

Journal Highlights

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The Evidence for Prevention

There has been a dramatic increase in the number of articles about child maltreatment prevention. The amount of evidence evaluating interventions has increased, and a growing number of promising programs are available for communities. Many have demonstrated the elements of successful interventions, the populations and risk groups of most benefit, and the translational research to demonstrate that we have met our goals. Many have incorporated our understanding of adverse childhood experiences (ACEs) that have been associated with poor lifelong health and begin to address the mechanisms linking these childhood exposures to adult outcomes (Palusci, 2013). Although treatment after the fact can improve health and prolong life and productivity, the direct and indirect costs of child maltreatment for both children and adults justify early action to prevent child abuse and neglect.

To investigate whether the income-to-needs ratio experienced in early childhood affects brain development at school age, Luby et al. (2013) found novel data to inform the mechanisms by which poverty negatively impacts childhood brain development. In a prospective longitudinal study of emotional development in preschool, children were assessed annually for 3–6 years prior to the time of a magnetic resonance imaging scan and were annually assessed behaviorally for 5–10 years. The researchers found that poverty was associated with smaller white and cortical gray matter and hippocampal and amygdala volumes and that these effects were mediated by caregiving support or hostility and stressful life events. They concluded that exposure to poverty in early childhood materially influences brain development at school age, which further underscores the importance of attention to the well-established deleterious effects of poverty on child development. They also concluded that attempts to enhance early caregiving should be a focused public health target for prevention and early intervention.

Shonkoff (2013, p. 106) summarizes this area of research succinctly: “A brighter future for children whose life prospects are threatened by adversity requires that we build on the seminal contributions of programs like the NFP and leverage advances in 21st-century science to catalyze fresh thinking that changes the narrative for early childhood investment. Improving program quality, enhancing service coordination, and scaling effective interventions are necessary but not sufficient. The marching orders are clear—we must embrace a spirit of constructive dissatisfaction with best practices, continually design and test new ideas, learn

from things that do not work, and settle for nothing less than breakthrough impacts on important outcomes.”

- Luby, J., Belden, A., Botteron, K., Marrus, N., Harms, M. P., & Babb, C. (2013). The effects of poverty on childhood brain development: The mediating effect of caregiving and stressful life events. *JAMA Pediatrics*, 167(12), 1135–1142.
- Palusci, V. J. (2013). Adverse childhood experiences and lifelong health. *JAMA Pediatrics*, 167(1), 95–96.
- Shonkoff, J. P. (2013). Changing the narrative for early childhood investment. *JAMA Pediatrics*, 168(2), 105–106.

Medical Services

Medical, mental health, and community-based strategies have been used to prevent child maltreatment. Pediatricians can play an important role in prevention, but health services during the prenatal period and early childhood have generally not been shown to reduce child abuse and neglect universally. The U.S. Preventive Services Task Force recommended in 2004 that there was insufficient evidence to recommend behavioral interventions and counseling to prevent child abuse and neglect, but a later clinical report from the American Academy of Pediatrics (Flaherty et al., 2010) outlined how the pediatrician can help to strengthen families and promote safe, stable, nurturing relationships with the aim of preventing maltreatment and enhancing child development. Selph et al. (2013) updated the recommendations with more recent evidence, concluding that risk assessment and behavioral interventions in pediatric clinics have now been shown to reduce abuse and neglect for young children.

A randomized trial of the Safe Environment for Every Kid (SEEK) model of enhanced pediatric primary care in an inner-city clinic with high-risk families showed lower rates of maltreatment, Child Protective Service (CPS) reports, and harsh punishment plus improved health services after an intervention of pediatric resident education in a primary care medical setting (Dubowitz et al., 2009). To examine the effectiveness of SEEK to help reduce child maltreatment in a relatively low-risk population, Dubowitz et al. (2012) enrolled 18 pediatric practices that were assigned to intervention or control groups, and 1,119 mothers of children ages 0–5 years completed assessments initially and after 6 and 12 months. The SEEK model included training health professionals to address targeted risk factors, offering a parent handouts, and providing a social worker. The researchers found that in the initial and 12-month assessments, SEEK mothers reported less psychological aggression than did controls, and SEEK moth-



ers reported fewer minor physical assaults than did controls. There were few instances of maltreatment documented in the medical records and few CPS reports. They concluded that SEEK offers a promising and practical enhancement of pediatric primary care. Scribano (2013) noted that the SEEK model provides a supportive approach to identifying resources to strengthen families by first identifying social factors that may be harmful to child well-being. In addition, it is likely that the medical home will play an integral role in the anticipated reform of the health care system, having the potential to address key determinants of health disparity in our culture and offering a significant contribution to facilitate a health promotion approach.

Adolescent parenthood is associated with a range of adverse outcomes for young mothers, including mental health problems such as depression, substance abuse, and posttraumatic stress disorder. Hodgkinson et al. (2014) noted that teen mothers are also more likely to be impoverished and reside in communities and families that are socially and economically disadvantaged, adversely affecting maternal mental health, parenting, and behavior outcomes for their children. They reviewed the mental health challenges associated with teen parenthood, barriers that often prevent teen mothers from seeking mental health services and interventions for this vulnerable population that can be integrated into primary care services. They concluded that pediatricians in the primary care setting are in a unique position to address the needs of adolescent parents because teens often turn to them first for assistance with emotional and behavioral concerns.

Gazmararian et al. (2014) launched a program entitled “Text4baby” in 2010 to promote healthy pregnancies and babies by the use of text messaging (hopefully also decreasing maltreatment). A prospective cohort study was conducted with 468 randomly selected pregnant and postpartum women in Atlanta, Georgia, who were queried on cell phone use and instructed on Text4baby enrollment. Among the 209 participants who enrolled, more than 90% reported uninterrupted reception and regular reading of messages, and 88% planned to continue using Text4baby. The authors concluded that this strategy was promising but that additional ways are needed to help women with significant disadvantages enroll and receive the messages.

Tschudy et al. (2013) reviewed potential strategies to integrate medical and community-based prevention strategies, noting that the integration of the family-centered medical home and home visitation would promote overall efficiency and effectiveness and help achieve gains in population health through improving the quality of care, decreasing duplication, reinforcing similar health priorities, decreasing cost, and decreasing health disparities. They suggested that we must integrate the individual and population approaches to health and health care delivery, citing a 2012 Institute of Medicine (IOM) report: *Primary Care and Public Health: Exploring Integration to Improve Population Health*. This report laid out the continuum for integration of primary care and public health stretching from isolation to merging systems. The article provides a brief description of the goals and scope of care of the family-centered medical home and home visiting, outlines the

need for and synergies of integration, applies the IOM's framework and barriers to integration, and uses child developmental surveillance and screening as an example of the potential impact of their integration.

Finkel (2013) has piloted incorporating sexual abuse prevention into pediatric office care, noting that while pediatricians have been leaders in trying to understand what he calls the "disease of sexual victimization," most efforts have been directed at identifying the physical residual by working to establish diagnostic criteria. He proposes a health-based program based on a child's right to personal space and privacy (PSP) rather than prevention. The first step of PSP is to educate parents and children about their right to PSP, and the second is to provide caretakers with age-appropriate language so they can comfortably talk with children throughout childhood. Finkel suggests that children learn what's okay and not okay from their caretakers while parents look to their pediatricians and family doctors for guidance regarding a litany of safety issues. He concludes that now is the time for doctors to take on the issue of PSP and child sexual abuse to demonstrate their leadership regarding this challenging public health issue. McEachern (2012) extends this work to individuals with disabilities, reviewing several studies conducted on sexual abuse of individuals with disabilities and focusing on health-based prevention strategies for this vulnerable population.

- Dubowitz, H., Feigelman, S., Lane, W., & Kim, J. (2009). Pediatric primary care to help prevent child maltreatment: The Safe Environment for Every Kid (SEEK) model. *Pediatrics*, *123*(3), 858–864.
- Dubowitz, H., Lane, W. G., Semiatin, J. N., & Magder, L. S. (2012). The SEEK model of pediatric primary care: Can child maltreatment be prevented in a low-risk population? *Academic Pediatrics*, *12*, 259–268.
- Finkel, M. A. (2013). An ounce of prevention or two. . . providing anticipatory guidance regarding personal space and privacy. A commentary. *Child Abuse & Neglect*, *37*, 631–632.
- Flaherty, E., Stirling, J., & the Committee on Child Abuse and Neglect. (2010). Clinical report—The pediatrician's role in child maltreatment prevention. *Pediatrics*, *126*, 833–841.
- Gazmararian, J. A., Elon, L., Yang, B., Graham, M., & Parker, R. (2014). Text4baby program: An opportunity to reach underserved pregnant and postpartum women? *Maternal and Child Health Journal*, *18*(1), 223–232.
- Hodgkinson, S., Beers, L., Southammakosane, C., & Lewin, A. (2014). Addressing the mental health needs of pregnant and parenting adolescents. *Pediatrics*, *133*(1), 114–122.
- McEachern, A. G. (2012). Sexual abuse of individuals with disabilities: Prevention strategies for clinical practice. *Journal of Child Sexual Abuse*, *21*(4), 386–398.
- Scribano, P. V., & Zolotor, A. J. (2012). Child maltreatment prevention and the medical home: A promising approach to an age-old pediatric problem. *Academic Pediatrics*, *12*, 251–252.
- Selph, S. S., Bougatsos, C., Blazina, I., & Nelson, H. D. (2013). Behavioral interventions and counseling to prevent child abuse and neglect: A systematic review to update the U.S. Preventive Services Task Force recommendation. *Annals of Internal Medicine*, *158*, 179–190.
- Tschudy, M. M., Toomey, S. L., & Cheng, T. L. (2013). Merging systems: Integrating home visitation and the family-centered medical home. *Pediatrics*, *132*, s74–s81.

Mental Health-Based Strategies

Using mental health-based treatment models, Langstrom et al. (2013) evaluated the effectiveness of current medical and psychological interventions for individuals at risk of sexually abusing children. They designed a systematic review of interventions designed to prevent reoffending among known abusers and prevention for individuals at risk of sexually abusing children, including randomized controlled trials and prospective observational studies. After reviewing 1,447 abstracts, they retrieved 167 full-text studies and finally included 8 studies meeting criteria with low to moderate risk of bias. They concluded there was weak evidence for interventions aimed at reducing reoffending in identified sexual abusers of children. For adults, evidence from five trials was insufficient regarding both benefits and risks with psychological treatment and pharmacotherapy. For adolescents, limited evidence from one trial suggested that multisystemic therapy prevented re-offense. Lack of adequate research prevented conclusions about effects of other treatments. Evidence was also inadequate regarding effectiveness of treatment for children with sexual behavioral problems in the one trial identified. There was no eligible research on preventive methods for adults and adolescents who had not sexually abused children but were at higher risk of doing so. They concluded that there are major weaknesses in the scientific evidence, particularly regarding adult men, the main category of sexual abusers of children.

Palusci and Ondersma (2012) used the National Child Abuse and Neglect Data System to study tertiary prevention in a cohort of children in 18 states with psychological maltreatment (PM) reports confirmed by child protective services (CPS). They assessed PM recurrence rates after counseling and other services arranged by CPS while controlling for factors associated with service referral and other maltreatment. Propensity score methods were not used. In sum, 11,646 children had a first CPS-confirmed report with PM, and 9.2% of them had a second confirmed PM report within 5 years. Fewer than one fourth of families were referred for services after PM, with service referrals being more likely for families with poverty, drug, or alcohol problems or other violence. Controlling for these factors, they found that counseling referral was associated with a 54% reduction in PM recurrence, but other services were not associated with statistically significant reductions. Few families in which PM was confirmed received any services, and most services provided were not associated with reductions in PM recurrence.

To review the development of a training manual in the United Kingdom specifically looking at the practice elements that are known to prevent the recurrence of abusive and neglectful parenting, Bentovim and Elliott (2014) reviewed 22 randomized controlled interventions to see what could be used to develop a systematic approach for a variety of frontline practitioners in social care, health, and education. Their focus was physical and sexual abuse (with young people as victims and perpetrators), neglect

(including failure to thrive), and emotional abuse (exposure to violence and mental health issues). They found 47 practice elements present across all forms of maltreatment and created a manual entitled *Hope for Children and Families*. It provides a menu of evidence-based, step-by-step modular interventions targeting the profile of abusive and neglectful parenting and associated impairments of children. These practices include a variety of mental health interventions as well as home visiting in modules targeting specific forms of maltreatment organized around the child's developmental needs, parenting capacity, and family and environmental factors. They concluded that there are evidence-based tools to help a wide range of practitioners tackle often complex situations through a combination of basic therapeutic skills. In addition, *Hope for Children and Families* could help with situations in which the threshold for specialist services has not been reached, enabling children and families to earlier access effective interventions.

Bentovim, A., & Elliott, I. (2014, January 24). Hope for children and families: Targeting abusive parenting and the associated impairment of children. *Journal of Clinical Child & Adolescent Psychology*. Advance online publication. Retrieved January 25, 2014. doi:10.1080/15374416.2013.869748

Långström, N., Enebrink, P., Laurén, E. M., Lindblom, J., Werkö, S., & Hanson, R. K. (2013). Preventing sexual abusers of children from re-offending: Systematic review of medical and psychological interventions. *British Medical Journal*, *347*. doi:10.1136/bmj.f4630

Palusci, V. J., & Ondersma, S. J. (2012). Services and recurrence after psychological maltreatment confirmed by Child Protective Services. *Child Maltreatment*, *17*(2), 153–163.

Community-Based Strategies

Chahine and Sanders (2013) present a high-level overview of the complex issues, opportunities, and challenges involved in improving child safety and preventing child maltreatment fatalities. A broad, community-based approach is needed, and improving measurement and classification is critical to understanding and preventing child maltreatment fatalities. They stress the need to re-frame child maltreatment interventions from a broad public health perspective. Their article draws on the lessons learned from state-of-the-art safety engineering innovations, research, and other expert recommendations presented in a special issue of the journal.

The Triple P—Positive Parenting Program was designed as a comprehensive, population-level system of parent and family support with five intervention levels of increasing intensity and narrowing population reach. The system combines various targeted interventions to ensure a safe environment, including promoting learning, using assertive discipline, maintaining reasonable expectations, and taking care of oneself as a parent. These principles then translate into 35 specific strategies and parenting skills. Prinz et al. (2009) conducted a large-scale randomized trial of Triple P and noted lesser increases in substantiated child maltreatment, child out-of-home placements, and child maltreatment injuries in the

intervention counties. In follow-up, Shapiro, Prinz, and Sanders (2012) noted the importance of understanding factors that affect worker implementation of evidenced-based parenting and family support interventions. They used structured interviews with 174 service providers from several disciplines who had been trained previously in the delivery of Triple P. These follow-up interviews, conducted an average of about 2 years after in-service training, provided the basis for examining predictors of sustained program use. They found that several provider and organization-level characteristics significantly predicted program use, including provider self-confidence after training, fit of program with ongoing duties, availability of posttraining support, and perceived benefit of intervention for children and families.

Home visiting programs can prevent child abuse and neglect by influencing parenting factors linked to maltreatment. The U.S. Patient Protection and Affordable Care Act established the Maternal, Infant, and Early Childhood Home Visiting Program, which will provide \$1.5 billion to states over 5 years for home visiting program models serving at-risk pregnant women and children from birth to age 5 (Garner, 2013). Advances in neuroscience, epigenetics, and the physiology of stress are revealing the biological mechanisms underlying well-established associations between early childhood adversity and poor adult health. Mediators of physiologic stress become toxic, alter both genome and brain, and lead to a vicious cycle of chronic stress. This “toxic stress” results in a wide array of behavioral attempts to blunt the stress response, a process known as “behavioral allostasis,” through behaviors such as smoking, overeating, promiscuity, and substance abuse. Such behaviors can become maladaptive and result in the unhealthy lifestyles and noncommunicable diseases that are the leading causes of morbidity and mortality. Garner concluded that future efforts to minimize the effects of childhood adversity should focus on expanding the capacity of caregivers and communities to promote the safe, stable, and nurturing relationships that buffer toxic stress as well as the foundational social-emotional, language, and cognitive skills needed to develop healthy, adaptive coping skills.

Olds et al. (2013) noted that the Nurse-Family Partnership delivered by nurses has been found to produce long-term positive effects on maternal and child health in replicated randomized trials, but a persistent question is whether paraprofessional home visitors might produce comparable effects. To examine this, the authors constructed a randomized trial in public and private care settings in Denver, Colorado, with 735 low-income women and their first-born children. Home visits were provided from pregnancy through child age 2 years delivered in one group by paraprofessionals and in the other by nurses. They found that there were no significant paraprofessional effects on emotional-behavioral problems, but paraprofessional-visited children born to mothers with low-psychological resources compared with control group counterparts exhibited fewer errors in visual attention-task switching at



age 9 years. There were no statistically significant paraprofessional effects on other primary outcomes. Nurse-visited children were less likely to be classified as having total emotional-behavioral problems at age 6 years, internalizing problems at age 9 years, and dysfunctional attention at age 9 years. Nurse-visited children born to low-resource mothers compared with control-group counterparts had better receptive language averaged over ages 2, 4, and 6 years and sustained attention averaged over ages 4, 6, and 9 years. There were no significant nurse effects on externalizing problems, intellectual functioning, and academic achievement.

While breastfeeding has been shown to improve several outcomes, young African American mothers continue to breastfeed at low rates and commonly introduce complementary foods earlier than recommended. Edwards et al. (2013) examined the effects of a community doula home-visiting intervention on infant feeding practices among 248 low-income, African American mothers in a randomized trial. Intervention-group mothers received services from paraprofessional doulas who were specialized home visitors trained as childbirth educators and lactation counselors. Doulas provided home visits from pregnancy through 3 months postpartum, and support during childbirth. Control-group mothers received usual prenatal care. They found that doula-group mothers attempted breastfeeding at a higher rate than control-group

mothers and were more likely to breastfeed longer than 6 weeks, although few mothers still breastfed at 4 months. Fewer doula-group mothers introduced complementary foods before 6 weeks of age, while more waited until at least 4 months compared with control-group mothers. They concluded that community doulas may be effective in helping young mothers meet breastfeeding and healthy feeding guidelines and that the intervention's success may lie in the relationship that develops both between doula and mother based on shared cultural background and months of prenatal home visiting as well as the doula's presence at the birth where she supports early breastfeeding experiences.

Dodge et al. (2013) studied the effectiveness in reducing infant emergency medical care for Durham Connects, a program of brief, universal, postnatal nurse home visiting. Using all 4,777 resident births in Durham, North Carolina, over 18 months, they randomly assigned even-birth-date families to intervention and odd-birth-date families to control groups. Intervention families were offered 3–7 contacts between 3 and 12 weeks after birth to assess family needs and connect parents with community resources. After demographic factors were assessed relative to control families, they found that families assigned to intervention had 50% less total emergency medical care use during the first 12 months of life. They concluded that this nurse home visiting program improves population-level infant health care outcomes for the first 12 months of life and can be implemented universally at high fidelity with positive outcomes on infant emergency health care that are similar to those of longer, more intensive home visiting programs.

Matone et al. (2013) compared hospital utilization for early childhood injuries between program recipients and local-area comparison families following statewide implementation of an evidence-based home visitation program. They used propensity score matching on baseline characteristics to create a retrospective cohort of Nurse-Family Partnership (NFP) clients and local area matched comparison women. The main outcome was a count of injury-visit episodes from Medicaid claims for injuries examined in an emergency department or hospital setting during the first 2 years of life for children born to included subjects. The authors found that children of NFP clients were more likely to have higher rates of injury visits in the first 2 years of life than did the children of comparison women, with significantly higher rates of visits among children of NFP clients for superficial injuries. Among more serious injuries, no significant difference in injury visit rates was found between NFP clients and comparison women. Contrary to prior randomized trial data, no reductions in utilization for serious early childhood injuries were demonstrated following statewide implementation of an evidence-based home visitation program. They concluded that significant program variation on outcomes underscores the challenges to successful implementation.

Avellar and Supplee (2013) reviewed the home visiting research literature to assess the evidence of effectiveness for program models that serve families with pregnant women and children from birth to age 5. Home Visiting Evidence of Effectiveness included a systematic search and screening process, a review of the research quality, and an assessment of program effectiveness and reviewers rated studies' capacity to provide unbiased estimates of program impacts. It also determined whether a program met the Department of Health and Human Services' criteria for an evidence-based model. Thus, 32 models were reviewed, of which 12 met the Department of Health and Human Services criteria, and most were shown to have favorable effects on child development. Other common favorable effects included health care usage and reductions in child maltreatment. Less common were favorable effects on birth outcomes. They concluded that home visiting is a promising way to serve families who may be difficult to engage in supportive services, and it has the potential for positive results particularly on health care usage and child development.

Dalziel and Segal (2012) sought to determine the cost-effectiveness of home visiting programs through systematic review using trials reporting child maltreatment outcomes. Lifetime cost offsets associated with maltreatment were derived from a recent Australian study and were estimated as program cost per case of maltreatment prevented and net benefit estimated by incorporating downstream cost savings. They evaluated 33 home visiting programs and derived cost-effectiveness estimates for 25. They found that the incremental cost of home visiting compared with usual care ranged from \$1,800 to \$30,000 per family. Cost-effectiveness estimates ranged from \$22,000 per case of maltreatment prevented to several million. Seven of the 22 programs were of at least adequate quality and were cost saving when including lifetime cost offsets. They concluded that while there is great variation in the cost effectiveness of home visiting programs for the prevention of maltreatment, the most cost-effective programs used professional home visitors in a multidisciplinary team, targeted high-risk populations, and included more than just home visiting.

Avellar, S. A., & Supplee, L. H. (2013). Effectiveness of home visiting in improving child health and reducing child maltreatment. *Pediatrics*, *132*, S90–S99.

Chahine, Z., & Sanders, D. (2013). The road ahead: Comprehensive and innovative approaches for improving safety and preventing child maltreatment fatalities. *Child Welfare*, *92*(2), 237–253.

Dalziel, K., & Segal, L. (2012). Home visiting programmes for the prevention of child maltreatment: Cost effectiveness of 33 programmes. *Archives of Disease in Childhood*, *97*(9), 787–798.

Dodge, K. A., Goodman, W. B., Murphy, R. A., O'Donnell, K., & Sato, J. (2013). Randomized controlled trial of universal postnatal nurse home visiting: Impact on emergency care. *Pediatrics*, *132*, s140–s146.

Edwards, R. C., Thullen, M. J., Korfmacher, J., Lantos, J. D., Henson, L. G., & Hans, S. L. (2013). Breastfeeding and complementary food: Randomized trial of community doula home visiting. *Pediatrics*, *132*, s160–s166.

Garner, A. S. (2013). Home visiting and the biology of toxic stress: Opportunities to address early childhood adversity. *Pediatrics*, *132*, s65–s73.

Matone, M., O'Reilly, A. L. R., Luan, X., Localio, A. R., & Rubin, D. M. (2012). Emergency department visits and hospitalizations for injuries among infants and children following statewide implementation of a home visitation model. *Maternal and Child Health Journal*, *16*(9), 1754–1761.

Olds, D. L., Holmberg, J. R., Donelan-McCall, N., Luckey, D. W., Knudtson, M. D., & Robinson, J. (2013). Effects of home visits by paraprofessionals and by nurses on children: Follow-up of a randomized trial at ages 6 and 9 years. *JAMA Pediatrics*, *168*(2), 114–121.

Prinz, R. J., Sanders, M. R., Shapiro, C. J., Whitaker, D. J., & Lutzker, J. R. (2009, January 22). Population-based prevention of child maltreatment: The U.S. Triple P system population trial. *Prevention Science*, *10*, 1–12.

Shapiro, C. J., Prinz, R. J., & Sanders, M. R. (2012). Facilitators and barriers to implementation of an evidence-based parenting intervention to prevent child maltreatment: The Triple P—Positive Parenting Program. *Child Maltreatment*, *17*, 86–95.

Additional articles about prevention are available from the Child Welfare Information gateway, sponsored by the US DHHS AYF at: <http://library.childwelfare.gov/cwig/ws/library/docs/gateway/SimpleSearchForm>

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