Two-Generation Programs and Health

Sherry Glied and Don Oellerich

Summary
Parents' health and children's health are closely intertwined—healthier parents have healthier children, and vice versa. Genetics accounts for some of this relationship, but much of it can be traced to environment and behavior, and the environmental and behavioral risk factors for poor health disproportionately affect families living in poverty. Unhealthy children are likely to become unhealthy adults, and poor health drags down both their educational attainment and their income.

Because of the close connection between parents' and children's health, write Sherry Glied and Don Oellerich, we have every reason to believe that programs to improve parents' health will improve their children's health as well. Yet few programs aim to work this way, except for a narrow category of programs that target pregnant women, newborns, and very young children. Glied and Oellerich assess these programs, discuss why there are so few of them, and suggest ways to expand them. Their chief conclusion is that structural barriers in the U.S. health-care system stand in the way of such programs. Some of these barriers have to do with health insurance, access to care, and benefits, but the biggest one is the fact that physicians typically specialize in treating either children or adults, rather than families as a whole. The Affordable Care Act has begun to break down some of these barriers, the authors write, but much remains to be done.

www.futureofchildren.org

Sherry Glied is the dean and a professor of public service at New York University's Robert F. Wagner Graduate School of Public Service. Don Oellerich is the deputy chief economist in the Office of the Assistant Secretary for Planning and Evaluation at the U.S. Department of Health and Human Services.

The health of children and the health of their parents are strongly linked. Health depends on genes, environments, and behaviors; parents and children share all of these. Specialized providers—hospitals, doctors, and clinics—provide services to children and parents that contribute to their health. Well-established and expanding government programs, including Medicaid and the Children's Health Insurance Program (CHIP), as well as employer-sponsored coverage and subsidized coverage in health marketplaces, help to finance this care. In short, we have both the rationale and the financing basis for two-generation approaches to health. Yet relatively few two-generation interventions aim to improve health, except for a narrow category of programs that target pregnant women, newborns, and very young children.

In this article, we assess these programs, discuss why there are so few of them, and suggest ways to expand them. We conclude that the health-care system incorporates several structural barriers that make it hard to develop and expand such programs. These barriers include the way health insurance is made available, what benefits are covered, how people gain access to care, and, particularly, the nature of physician practice and specialization.

The Patient Protection and Affordable Care Act (ACA) made important strides toward overcoming these barriers by building on the foundation of publicly and privately provided insurance. The ACA makes more low-income parents eligible for public health insurance; provides subsidized family coverage through health insurance marketplaces; requires that all insurance plans in the marketplaces offer a minimum essential benefits package, including coverage of mental health and substance-use treatment services on a basis equal to coverage of other medical benefits; supports innovative service-delivery systems such as medical care homes; and, building on programs in the states, establishes the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program.[1] Despite this step forward, significant gaps remain in the financing and service delivery systems, creating new opportunities to improve health through two-generation programs. By building on the ACA and related legislation, we could encourage the spread of evidence-based two-generation approaches.

Children's and Parents' Health

Improving children's health can help with two problems. First, although most children are healthy, nearly a quarter (23.3 percent) have a chronic health condition. Table 1 describes the most common chronic health conditions in children under 18. About 9 percent of children have asthma, the most common condition. Mental health and behavioral health conditions, including attention deficit hyperactivity disorder (ADHD), anxiety, conduct disorder, and depression, are also fairly prevalent.

Second, unhealthy children become unhealthy adults. For example, chronic conditions that persist through age 16 are related to poor adult health at age 42.[2] Poor health in childhood has other long-term repercussions: it contributes to lower educational attainment and income in adulthood.[3]

Almost all diseases result from complex interactions among genes, environmental agents, and behaviors. Parents are the source of children's genetic endowments;

Table 1. Percentage of U.S. Children 0–18 with Chronic Health Conditions

Chronic condition	Prevalence
Asthma	9.0%
Learning disabilities	7.8%
Attention deficit hyperactivity disorder	6.4%
Speech problems	3.7%
Oppositional defiant disorder or conduct disorder	3.3%
Developmental delay	3.2%
Anxiety problems	2.9%
Bone, joint, or muscle problems	2.2%
Depression	2.0%
Hearing problems	1.4%
Vision problems	1.3%
Autism spectrum disorder	1.1%
Epilepsy or seizure disorder	0.6%
Diabetes	0.4%
Brain injury or concussion	0.3%
Tourette Syndrome	0.1%

Source: National Survey of Children's Health 2007.

parents and children share living environments; and parents play a critical role in shaping children's behavior.[4] It is not surprising, then, that parents' health and children's health are highly correlated. The National Survey of Children's Health indicates that 93.2 percent of the children of mothers who were reported to be in excellent or very good health were themselves in excellent or very good health. But only 64.9 percent of the children of mothers who were reported to be in good, fair, or poor health were in excellent or very good health.[5] The converse is also true. When children are unhealthy, parents' wellbeing suffers.[6]

Many studies document the connections between parents' and children's health. At one extreme, the connections across generations are physical. A mother's health, nutrition, behaviors, and exposure to various negative experiences during pregnancy not only affect her, they also affect her baby's birth weight, wellbeing, and health. A pregnant or breast-feeding mother's intake of nutrients likewise affects both her own health and her infant's.[7] Shared genetic endowments can also raise the risk of poor health in both parents and children. For example, genetics can explain more than half of a person's risk for obesity. Family food preferences and eating habits likewise affect both children's and adults' obesity rates.[8] Environmental exposure constitutes a third category of shared risks. For example, living in a community with limited access to healthy and affordable food choices may affect the health of both parents and their children. Finally, a health condition or behavior in one generation can affect other aspects of health in a different generation. For example, parents who smoke are more likely to get lung cancer and suffer from cardiovascular disease, and their children are more likely to have low birth weight.

Table 2. Prevalence of Health Risk Factors among U.S. Children

Risk factor or health condition	Prevalence
Underweight births	8%
Preterm births	12%
Children 0–6 living with someone who smokes regularly	6%
Children under 18 living with at least one parent who smokes regularly	22%
Children under 18 in families with income below 138% of the federal poverty level living with a parent who smokes regularly	31%
Obesity (children 2–19)	17%
Children under 18 living with at least one parent who is obese	43%
Children living with at least one parent who had major depression in the past year	21%
Children living with at least one parent who abuses alcohol or drugs	9%
Children with one or more chronic health condition	24%
Families that include a child with a disability	4%

Sources: Centers for Disease Control and Prevention; Federal Interagency Forum on Child and Family Statistics; Medical Expenditure Panel Survey; Child Welfare Information Gateway; National Survey of Children's Health; Qi Wang, *Disability and American Families, 2000* (Washington, DC: U.S. Census Bureau, 2005).

Table 2 shows the prevalence of intergenerational risk factors. Exposure to smoke, parental alcohol or drug use, and preterm birth and low birth weight each affect about 10 percent of American children. Two to three times as many children are affected by parental depression and obesity. Next, we discuss these risk factors and their effects on children's and adults' health.

Risk Factors in Pregnancy and the Neonatal Period

Low birth weight and preterm birth are risk factors for many types of poor health in childhood.[9] The prenatal environment may also affect children's health, and their health as adults, in ways that are independent of birth weight.[10] Most of the factors that lead to a poor prenatal environment (including mothers' high blood pressure, smoking, infections, and poor nutrition) also directly affect mothers' health.

Tobacco Exposure. Smoking is the leading cause of preventable illness and death among adults in the United States. Most of the deaths associated with tobacco use occur among smokers themselves, but exposure to environmental tobacco smoke also causes deaths, accounting for an estimated 3,000 U.S. lung cancer deaths per year. For children, most exposure to tobacco smoke occurs at home. Newborns who are exposed to environmental tobacco smoke have a higher risk of sudden infant death syndrome, and environmental tobacco smoke is associated with several other health problems in children, including middle ear infections, asthma, and lower respiratory tract infections.[11]

As table 1 shows, asthma is the most common chronic condition among children. Exposure to tobacco smoke makes asthma symptoms worse, and children with asthma visit the doctor for their symptoms more often if they live in a home with a smoker.[12] Asthma symptoms can disrupt children's and parents' lives in many ways; for example, children with asthma symptoms are more likely to miss school.[13] The incidence of childhood asthma has been increasing rapidly (notwithstanding declines in tobacco use).

In addition to its direct effect on children's health, parents' smoking may indirectly affect their children by increasing the likelihood that the children will take up smoking themselves, even more so if both parents are current smokers. Children of past smokers (that is, people who have quit) are no more likely to start smoking than are children of people who have never smoked.[14]

Obesity. Obesity in adults raises the risk of many chronic diseases, including diabetes, high blood pressure, heart disease, arthritis, and certain cancers.[15] Its complications in children are similar, and include an increased risk of type 2 diabetes. Obese children are also more likely to become obese adults, and some evidence suggests that obese children have worse health in adulthood even if they lose the excess weight as adults.[16]

Parental obesity is the strongest single risk factor for childhood obesity.[17] Parents and children share both genetic predispositions to obesity and environmental risk factors. Parents' influence on childhood obesity begins during pregnancy. Both a mother's malnutrition and excessive weight gain during pregnancy are associated with a higher risk of childhood obesity. On a more subtle level, what a mother eats while she is pregnant influences her child's food and flavor preferences. Breastfeeding may reduce the risk of childhood obesity, while certain ideas about how and how much to feed infants, including the perception that "a chubby baby is a healthy baby," may contribute to overfeeding. Parents have considerable control over their children's eating throughout early childhood as they purchase and prepare food and model eating behaviors for their children.[18]

Parental Depression. Depression is relatively common. By definition, it reduces wellbeing. Its presence can make other illnesses worse, and it can hurt parents in the labor market. The National Research Council estimates that at least 15 million children live with a parent who is depressed. New mothers are more likely than other people to be depressed; about 13 percent of all new mothers experience depression. Women who are socially disadvantaged have particularly higher rates of depression both during pregnancy and after a child is born.[19]

Parents' depression harms children's wellbeing. Postpartum depression is related to poor parenting; for children, a mother's postpartum depression can lead to delays in development, weaker cognitive skills, attention disorders, and a much greater likelihood of behavioral problems.[20] The way parents' depression affects children's development appears to have both a genetic and a behavioral basis. Epidemiologists estimate that children whose mothers were depressed are as much as six times as likely to suffer from depression as adults, compared with children whose mothers were not depressed. On average, depressed mothers give their children less positive reinforcement and adopt less consistent disciplinary practices. Maternal depression detracts from nurturing and supportive parenting; in parent-child interactions, depressed mothers have been described as disengaged, less responsive to children's cues, and less warm than mothers who do not meet the criteria for depressive symptoms. Children's wellbeing may also be indirectly harmed through maternal depression's effects on marriage and family functioning.[21]

Toxic Stress. Exposure to prolonged adverse experiences can alter children's developmental trajectories, with lifelong implications for physical and mental health.[22] Such experiences include extreme poverty, recurrent physical or emotional maltreatment or neglect, severe maternal depression, parental substance abuse or incarceration, and exposure to chronic violence.[23] Some scholars and clinicians, including those at the Center on the Developing Child at Harvard University, define the physical and mental health effects that follow these prolonged adverse experiences as a response to "toxic stress." In this issue of *Future of Children,* Ross Thompson argues that the concept of toxic stress may not capture how a child's own vulnerabilities and resilience can mediate the long-term response to external sources of severe stress.[24] There is no disagreement, however, that robust and accumulating scientific evidence documents that physical health and mental health share a common foundation with learning and behavior in the earliest years, and that there are long-term advantages to addressing these domains of development early and in ways that affect both adults and children.[25]

Substance Abuse. Drug and alcohol abuse together account for about 4.2 percent of deaths in the United States. A mother's substance abuse during pregnancy can have consequences for children that include low birth weight, withdrawal symptoms, impaired development, and infant mortality. And parents' substance abuse continues to have harmful effects throughout childhood, most prominently through much higher rates of child abuse and neglect.[26]

Chronic Conditions of Childhood. Most of the literature on health effects across generations focuses on how parents' health affects their children. Children's health, however, also has direct and indirect effects on parents' wellbeing. Parents of chronically ill children have a higher risk of mental health problems.[27] Children's chronic illnesses may also hurt parents' careers, both because parents need to miss work to care for their sick children and because parents may pass up promising opportunities because they need to keep their health insurance, a problem known as "job lock."

Common Risk Factors. All the risk factors described above are more common among families living in poverty, who are more likely to be poorly educated, have children early, experience chronic violence, and have short intervals between pregnancies.[28] These conditions harm adults and, the evidence suggests, affect children's physical health and mental health, as well as their learning and behavior, in the earliest years.[29] Prenatal stress and low birth weight are more common among lower-income mothers.[30] A baby born within 12 months of a previous child who was born prematurely or had low birth weight is highly likely to also be premature or have low birth weight.[31] Parents with less education are more likely to smoke than are those with more education.[32] Mothers who have low social support and experience more adverse life events are more likely to suffer from postpartum depression.[33] Alcohol and drug addiction are more common among socially disadvantaged people.[34] The high rates of overlap among these risk factors, and between these risk factors and socioeconomic status, are persistent challenges in designing and evaluating programs that seek to ameliorate them.

Two-Generation Interventions

The most common two-generation health programs are those that tackle conditions

where there is a direct physical connection between generations. The most prevalent of these is prenatal care, which is nearly universally available. Some 70 percent of pregnant women use prenatal care starting in the first trimester, and approximately 95 percent of pregnant women receive some prenatal care over the course of their pregnancy. Since 1981, federal legislation has gradually expanded Medicaid eligibility for pregnant women, providing care during pregnancy, at birth, and for 60 days after birth. In 1988, states were allowed to set Medicaid eligibility for pregnant women at up to 185 percent of the federal poverty level; today, states can extend coverage above 185 percent of the poverty level. Congress expanded eligibility on explicitly two-generation grounds, reasoning that by providing care for pregnant women, Medicaid could save money on the treatment and care of newborns. Today, 40 percent of U.S. births are financed through Medicaid.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), sponsored by the Department of Agriculture, also focuses on pregnancy and the immediate postnatal period, providing nutritious foods, nutrition counseling and health-care referrals both to low-income pregnant and postpartum women and to their children up to age five. In 2012, WIC served an estimated 9 million people, including 900,000 pregnant women and 6.7 million infants and children.

Medicaid and WIC serve a very large group of low-income women. A more targeted program, Healthy Start, begun by the U.S. Health Services Administration in 1991, aims to reduce infant mortality in high-risk communities. In 2010, 104 federally funded Healthy Start projects in 38 states served almost 39,000 pregnant women and nearly 40,000 infants and children, providing prenatal and postnatal medical care and nutrition for high-risk parents and their newborns, as well as family planning and women's health services.

Most recently, the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program, authorized under the ACA, seeks to improve mothers' and children's health, children's development, and families' economic self-sufficiency by supporting and educating families with infants, toddlers, and young children. MIECHV targets families in high-risk communities who have been difficult to reach with other programs.

The MIECHV program builds on decades of experience. Home visitation has roots in the 1960s, when public health nurses and social workers began going to families' homes to promote positive parenting and prevent child maltreatment.[35] By 2009, almost all states had home-visiting programs that assessed families' risks and supported parents. States have improved these services by making it easier to refer parents to community resources and by introducing evidence-based practices. By 2008, the Children's Bureau of the Administration for Children and Families was administering and funding 17 cooperative agreements in 15 states to develop the infrastructure to scale up high-quality home visiting programs to prevent child maltreatment and promote children's and families' wellbeing. An evaluation of these programs is under way.

States are also trying and evaluating a number of enhancements to home visitation that explicitly target intergenerational health. Some of these enhancements focus on maternal depression. Mothers who are enrolled in home visitation programs are

more likely than other mothers to have symptoms of depression, in part because they have experienced higher rates of violent trauma.[36] Home visitation was not designed to treat maternal depression, and most home visitors do not have the clinical training to do so. Instead, home visitors in some programs have begun working collaboratively with mental health professionals to offer in-home cognitive behavioral therapy to depressed mothers in conjunction with home visitation. The preliminary results are promising—not only have mothers' depressive symptoms decreased, but home visitation itself has become more effective.

Some child development programs also include health-focused components, although most of these are aimed directly at children rather than taking a two-generation approach. For example, Early Head Start (EHS)—a federal program started in 1995 for low-income, pregnant women and their children up to age three—includes home visitation, case management, parent education, child care, child development, health care and referrals, and family support among its services, which are offered beginning with pregnancy. The program is administered at the local level through direct federal grants to providers and is subject to federal regulations and monitoring. Like Head Start, the corresponding program for preschool children, at least 90 percent of children enrolled in EHS must be from families whose income is at or below the federal poverty level, and 10 percent of the enrolled children must be children with disabilities. During the 2011–12 program year, Early Head Start served more than 170,000 children at more than 900 sites nationwide. However, because of funding limitations, EHS serves only about 4 percent of eligible infants, toddlers, and their families.

Program statistics show that more than 90 percent of Head Start and EHS children have health insurance, are up to date on their immunizations, and are receiving basic health and dental services. Moreover, most of their mothers have health insurance and receive both prenatal and postnatal health care and education.[37] However, these children and their parents still have tremendous needs, particularly in the areas of developmental delays, disabilities, and mental health. For example, more than 50 percent of new EHS mothers report depressive symptoms, a rate that is four to five times greater than that of the general population of new mothers. A 2007 study of EHS reported that among EHS mothers who participated in a national program evaluation, those who were depressed when their child entered EHS were significantly less likely to be depressed by the time their children were five (two years after the program ended).[38]

Programs That Target Shared Risk Factors

Policy makers, program officials, and community leaders have grown interested in two-generation models that target environmental risk factors that affect both parents and children, particularly risk factors that influence obesity and smoking.[39] The U.S. Centers for Disease Control and Prevention is helping 50 communities implement the Communities Putting Prevention to Work initiative. These communities are committed to making environmental changes that will have significant, measureable effects on adults' and children's health by encouraging healthy behaviors related to weight, nutrition, physical activity, and smoking. The approach includes offering resources for quitting smoking, maintaining safe places for physical activity, and making fresh fruits and vegetables available.[40]

Targeting Conditions That Affect Children and Parents Differently

The least developed or widespread programs are those that target children beyond the early years and focus on risk factors that have different effects on children and parents. For example, pediatricians who treat children with mental health conditions rarely assess and even less frequently do anything about parents' mental health conditions that may contribute to the children's problems.[41] Likewise, surprisingly, pediatricians often do not ask about parents' smoking when they treat an asthmatic child, and they very rarely intervene to help change parents' smoking behavior.[42]

Programs to address toxic stress are in their infancy. In 2011, the U.S. Department of Health and Human Services awarded $12 million to researchers at six universities to collaborate with Early Head Start programs to improve basic parent-child interactions in the highest-risk EHS families.[43] The American Academy of Pediatrics, in a 2012 policy statement, envisions that pediatric medical homes (a model of care that we discuss in the final section of this article) can play a key role in identifying and treating toxic stress.[44]

Effects of Two-Generation Interventions on Health

We've shown that parents' health affects children's health, and vice versa, and we've described where two-generation programs are most and least likely to be found. But do these programs work, and, if so, for whom do they work best? Next we examine the evidence for two-generation programs, focusing on each of the risk factors described above.

Pediatricians who treat children with mental health conditions rarely assess and even less frequently do anything about parents' mental health.

Programs that Target Risk Factors in Pregnancy

The most common programs that target risk factors in pregnancy are those that offer prenatal care. Prenatal care is strongly associated with improvements in mothers' health, up to and including a lower risk of death during pregnancy and childbirth.[45] The strength of the relationship between prenatal care and infants' wellbeing is less clear-cut, and it is difficult to assess because mothers who seek and obtain prenatal care differ from those who do not. Recent analyses of survey data suggest that prenatal care beginning in the first three months of pregnancy has very modest effects on children's birth weight and other measures of children's health; for example, it increases average birth weight by only about 20 grams (less than three-quarters of an ounce).[46] Earlier medical studies have likewise found that prenatal care has ambiguous effects on birth weight.[47] Several analyses of policies that extended Medicaid eligibility to low-income pregnant women or reduced the barriers to Medicaid enrollment, thus enhancing access to prenatal care, have shown improvements in birth weight.[48] Yet even in these studies, the impact of prenatal care is modest, reducing the rate of low birth weight (defined as birth weight less than 5.5 pounds) by less than 1 percentage point in the target population.

A second type of intervention during the prenatal period is embodied by the WIC program, which seeks to improve mothers' nutrition and healthy behaviors during pregnancy and breast-feeding. Multiple studies that compare WIC participants with other, similar women, as well as econometric analyses, have shown that WIC participants have fewer low-birth weight babies and longer gestations, and are less likely to experience a preterm birth.[49]

Two-Generation Programs that Target Smoking

We have considerable evidence about the efficacy of programs and policies to reduce smoking, but there is no conclusive evidence about which interventions are most effective in decreasing parents' smoking specifically.[50] Indeed, at least one study suggests that policies to promote smoke-free workplaces and public spaces may actually increase children's exposure to tobacco smoke, because parents smoke at home rather than at work.[51]

The most compelling evidence of two-generation effects in programs that help people quit smoking comes from those that focus on smoking during pregnancy. A comprehensive review of randomized studies of such programs found that smoking rates among pregnant women fell by an average of six percentage points. The review found no significant differences in the efficacy of most alternative approaches (such as cognitive behavioral therapy, nicotine replacement therapy, or feedback in the form of advice or counseling), although programs that offered incentives for quitting, such as packages of gum or a monetary reward, had slightly greater effects. These interventions also led to reductions in low birth weight and preterm births. Soon after their children were born, women who had participated in smoking cessation programs during pregnancy remained significantly less likely to smoke than nonparticipants, although differences between the two groups became insignificant by several months after delivery.[52]

Two-Generation Programs to Prevent Obesity

Because mothers' weight gain and diet during pregnancy can increase childhood obesity, some interventions aim to prevent excessive gestational weight gain and encourage healthy nutrition.[53] Other two-generation programs that target obesity focus on preschool and school-aged children.

Evaluations of these programs have generally looked only at short-term effects, and they have shown weak, though generally positive, results.[54] There is some encouraging evidence that parental engagement can help prevent obesity in the youngest children by shaping their eating and physical activity habits.[55] No evaluations have examined how two-generation interventions affect obesity or weight gain in children as they grow to adulthood.

Parents' Mental Health and Substance Use

A variety of drugs and psychotherapies can ameliorate major depression in parents. Using these interventions appears to produce better outcomes for children, including reduced emotional and behavioral distress and higher educational attainment.[56] Given the strong link between mothers' depression and depression in children and adolescents, a few studies have examined programs that intervene with both depressed mothers and their children. Some of these interventions have been shown to reduce the development

of psychopathology in children, though others have not.[57]

Several studies have shown that substance-use treatment programs for mothers lead to better outcomes for their children. Programs that integrate substance-use services with child care or with other child-related services work better than those that target only mothers.[58]

Two-Generation Programs for Children with Chronic Conditions

There are effective interventions for many chronic conditions that occur in children. Assessments of these interventions sometimes examine their effects on parents, and some of these assessments show that reducing children's symptoms improves parents' health.[59] In most cases, however, these interventions do not directly target the consequences for parents of children's chronic health conditions.

Barriers to Two-Generation Approaches

Well-developed, broadly disseminated two-generation programs that aim to improve health share one characteristic: they focus on the period when the connection between mother and child is physical. From an organizational and structural point of view, pregnancy and breast-feeding are periods when treating just one person, the mother, can affect the health of both mother and child. Fewer interventions target health problems that occur after that physical bond has ended, and few that do so have been broadly disseminated.

Two-generation programs face two sets of barriers. First, and most readily amenable to policy, is the system of financing care for children and adults. Today, thanks to expansions of Medicaid and CHIP, low-income children are more likely to have health insurance than are their parents. Recently, some states have expanded Medicaid and CHIP coverage to parents. The evidence indicates that when parents can enroll, eligible children are more likely to be enrolled as well. Children are also more likely to have a regular source of care and to use preventive services.[60]

But the income eligibility standards for Medicaid and CHIP are different for children and adults. And employee contributions for employer-sponsored health insurance are also substantially higher for workers who cover their families than for those who cover only themselves. For these reasons, even when parents and children all have health insurance, the coverage may come from different sources. In most higher-income families, parents and children are all covered by private, employer-sponsored insurance. In many lower-income families, however, parents are covered by employer-sponsored insurance and children are covered by Medicaid or CHIP. For example, parents and children all carry Medicaid coverage in only 46 percent of families with incomes below 138 percent of the federal poverty level. Insurers, whether public or private, are not required to pay for services provided to household members who are not themselves covered by a policy. Thus, differences in insurance coverage within a family diminish the incentives for any payer to invest in two-generation health programs that serve both covered and non-covered family members.

The ACA will not entirely erase the disconnect between parents' and children's sources of health insurance coverage. For

families with incomes below 138 percent of the federal poverty level, new access to Medicaid coverage under the ACA (in states that choose to expand Medicaid) may let parents and children be covered by the same health plan. In many low-income families whose incomes are above 138 percent of the poverty line, however, children will continue to be eligible for CHIP but parents will not, and parents will be enrolled in plans in the new health insurance marketplaces. Without a change in policy, these parents and children will remain in different plans.

Parallel financing and delivery systems for children's and adults' health services may be the biggest factor limiting the development and spread of two-generation programs in health.

The second barrier to two-generation programs is the structure of the health-care delivery system itself. Once babies are born, they go to pediatricians for their care. Pediatricians constitute a specialized system of health-care delivery that is quite separate from health care for adults. Over 60 percent of physician visits by children 15 and under are to pediatricians and pediatric specialists. By contrast, nearly 95 percent of physician visits by adults 19–44 are to nonpediatric physicians. Put differently, pediatricians and pediatric specialists see almost no adults (adults constitute less than 2 percent of the caseload of pediatricians and pediatric specialists), and fewer than 5 percent of visits to adult generalist and specialist physicians are from children. In most cases, a pediatrician who sees a child with an emotional disorder has little contact with the child's mother. Even if the pediatrician recognizes that the child's mother is depressed, she is unlikely to consider treating the mother directly to be within the scope of her practice (and she might not know where to make a referral for adult depression). If she does treat the mother, she will be not be able to bill the visit to the child's insurance, and she might not participate in the mother's insurance plan's network.

Expanded coverage under the ACA will not solve this problem, even if parents and children have the same insurance. Existing two-generation programs have largely avoided the divide between adults' and children's health care by bypassing the health-care delivery system through nonmedical approaches. Ironically, the existence of well-established and parallel financing and delivery systems for children's and adults' health services may be the biggest factor limiting the development and spread of two-generation programs in health.

Conclusions and Opportunities to Expand Two-Generation Programs

As we've seen, home visiting and other effective, evidence-based two-generation programs to reduce children's health risks exist. But most of them focus on the prenatal and postnatal periods. The ACA expands some of these programs, but their reach remains limited. By further expanding these programs, we could further improve children's health.

We found no effective programs in widespread use that apply two-generation

approaches to target children's health problems after these problems have actually begun. At that point, a child's care is usually under the direction of a pediatrician and is paid for by the child's health insurance. Pediatricians have not traditionally considered parents' health in their practice, and they are rarely family focused. Moreover, they face financial disincentives to consider parents' health because parents of low-income children are often uninsured or are covered through different health plans than their children's.

The ACA, which will expand coverage to millions of lower-income parents, particularly in states that choose to participate in the Medicaid expansion, is a necessary step for tackling children's health problems through two-generation approaches. But to have a significant effect on two-generation treatment practices, state policy makers must take at least two further steps. Fortunately, the ACA provides some opportunities for them to do so.

First, in most states, previous expansions of insurance have meant that children became eligible for Medicaid or CHIP while, in many cases, their parents remained uninsured. Under the ACA, the parents of Medicaid- or CHIP-eligible children will be able to get health insurance through either Medicaid or the new health insurance marketplaces. In many such cases, particularly among families with incomes over 138 percent of the federal poverty level, parents and children will be covered by different health plans unless the states take further action. The Centers for Medicare and Medicaid Services has offered the states some options to help families avoid splitting their coverage. States may offer a so-called Bridge plan—a Medicaid/CHIP managed-care plan that could also be sold in the health insurance marketplaces to families with children enrolled in the plan, as well as to families who are transitioning from Medicaid/CHIP into the private market.[61] States could achieve similar results by using Medicaid premium assistance payments, an option under ACA, to purchase family health insurance coverage in the marketplace that includes parents and their children. Finally, the Basic Health Program, a provision of the ACA to be implemented in 2014, may give states additional opportunities to design programs for low-income people that span Medicaid and the health insurance marketplaces. Modeled after a program in Washington state, the Basic Health Program would offer continuity of care for a population that is likely to gain and lose Medicaid eligibility because of small fluctuations in income. It will give states the flexibility to offer publicly funded insurance to those whose income is too high to be eligible for Medicaid.

Financing health insurance for parents and their children through the same managed-care plan will give the plans' administrators financial incentives to encourage the development of two-generation health programs. Plan-level incentives, however, may not be enough. A key second step is to give providers incentives to generate meaningful changes in their practices. One way to generate such incentives is the patient-centered medical home model. Medical homes make additional payments to providers who coordinate their services with those of other medical and social service providers. The Medicaid Health Home, a variant of the medical home model, targets Medicaid patients with chronic health conditions, including mental health problems. Health homes have yet to develop two-generation models, but their structure offers financial

incentives and opportunities to do so, particularly if parents' and children's coverage is also coordinated.[62]

The rationale for two-generation programs that target both children's and parents' health problems is strong. Many children's health problems are linked to the family's environment and behaviors. Effective two-generation programs that address these problems exist. Structural factors have limited their dissemination in the past, but the ACA offers new opportunities to develop and implement such programs.

ENDNOTES

1. Kirsten Beronio et al., "Affordable Care Act Will Expand Mental Health and Substance Use Disorder Benefits and Parity Protections for 62 Million Americans" (research brief, Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Washington, DC, February 2013), http://aspe.hhs.gov/health/reports/2013/mental/rb_mental.pdf.

2. Anne Case, Angela Fertig, and Christina Paxson, "The Lasting Impact of Childhood Health and Circumstance," *Journal of Health Economics* 24 (2005), 365–89.

3. Anne Case, Darren Lubotsky, and Christina Paxson, "Economic Status and Health in Childhood: The Origins of the Gradient," *American Economic Review* 92 (2002), 1308–34; Janet Currie and Mark Stabile, "Child Mental Health and Human Capital Accumulation: The Case of ADHD," *Journal of Health Economics* 25 (2006), 1094–1118, doi: 10.1016/j.jhealeco.2006.03.001.

4. Katherine M. Kitzmann and Bettina M. Beech, "Family-Based Interventions for Pediatric Obesity: Methodological and Conceptual Challenges from Family Psychology," *Couple and Family Psychology: Research and Practice* 1 (2011), 45–62.

5. Maternal and Child Health Bureau, *"The Health and Well-Being of Children: A Portrait of States and the Nation 2007"* (Rockville, MD: U.S. Department of Health and Human Services, 2009), http://mchb.hrsa.gov/nsch/07main/moreinfo/pdf/nsch07.pdf.

6. Hope Corman, Kelly Noonan, and Nancy E. Reichman, "Mothers' Labor Supply in Fragile Families: The Role of Child Health," *Eastern Economic Journal* 31 (2005), 601–16.

7. Douglas Almond and Janet Currie, "Human Capital Development before Age Five," in Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, vol. 4B (Amsterdam: North-Holland, 2011), 1315–1486.

8. Jennifer Bishop et al., "Childhood Obesity" (Washington, DC: Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, 2005), accessed October 23, 2013, http://aspe.hhs.gov/health/reports/child_obesity/index.cfm.

9. Almond and Currie, "Human Capital Development."

10. Almond and Currie, "Human Capital Development"; Kelly Noonan et al., "Effects of Prenatal Care on Child Health at Age 5," *Maternal and Child Health Journal* 17 (2013), 189–99, doi: 10.1007/s10995-012-0966-2.

11. David P. Hopkins et al., "Reviews of Evidence Regarding Interventions to Reduce Tobacco Use and Exposure to Environmental Tobacco Smoke," *American Journal of Preventive Medicine* 20, no. 2S (2001), 16–66; Naomi Priest et al., "Family and Carer Smoking Control Programmes for Reducing Children's Exposure to Environmental Tobacco Smoke," *Cochrane Database of Systematic Reviews*, issue 4 (2008), article CD001746, doi: 10.1002/14651858.CD001746.pub2.

12. Tina Neogi, Jon O. Neher, and Sarah Safranek, "Clinical Inquiry: How Does Smoking in the Home Affect Children with Asthma?" *Journal of Family Practice* 61 (2012), 292–93.

13. Sheniz A. Moonie et al., "Asthma Status and Severity Affects Missed School Days," *Journal of School Health* 76 (2006), 18–24; Yorke Janelle, Sharon L. Fleming, and Caroline Shuldham, "Psychological Interventions for Children with Asthma," *Cochrane Database of Systematic Reviews*, issue 4 (2005), article CD003272, doi: 10.1002/14651858.CD003272.pub2.

14. Stephen E. Gilman et al., "Parental Smoking and Adolescent Smoking Initiation: An Intergenerational Perspective on Tobacco Control," *Pediatrics* 123 (2009), e274–81, doi: 10.1542/peds.2008-2251.

15. Stephen D. H. Malnick and Hilla Knobler, "The Medical Complications of Obesity," *Quarterly Journal of Medicine* 99 (2006), 565–79, doi: 10.1093/qjmed/hcl085.

16. Richard J. Deckelbaum and Christine L. Williams, "Childhood Obesity: The Health Issue," *Obesity Research* 9 (2001), 239S–43S, doi: 10.1038/oby.2001.125.

17. Leonard H. Epstein et al., "Ten-Year Follow-up of Behavioral, Family-Based Treatment for Obese Children," *Journal of the American Medical Association* 264 (1990), 2519–23; Gavitt A. Woodard et al., "Halo Effect for Bariatric Surgery: Collateral Weight Loss in Patients' Family Members," *Archives of Surgery* 146 (2011), 1185–90, doi: 10.1001/archsurg.2011.244.

18. Stephanie L. Anzman, Brandi Y. Rollins, and Leann L. Birch, "Parental Influence on Children's Early Eating Environments and Obesity Risk: Implications for Prevention," *International Journal of Obesity* 34 (2010), 1116–24, doi: 10.1038/ijo.2010.43.

19. National Research Council and Institute of Medicine, *Depression in Parents, Parenting, and Children: Opportunities to Improve Identification, Treatment, and Prevention* (Washington, DC: National Academies Press, 2009); Cindy Lee Dennis and Ellen Hodnett, "Psychosocial and Psychological Interventions for Treating Postpartum Depression," *Cochrane Database of Systematic Reviews*, issue 4 (2007), article CD006116, doi: 10.1002/14651858.CD006116.pub2; Stevan E. Hobfoll et al., "Depression Prevalence and Incidence among Inner-City Pregnant and Postpartum Women," *Journal of Consulting and Clinical Psychology* 63 (1995), 445–53.

20. Dennis and Hodnett, "Psychosocial and Psychological Interventions."

21. Carrie W. Rishel, "Pathways to Prevention for Children of Depressed Mothers: A Review of the Literature and Recommendations for Practice," *Depression Research and Treatment* (2012), article 313689, doi: 10.1155/2012/313689; Olivia Golden and Karina Fortuny, *Improving the Lives of Young Children: Meeting Parents' Health and Mental Health Needs through Medicaid and CHIP so Children Can Thrive* (Washington, DC: Urban Institute, 2011), http://www.urban.org/UploadedPDF/412315-Meeting-Parents-Health.pdf; M. Christine Lovejoy et al., "Maternal Depression and Parenting Behavior: A Meta-Analytic Review," *Clinical Psychology Review* 20 (2000), 561–92.

22. "Toxic Stress: The Facts," Center on the Developing Child, Harvard University, accessed October 23, 2013, http://developingchild.harvard.edu/topics/science_of_early_childhood/toxic_stress_response.

23. Jack P. Shonkoff, "Building a New Biodevelopmental Framework to Guide the Future of Early Childhood Policy," *Child Development* 81 (2010), 357–67, doi: 10.1111/j.1467-8624.2009.01399.x.

24. Ross A. Thompson, "Stress and Child Development," *Future of Children* 24, no. 1 (2014): 41–60.

25. Jack P. Shonkoff et al., "The Lifelong Effects of Early Childhood Adversity and Toxic Stress," *Pediatrics* 129 (2012), e232–46; Jennifer S. Middlebrooks and Natalie C. Audage, *The Effects of Childhood Stress on Health across the Lifespan* (Atlanta: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2008), http://www.cdc.gov/ncipc/pub-res/pdf/childhood_stress.pdf; M. Ann Easterbrooks, Kenneth Ginsburg, and Richard M. Lerner (2013) "Resilience among Military Youth," *Future of Children* 23, no. 2 (2013), 99–120.

26. Ali H. Mokdad et al., "Actual Causes of Death in the United States, 2000," *Journal of the American Medical Association* 291 (2004), 1238–45; Catherine Turnbull and David A. Osborn, "Home Visits During Pregnancy and after Birth for Women with an Alcohol or Drug Problem," *Cochrane Database of Systematic Reviews*, issue 1 (2012), article CD004456, doi: 10.1002/14651858.CD004456.pub3; Richard P. Barth, "Preventing Child Abuse and Neglect with Parent Training: Evidence and Opportunities," *Future of Children* 19 (2009), 95–118.

27. Janelle Yorke and Caroline Shuldham, "Family Therapy for Asthma in Children," *Cochrane Database of Sysematic Reviews*, issue 2 (2005), article CD000089, doi: 10.1002/14651858.CD000089.pub2; Richard P. Hastings and Alexandra Beck, "Practitioner Review: Stress Intervention for Parents of Children with Intellectual Disabilities," *Journal of Child Psychology and Psychiatry,* 45 (2004), 1338–49.

28. Jack P. Shonkoff, "Building a New Biodevelopmental Framework to Guide the Future of Early Childhood Policy," *Child Development* 81 (2010), 357–67, doi: 10.1111/j.1467-8624.2009.01399.x.

29. Jack P. Shonkoff et al., "The Lifelong Effects of Early Childhood Adversity and Toxic Stress," *Pediatrics* 129 (2012), e232–46, doi: 10.1542/peds.2011-2663; Middlebrooks and Audage, *Effects of Childhood Stress*; "Toxic Stress: The Facts."

30. Nancy E. Reichman et al., "Effects of Prenatal Care on Maternal Postpartum Behaviors," *Review of the Economics of the Household* 8 (2010), 171–97, doi: 0.1007/s11150-009-9074-5.

31. Szu-Fu Chen et al., "The Impact of Interpregnancy Interval and Previous Preterm Birth on the Subsequent Risk of Preterm Birth," *Journal of the Society for Gynecologic Investigation* 12 (2005), 202–7.

32. Hopkins et al., "Reviews of Evidence."

33. Dennis and Hodnett, "Psychosocial and Psychological Interventions."

34. Turnbull and Osborn, "Home Visits."

35. Diane Paulsell et al., *Home Visiting Evidence of Effectiveness Review: Executive Summary* (Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services, 2011), http://www.acf.hhs.gov/sites/default/files/opre/homvee_executivesummary_rev10_15_2011.pdf.

36. Michael W. O'Hara and Annette M. Swain, "Rates and Risk of Postpartum Depression—A Meta-Analysis," *International Review of Psychiatry,* 8 (1996), 37–54; Jack Stevens et al., "Depression and Trauma History in First Time Mothers Receiving Home Visitation," *Journal of Community Psychology* 30 (2002), 551–64, doi: 0.1002/jcop.10017; Robert T. Ammerman et al., "Treatment of Depressed Mothers in Home Visiting: Impact on Psychological Distress and Social Functioning," *Child Abuse & Neglect* (2013), doi: 10.1016/j.chiabu.2013.03.003; Robert T. Ammerman et al., "Changes in Depressive Symptoms in First Time Mothers in Home Visitation," *Child Abuse & Neglect* 33 (2009), 127–38, doi: 10.1016/j.chiabu.2008.09.005.

37. Advisory Committee on Head Start Research and Evaluation, *Advisory Committee on Head Start Research and Evaluation: Final Report* (Washington, DC: U.S. Department of Health and Human Services, 2012), http://www.acf.hhs.gov/sites/default/files/opre/eval_final.pdf; Office of Head Start, "Program Information Report (PIR) 2011 Summary Report," (U.S. Department of Health and Human Services, 2011).

38. Ammerman et al., "Treatment of Depressed Mothers."

39. Kitzmann and Beech, "Family-Based Interventions."

40. "Communities Putting Prevention to Work," Centers for Disease Control and Prevention, accessed October 23, 2013, http://www.cdc.gov/CommunitiesPuttingPreventiontoWork/index.htm.

41. Ardis L. Olson et al., "Primary Care Pediatricians' Roles and Perceived Responsibilities in the Identification and Management of Maternal Depression," *Pediatrics* 110 (2002), 1169–76; Amy M. Heneghan et al., "Do Pediatricians Recognize Mothers with Depressive Symptoms?" *Pediatrics* 106 (2000), 1367–73; Kathi J. Kemper and Kelly J. Kelleher, "Rationale for Family Psychosocial Screening," *Ambulatory Child Health* 1 (1996), 311–24.

42. Jonathan P. Winickoff et al., "Addressing Parental Smoking in Pediatrics and Family Practice: A National Survey of Parents," *Pediatrics* 112 (2003), 1146–51; Jonathan P. Winickoff et al., "Child Health Care Clinicians' Use of Medications to Help Parents Quit Smoking: A National Parent Survey," *Pediatrics* 115 (2005), 1013–17.

43. "Early Head Start University Partnership Grants: Buffering Children from Toxic Stress, 2011–2016," Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services, accessed October 23, 2013, http://www.acf.hhs.gov/programs/opre/research/project/early-head-start-university-partnership-grants-buffering-children-from.

44. Andrew S. Garner et al., "Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science Into Lifelong Health," *Pediatrics* 129 (2012), e224–31.

45. Jeani Chang et al., "Pregnancy-Related Mortality Surveillance—United States, 1991–1999," *Morbidity and Mortality Weekly Report* 52 (2003), 1–8; Noonan, et al., "Effects of Prenatal Care."

46. Reichman et al., "Effects of Prenatal Care."

47 Kevin Fiscella, "Does Prenatal Care Improve Birth Outcomes? A Critical Review," *Obstetrics & Gynecology* 85 (1995), 468–79.

48. Almond and Currie, "Human Capital Development."

49. Janet Currie, "U.S. Food and Nutrition Programs," in Robert A. Moffitt, ed., *Means-Tested Transfer Programs in the United States* (Chicago: University of Chicago Press, 2003), 199–290.

50. Hopkins et al., "Reviews of Evidence"; Priest at al., "Smoking Control Programmes."

51. Adda Jérôme and Francesca Cornaglia, "The Effect of Bans and Taxes on Passive Smoking," *American Economic Journal: Applied Economics* 2 (2010), 1–32, doi: 10.1257/app.2.1.1.

52. Judith Lumley et al., "Interventions for Promoting Smoking Cessation During Pregnancy," *Cochrane Database of Systematic Reviews*, issue 3 (2009), article CD001055, doi: 10.1002/14651858.CD001055.pub3.

53. Anzman, Rollins, and Birch, "Parental Influence."

54. Helen Skouteris et al., "Parental Influence and Obesity Prevention in Pre-Schoolers: A Systematic Review of Interventions," *Obesity Reviews* 12 (2011), 315–28, doi: 10.1111/j.1467-789X.2010.00751.x.

55. Elizabeth Waters et al., "Interventions for Preventing Obesity in Children," *Cochrane Database of Systematic Reviews*, issue 12 (2011), article CD001871, doi: 10.1002/14651858.CD001871.pub3.

56. Meredith L. Gunlicks and Myrna M. Weissman, "Change in Child Psychopathology with Improvement in Parental Depression: A Systematic Review," *Journal of the American Academy of Child & Adolescent Psychiatry* 47 (2008), 379–89.

57. Rishel, "Pathways to Prevention."

58. Olivia Silber Ashley, Mary Ellen Marsden, and Thomas M. Brady, "Effectiveness of Substance Abuse Treatment Programming for Women: A Review," *American Journal of Drug and Alcohol Abuse* 29 (2003): 19–53, doi: 10.1081/ADA-120018838; Alison Niccols et al., "Integrated Programs for Mothers with Substance Abuse Issues and Their Children: A Systematic Review of Studies Reporting on Child Outcomes," *Child Abuse and Neglect* 36 (2012): 308–22, doi: 10.1016/j.chiabu.2011.10.007.

59. Hastings and Beck, "Stress Intervention."

60. U.S. Government Accountability Office, *Medicaid and CHIP: Given the Association between Parent and Child Insurance Status, New Expansions May Benefit Families* (Washington, DC: U.S. Government Accountability Office, 2011); Sara Rosenbaum and Ramona Perez Trevino Whittington, "Parental Health Insurance Coverage as Child Health Policy: Evidence from the Literature," research brief, First Focus, George Washington University School of Public Health and Health Services, 2007, http://www.firstfocus.net/sites/default/files/r.2007-6.25.rosenbaum.pdf.

61. Centers for Medicare and Medicaid Services, "Frequently Asked Questions on Exchanges, Market Reforms, and Medicaid," Baltimore, MD, 2012, http://www.cms.gov/CCIIO/Resources/Files/Downloads/exchanges-faqs-12-10-2012.pdf.

62. Embry M. Howell, Olivia Golden, and William Beardslee, *Emerging Opportunities for Addressing Maternal Depression under Medicaid* (Washington: Urban Institute, 2013), http://www.urban.org/UploadedPDF/412758-Emerging-Opportunities-for-Addressing-Maternal-Depression-under-Medicaid.pdf.