobeying, spanking for stealing, and spanking with an object for being disrespectful. Regression modeling showed (p<.05) that non-white race was associated with more corporal punishment and less limit-setting, and older mothers showed less limit-setting and more teaching. Maternal education, social capital, AFDC receipt, and child temperament were predictive of at least one disciplinary scale. Disciplinary practices depend upon the misbehavior and other contextual factors.

1998

16. **Hunter, W.M.** and **Knight, E.** (Eds.) (1998). LONGSCAN research briefs: Vol. 1. Washington, D.C.: National Clearinghouse on Child Abuse and Neglect. http://www.caliber.com/nccanch/pubs/Resbrief/index.htm

This volume contains some of the findings from LONGSCAN analyses conducted from 1996 to 1998 accompanied by suggested implications for policy and practice. The research briefs address a number of questions ranging from risk and protective factors for young at-risk children, to system response in identifying children most at risk, to the impact of early intervention. Of note are three separate analyses, independently conducted at different LONGSCAN study sites, that each document the risk to children in homes where there is domestic violence.

The consortium has also placed special emphasis on trying to understand the significance of fathers and father-surrogates in the lives of LONGSCAN children. While these early findings are not definitive, it is our hope that in the coming years that the accumulation of data across sites and over time will provide crucial information for the development of policies and interventions that will help our most vulnerable children live healthy and rewarding lives.

17. **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

    The National Research Council (1993) issued an urgent call for theory-based, longitudinal research to examine the antecedents and consequences of child maltreatment. Many of the concerns raised by the National Research Council are addressed by LONGSCAN (LONGitudinal Studies of Child Abuse and Neglect), a consortium including a coordinating center and five independent prospective longitudinal investigations sharing common protocols for data collection, entry, and management in the area of child maltreatment. The children in the five investigations vary by their level of risk, ranging from a community sample with no identified risk beyond low income status, to children placed in foster care. The longitudinal study has been designed with six age-specific data collection points extending from four through twenty years of age. The conceptual model, organization, and analytic strategy for LONGSCAN are described.

18. **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.

    Objective. To examine the importance of social capital to the developmental and behavioral well-being of children at risk.

    Design. Cross-sectional case-control analysis of baseline survey data from 4 coordinated longitudinal studies.

Participants. A total of 667 two to five year old children and their maternal caretakers who are participating in the Consortium of Longitudinal Studies in Child Abuse and Neglect (LONGSCAN). At recruitment, all subjects shared unfavorable social or economic factors that contributed to the identification of the children as "high risk."

Measures. Social capital was defined as the benefits that accrue from social connectedness in communities and families. A 5-point social capital index was created by assigning one point for each of the following indicators: (1) two parents in the home; (2) personal social support for maternal caretaker; (3) no more than one other sibling in the home; (4) neighborhood support; and (5) regular church attendance. Outcome measures were the Child Behavior Checklist, a behavior problem inventory, and the Battelle Developmental Screening Test. Children were classified as functioning well if there were no indications of behavior problems or developmental problems, as measured by these two instruments.

Results Only 13% of the children were classified as "doing well." Social capital was strongly associated with child well-being, even after controlling for foster care placement, maternal depression, family income, maternal education and site differences. Adding any one social capital indicator increased the odds of "doing well" by 30%; adding any two increased the odds of "doing well" by 66%.

Conclusions. Social capital appears to be a strong determinant of child well-being in a high risk, low socio-economic sample.

LONGSCAN North Carolina Site
PUBLICATIONS
April 1996 - September 2000

The following list includes papers submitted or accepted for publication. Authors who are either current or former members of the North Carolina Site team are shown in bold and the findings of each paper are summarized.

2000

1. **Kotch JB**. "Ethical issues in Longitudinal Child Maltreatment Research." *Journal of Interpersonal Violence*, 2000; 15(7):696-709.

   Findings: The opportunity to implement a longitudinal research project designed to investigate the etiology of child abuse and neglect has been accompanied by controversy surrounding very complex ethical issues, many of which have legal implications. The question raised is, "Can confidential research, with the potential for uncovering previously unreported child abuse and neglect, be conducted ethically?" This paper traces the approach to answering this question for the first eight years of the Stress and Social Support (SSS) Project, the predecessor of the NC local site of LONGSCAN, and draws implications for the future of LONGSCAN.

1999

2. **Kotch JB, Browne D, Dufort V, Winsor J, Catellier D.** "Predicting Child Maltreatment in the First Four Years of Life from Characteristics Assessed in the Neonatal Period." *Child Abuse and Neglect*. 1999; 23(4):305-319.

   Findings: Six predisposing risk factors, maternal depression, maternal education, psychosomatic symptoms, maternal drinking, participation in public income support programs, and mother's separation from her own mother at age 14 years, were retained at the $p \leq 0.1$ level in a regression model. In interaction models including significant predisposing variables, there were significant interactions ($p \leq 0.01$) between social well-being, as measured after the birth of index children by the social well-being index, and depression, as well as between social well-being and total life event change. Some predisposing risk factors measured soon after birth continue to be significant predictors of child maltreatment reports through the fourth year of life. In general, families with low levels of social support had a higher risk of a maltreatment report. For families with lower levels of maternal depression and/or life event stress, low social support significantly increased the risk of a maltreatment report by as much as a factor of four.

3. **Socolar R, Winsor J, Hunter W, Dufort V, Kotch JB**. "Maternal Disciplinary Practices in an At-Risk Population." Accepted by *Archives of Pediatric & Adolescent Medicine*. 1999; 153:927-934.

   Findings: A measure, based on coded parental responses, was used to assess discipline practices for 6 different misbehaviors. Limit-setting was the most commonly used disciplinary practice for 4 of 6 misbehaviors, and 63% of parents reported that this worked best. The frequency of spanking increased for each misbehavior as a secondary technique when the primary one had not succeeded, whereas the frequency of teaching always decreased as a secondary technique. Each disciplinary practice was examined to find which misbehavior elicited this practice most often. Teaching was used more commonly for lying than for any other misbehavior, limit-setting for disobeying, spanking for stealing, and spanking with an object for being disrespectful. Regression modeling showed (p<.05) that non-white race was associated with more corporal punishment and less limit-setting, and older mothers showed less limit-setting and more teaching. Maternal education, social capital, AFDC receipt, and child temperament were predictive of at least one disciplinary scale. Disciplinary practices depend upon the misbehavior and other contextual factors.

4. **Zolotor A, Kotch JB, Dufort V, Winsor J, Catellier D, Bou-Saada I**. "School Performance in a Longitudinal Cohort of Children at Risk for Maltreatment." *Maternal and Child Health Journal.* 1999; 3(1):19-27.

   Findings: This prospective study followed children born at risk for maltreatment with semi-annual reviews of the state's Central Registry of Child Abuse and Neglect. At ages six and eight years, children's teachers were surveyed using the Achenbach Teacher Report Form and project-developed questions regarding peer status. This information, along with control variables from maternal interviews, was used in logistic regression models to determine the impact of maltreatment on academic performance, peer status, and adaptive functioning. The generalized estimating equations method was used to take advantage of observations of subjects at two points in time. A substantiated maltreatment report is significantly associated with poorer academic performance (p<0.05) and poorer adaptive functioning (p<0.001) but not with peer status. Understanding the consequences of maltreatment, including poor academic performance and adaptive functioning, is important in planning educational and social service interventions that may help abused or neglected children succeed in school and later in life. Longitudinal analysis is the only way to establish a causal relationship between maltreatment and subsequent school problems.

1998

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

   Findings: In a cohort of 734 predominantly high-risk mothers ranging in age from 12 to 42 years at the time of the interview, 32% reported sexual abuse before the age of 18, with a mean abuse age of 12.1 years old. After controlling for poverty, race, maternal education, marital status, and age, there was no significant difference between the abused and non-abused mothers in their age at first birth. However, parity was significantly higher among abused mothers as 55% of the mothers with a sexual abuse history had had more than one child as compared to 40% of the non-abused mothers. This effect is stronger among married mothers with a sexual abuse history.

6. **Lowman B, Kotch, JB, Jung J-W, Browne DH.** "Using Number of Reports Adjusted for Exposure (NRAE) to Measure Child Maltreatment." *Child Maltreatment*. 3(3). August 1998.

   Findings: The number of reports of child abuse and neglect to the North Carolina Department of Social Services was adjusted for the amount of time the child lived in the state and was therefore exposed to possible reporting to create the Number of Reports Adjusted for Exposure (NRAE). NRAE was used as the dependent variable in a longitudinal study of precursors of child maltreatment measured when the children were newborns. Mothers were interviewed shortly after the birth of a child, and the information was related to NRAE over the first five years of life using a Poisson regression. Several additional related variables were identified as predictors of child maltreatment using NRAE as the dependent variable. A logistic model run with reported at least once/not ever reported as the dependent variable and a COX Proportional Hazard model were also examined for comparison purposes. Results showed that some of the significant predictors in the Poisson regression, such as poverty, education, and number of children in the home, were familiar from earlier analyses of this sample, but the new technique added the significant predictors of race, maternal age, maternal drinking and maternal depression. Both practitioners and researchers would benefit from the creation of a maltreatment index that weighs number, type, and seriousness of reports to predict long-range problems for children. Perhaps the present study is one step toward development of such an index.

1997

7. **Kotch JB, Browne DC, Ringwalt CL, Dufort V, Stewart P, Jung J-W**. "Stress, Social Support, and Substantiated Maltreatment in the Second and Third Years of Life." *Child Abuse and Neglect*. Vol. 21, No. 11, November 1997.

   Findings: This study confirmed, for the second and third years of life, the predictive value of risk factors for maltreatment identified at birth (poverty, mother's education, other children in the home and depression) which were significant in the first year. In addition, stress (life events and everyday stressors) and social support interact to modify the risk-factor/maltreatment-report association. It confirms and extends previous observations that sociodemographic risk factors are powerfully associated with a maltreatment report, and that such risk factors, identified at birth, can still predict reports up to the third birthday. In addition, maternal depression soon after the child's birth is a predictor of a maltreatment report in the second and third years of a child's life. Finally, we continue to find that stressful life events are predictors of maltreatment, but that social support can modify the effects of stress. Primary prevention of child maltreatment, therefore, has to address family size through family planning, income supports, maternal education, and identification and treatment of maternal depression; and that for families with these risks programs which reduce stressful life events and engage the new mother in networks of social support may help reduce the risk of maltreatment.

1996

8. **Hall LA, Kotch JB, Browne D, Rayens MK**. "Self-esteem: A Mediator of the Effects of Stressors and Social Resources on Depressive Symptoms in Postpartum Mothers?" *Nursing Research,* 1996; 45:231-8.

   Findings: The purpose of this study was to examine the role of self-esteem as a mediator of the effects of stressors and social resources on mothers' postpartum depressive symptoms. Data for this cross-sectional study were collected during in-home interviews with 738 women one to two months postpartum. Of the women, 42% had high depressive symptoms. Self-esteem mediated the effects of everyday stressors and the quality of primary intimate relationships on depressive symptoms. However, everyday stressors also exhibited direct effects. Mothers with low self-esteem were 39 times more likely to have high depressive symptoms compared to those with high self-esteem. Interventions to decrease postpartum mothers' chronic stressors and to improve the quality of their primary intimate relationships may enhance their self-esteem, which in turn may decrease the likelihood of high depressive symptoms.

PENDING

9. **Radhakrishna A, Bou-Saada I, Hunter W, Catellier D, Kotch JB.** "Are Father Surrogates a Risk Factor for Child Maltreatment?" Accepted by *Child Maltreatment.*

   Findings: Most research on the effect of father figures in the home on the incidence of child maltreatment has been cross-sectional and has focused on sexual abuse. This prospective study's purpose is to determine if the presence of the father surrogate in the home, defined as husbands or boyfriends who are not biologically related to the child, affects the risk of a subsequent child maltreatment report. In a longitudinal sample of at-risk children, the State's Central Registry for Child Abuse and Neglect was used to determine the maltreatment history of children from birth to age eight years. For children living with a biological mother, the presence of father figures and their relationships to the children were determined at birth, and around ages four and six. Children who had a father surrogate live in the home were twice as likely to be reported for maltreatment after his entry into the home than those with either a biological father in the home (OR=2.6, 95% CI= 1.4-4.7) or no father figure in the home (OR=2.0, 95% CI= 1.1-3.5).

10. **Hussey JM, Kotch JB, Dubowitz H, English D, Hunter W, Litrownik A, Schneider MW, Wang J, Catellier D, Winsor J, Bou-Saada I, Radhakrishna A.** "Maltreatment, Attention Problems, and Childhood Aggression: A Longitudinal Study." To be revised and resubmitted to *Journal of Family Psychology.*

    Findings: Longitudinal data are used to examine the relationships among child maltreatment, attention problems, and aggressive behavior in children. The sample consists of 699 children either maltreated or at high risk for maltreatment recruited from three U.S. regions. Data collected from the child's primary caregiver (at child ages 4, 6, and 8) and teacher (at ages 6 and 8), supplemented with maltreatment reports from state child protective services (CPS) central registries, are analyzed using generalized linear mixed model (GLMM) estimation techniques. Official maltreatment reports, attention problems, minor caregiver aggression toward the child, caregiver depression, and household structure are significantly associated with caregiver-rated child aggression. There are no main effects for maltreatment or attention problems when teacher-rated child aggression is modeled. Possible explanations for the dissimilar findings by rater are discussed.

11. **Johnson R, Kotch JB, Catellier D, Winsor J, Dufort V,** Hunter W, Amaya-Jackson, L. "Adverse Behavioral and Emotional Outcomes from Child Abuse and Witnessed Violence." Accepted by *Child Maltreatment* pending revisions.

    Findings: This paper examines adverse behavioral and emotional outcomes among 167 8-year-old children who witnessed violence and/or were physically abused. We examined subsequent levels of depression, anxiety, aggression and anger. Employing a strict set of controls, we then conducted regression analyses and found that both predictors were related to adverse outcomes among subjects. Child victimization had significant effects on caregiver report of both aggression ($p<0.05$) and depression ($p<0.01$). The corresponding patterns of least-square means of the adjusted scores showed that levels of aggression and depression jumped sharply from no victimization to any victimization, with only a slight difference between moderate and high levels of victimization. Child report of witnessed violence was significantly associated with all five outcome variables ($0.0001<p<0.05$). The least-square means for the child-reported variables (depression, anger, and anxiety) increased linearly as the amount/severity of violence increased. Caregiver report of violence witnessed by the child emerged as a significant predictor of aggression ($p<0.05$), and anxiety ($p<0.05$), but not depression or anger. Aggression levels increased significantly from minimal to moderate levels of witnessed violence, declining slightly from moderate to severe. However, more severe anxiety was reported at the lowest level of witnessed violence, and the least severe anxiety at moderate levels of witnessed violence.

12. **Ruina E, Winsor J, Mathew R, Herman-Giddens M, Kotch JB.** "Child Neglect and Externalizing Behavior in School-Age Children." Submitted to *Child Abuse and Neglect.*

    Findings: This study examines the relationship between child neglect and externalizing behavior (aggression and delinquency) in school-aged children. Substantiated neglect was significantly associated with higher levels of externalizing behavior ($p<.05$) in the final multivariate model. The variable for SES, household poverty level, was not significant. Other variables significantly associated with externalizing behavior were low maternal age, non-biological caregiver, exposure to minor violence in the home, and lower child intelligence. Interpreting these results, however, is limited by inconsistencies in the definitions of child neglect among local social services agencies, state central registries, and researchers. Nevertheless, the prevalence of child neglect and the possibility that childhood externalizing behaviors persist into adolescence suggest that the relationships among child neglect, externalizing behavior and poverty bear further examination.

13. **Cox CE, Kotch JB, Everson MD**. "A Longitudinal Study of Modifying Influences in the Relationship Between Domestic Violence and Child Maltreatment." Revised and re-submitted to *Journal of Family Violence.*

Findings: The increased risk of child maltreatment in the presence of domestic violence is well documented, but much remains unknown about factors that modify this relationship. This study investigates the roles of risk and protective factors in the relationship between domestic violence and being reported to the Department of Social Services for child maltreatment. Consistent with the literature, we find a significant overlap between domestic violence and maltreatment. Young maternal age, low education, low income, and lack of involvement in a religious community add to the risk for maltreatment associated with domestic violence. Separation between the maternal caregiver and her partner significantly reduces the risk for maltreatment when domestic violence is reported. A significant reduction in the risk for maltreatment is also found with higher levels of support from the maternal caregiver reported by the child in the context of domestic violence.

LONGSCAN Seattle Site
PUBLICATIONS
April 1996 - September 2000

1. **English, D.J., Marshall, D.B., & Stewart, A.J.** (In Review, 2000). Effects of Family Violence on Child Behavior and Health During Early Childhood. Journal of Family Violence.

   Looking at families where children have been abused/neglected in early childhood, this study examined measures of child behavior and health to see if they tended to be worse when domestic violence is or has been present in a family. Further, caregiver and family characteristics as well as other case factors were examined, as possible moderators or mediators of the effects of domestic violence. Results indicate that domestic violence, of the type and severity occurring in our sample, does not have a direct effect on child outcomes by age six, when other associated variables are taken into account, but has considerable *indirect* effects. There is a pronounced impact of domestic violence on family functioning, the primary caregiver's general health and well-being, and the quality of the caregiver's interaction with the child, which in turn are significantly associated with child functioning related to behavior problems and health. The data from this study indicates that the health and behavior of children in violent and maltreating families known to CPS are mostly affected by their relationship with their primary caregiver, at least up to age six. Therapeutic and behavioral interventions should focus on the protection of the primary caregiver and the children, as well as supporting the primary caregiver so she is better able to protect and promote healthy growth and development for her children.

2. **English, D.J., Graham, J.C.,** (In press, 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, Vol. 22. Nos. 11/12, pp. 1-23.

   Risk assessment as a Child Protective Services (CPS) decision-making model has been implemented in the field since the late 1980's. Research activities on risk assessment have included comparative analyses, prioritization, classification studies, implementation, and cultural sensitivity analyses. In the last decade, the major research focus has been on studies related to predictive validity. Little research on risk assessment has focused on other types of validity, including convergent validity. Using data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) and CPS investigation records, this study examined the correlations between CPS workers' ratings of risk on nine risk factors and independent measures of the same risk constructs collected by research

interviewers for 261 families referred to Child Protective Services. The data indicate significant correlations with caregiver risk factors such as physical/mental/emotional impairment; however, there is little correlation with child risk factors associated with developmental or behavioral issues, or socio-economic factors such as stress and social support. The goal of CPS risk assessment models is to improve the consistency and accuracy of CPS risk decision-making. Research on risk factors associated with initial and recurring maltreatment indicate an ecological model of maltreatment including child, caregiver, parent/child interaction and socio-economic factors are important considerations in the assessment of risk for future maltreatment. These data indicate CPS staff, at least in this jurisdiction, focus primarily on caregiver risk factors not child or socio-economic risk factors. One possible explanation is that CPS staff are focusing on the immediate incident/allegation under investigation rather than a comprehensive assessment of risk-taking ecological context into account. A review of research (see Knutson & Schwartz, 1997) on factors associated with child maltreatment indicates the relevance of assessing child factors, as well as socio-economic factors in the assessment of risk to children. CPS workers must go beyond the circumstances of the allegations and conduct a comprehensive assessment of risk to the child. The need for comprehensive assessments is of risk especially true for families referred more than once to child protective services.

3. **Marshall, D.B., English, D.J., & Stewart, A.J.** (In Revision 2000). The Effect of Fathers or Father Figures on Child Behavioral Problems in Families Referred to Child Protective Services. Child Maltreatment.

   This study examines possible effects of the presence and quality of interaction of fathers and father-figures on the behavior of young children in a sample of families reported to Child Protective Services. Teacher reports on aggression and depression at age six were compared for children with no adult male partner of their mothers in the home, children with a stable father or father-figure present, and children who had experienced a change, disruption, or loss of a father-figure between ages four and six. While the presence or absence of a father or father-figure seemed to make little difference in child behavioral problems at age four, lower levels of aggression and depression were observed for children by age six, if an adult male in some form of father-like relationship was present in the child's life. When controlling for mother's ethnicity, child's gender, the number of referrals to Child Protective Services, and the presence of domestic violence, the direct effect of a father-figure was no longer significant, but remained in the multivariate models as a significant interaction term. From this and other studies, emerging evidence indicates the role of father's and/or father-figures in the lives of children should receive increased attention from a policy and practice perspective. The direct effect of father or father-figure presence may not be easily

detected in studies of young children. A major role of father/father-figure may be the indirect effect of the child's primary caregiver by promoting mother well-being through financial, psychological, and concrete support to the primary caregiver. These data indicate that policies and practices that promote positive, non-violent father/father-figure involvement in children's lives can lead to improved outcomes for children.

ADDITIONAL SITE SPECIFIC INFORMATION

A. North Carolina Site

Age 12 Interview Summary

Age 12 was the first data collection point at which the Audio Computer-Assisted Self Interview was used. Below is a summary of the interview experience.

Child participants in general had a very positive reaction to using the computer. They reported enjoying the experience and their only complaint was that the interview was a little long. But they reported that having breaks helped. The median length of the interview was 120 minutes (75% took 110-140 minutes to complete the interview). The median number of breaks was two and the modal number of breaks was two.

For most of the caregivers, this was the first time they ever used a computer. Only a few did not use the computer, and they were grandmothers. Although the mothers had no problem using the computer, many felt that it detracted from the closeness of the interview. The caregivers reported that the sensitive nature of the questions did not bother them.

The ACASI system was well received by our participants, and most of them reported that they would look forward to using the computer again in the next round of interviews.

North Carolina Site Sample Retention

The North Carolina Site sample includes 243 subjects. A summary of interviews completed as of September 29, 2000 appears in Table 25.

Table 24

Child's age	Type	Status	Number completed: Maternal	Child	Teacher
Age 4	in person	complete	221	221	n.a.
Age 5	tracking	complete	88	n.a.	n.a.
Age 6	in person	complete	220	221	200
Age 7	tracking	complete	184	n.a.	n.a.
Age 8	in person	complete	184	185	167
Age 9	tracking	complete	179	n.a.	n.a.
Age 10	tracking	complete	176	n.a.	n.a.
Age 11	tracking	complete	147	n.a.	n.a.
Age 12	in person	complete	191	184	137

There was attrition every year except for the last interview at Age 12. The study population is very transient and participants often do not have telephones. Only if child participants die or caregivers refuse to participate in the study any longer do we stop pursuing them. Even if we cannot locate a participant one year, we continue to contact them in following years.

B. Seattle Site

Storyline Data Set

The Seattle site has developed a site specific "Storyline" data set for each child. The Storyline data set is a chronological ordering of key events in the subject child's life. Data on date, type, and additional characteristics of each event is collected for each child from birth, based on information available from the telephone contacts, in person interviews, and CPS case record reviews. The types of events in the Storyline data set include events thought to be critical to a child's well-being and development such as deaths and births in the family, caregiver incarceration, changes of residence, CPS reports of maltreatment, hospitalizations, changes in school attended, witnessing major family violence, services provided by CPS, and changes in primary or secondary caregiver.

It is important to understand that the Storyline data set does not introduce any new domains of measurement or measurement instruments to LONGSCAN, but simply collates and organizes information in a different way. However, some of this information may be available in the LONGSCAN records for a family but not formally entered into the typical LONGSCAN data sets: e.g., tracking records for the family may

be used to record multiple changes of address that occur between formal LONGSCAN interviews, or notes by a caseworker in a CPS referral records may be used to record a change in mother's partner that is not captured by the family composition information collected at formal interview points.

The purpose of the Storyline data set is to organize impressions of the flow of events in a given child's life. The Storyline data set represents a gathering and condensation of the detailed information available from individual instruments and demographics which identify key events that may have an impact on child outcomes. These key events will allow us to analyze maltreatment history within a context of total life history of the children using chronological case histories rather than general statistical patterns.

Potential analyses to be conducted include visual inspection, measures of chaos, event factor analyses, and longitudinal markers. For example, a visual inspection of Storyline for each child will provide information about the relative degree of change and trauma in a given child's life for a specific epoch, e.g., between age 4 to 6. Relatively homogeneous clusters or groups of children could be formed based on this relative degree of change, and then this group identification could be used as a potential explanatory variable in other analyses. Furthermore, the collation of events in a single data set will greatly aid in the calculation of measures of general trauma and change; akin to the Life Events scales but with the list of events included substantially expanded. Once calculated, these composite scores can be transferred to other working data sets for modeling purposes. Composite scores from all events or subsets of events can be developed to address different analytical questions.

There are potentially a wide variety of different clustering or factoring schemes that could be used to group participants by certain common experiences, or to group events relative to some chosen measure of measures or functioning: e.g., it might be possible to identify which types of events or combinations of events are associated with a given positive or negative outcome. Finally, organizing the data into Storylines makes it more convenient to conceptualize possible longitudinal analyses related to the context of the child's experience along with their outcomes.

To date, Storyline has been collected for each LONGSCAN child through age 8. During the third five-year period we will be developing composite variable for use in analysis.

Risk Assessment

The LONGSCAN sample was initially recruited based on an assessment of risk using the guidelines in the Washington State Risk Assessment Model (WRM). Children recruited for the Seattle site had to have been assessed as moderately or highly likely to be maltreated in the future absent intervention. Cases classified as moderate or high risk at intake require an in person investigation by a CPS worker, and the completion of a 37 item risk assessment matrix. This risk data was collected for each LONGSCAN child based on their initial referral to CPS. Since that time the 261 Seattle LONGSCAN children have been referred to CPS approximately 1,400 times. Many of these referrals have been classified as moderate or high risk at intake, and therefore, require reassessment of risk of risk by the CPS worker. During the past five years we have been collecting the data from each reassessment of risk for each moderate or high risk re-referral to CPS. During the next five year period we will be developing composite risk variables for each LONGSCAN child based on the data available from multiple assessments of risk across the 37 risk variables assessed by CPS workers as part of their investigation. To develop these composite variables we will have to develop coding algorithms to attach specific risk assessments to specific referrals, determine different risk ratings for primary and secondary caregivers, and attach these variables to the LONGSCAN main data set. An analysis of risk across multiple domains (See earlier reports providing descriptive data on the Washington State Risk Assessment Model) will provide additional information regarding the context of the lives of the children in the LONGSCAN study over and above caregiver or child self-report. The collection of this risk assessment data set will provide additional context data at the time the child was allegedly maltreated. Variables contained in the risk assessment data set include CPS assessment of the severity of the incident, assessment of child characteristics, parent/caregiver characteristics, parent/child interaction variables, and socio-economic factors associated with resource availability and social support. The risk assessment data set provides a third source of data (CPS social worker) associated with antecedents and consequences of maltreatment. During the third five year LONGSCAN grant we will be analyzing these variables as mediators and or moderators associated with child outcomes.

CPS Prediction of Re-Occurrence of Maltreatment

Diana English of the Seattle site conducted an investigation of the re-referral status of children who were classified by Washington State CPS workers as moderate or high-risk for re-referral at the time of their initial investigation through age 4. Based on child age, the referral opportunity periods ranged from 2.5 to 7.5 years. The study found that 42% of the children had four or more referrals to CPS by the time they were four years old. The 250 children within the study were re-referred 1, 039 times from birth through the Age 4 interview. These 1,039 referrals contained 1, 634 allegations of maltreatment. Implications of this study suggest that the risk to this cohort of children does not appear to have been adequately addressed despite their extensive CPS involvement. Policies and practices associated with the investigation, substantiation and intervention for neglect cases should be re-examined by Washington State CPS.

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