Back in 1991, There Are No Children Here entered the public health canon with journalist Alex Kotlowitz’s account of brothers Pharoah and Lafeyette growing up amid the grinding poverty of Chicago’s Henry Horner Homes. Despite the book’s galvanizing message, the statistics have only gotten worse. In 1990, 17 percent of school-age children lived in poverty. Today, one in five—16 million youngsters—lives in poverty, and nearly half of America’s children qualify as low-income, according to the Mailman School’s National Center for Children in Poverty (NCCP).

Kids growing up in households with more economic resources have buffers. Poor kids make the best of it. They live in more crowded homes, experience more violence, have less access to healthy foods and safe playgrounds, and suffer from chronic health conditions at rates well above those of their wealthier peers. And as Mailman School investigators are confirming with an expanding body of research, the aggregate results of an impoverished childhood are compounded over a lifetime, reverberating across time and space to destabilize whole communities.

“We know that from pregnancy through the first three years of life is the most critical time in terms of brain development,” says Helena Duch, PsyD, an assistant professor of Population and Family Health. “Living in toxic environments, with its associated stressors, sets young people on a more negative trajectory than living in resource-rich environments.” Hazards on that trajectory include worse lifetime health, lower educational achievement, poorer employment opportunities, and greater risk of involvement in the criminal justice system. “The good news is that we can reverse a lot of the negative impact, especially with early interventions,” Duch says. “The sooner we can do it, the better.”

Duch’s own research focuses on how intervention during those precious first few years can shift the course of an impoverished child’s life in a better direction. But the problem is so big, she says, the solutions must be mighty as well.

“You have all these programs and interventions that are like flowers, but then there’s the infrastructure—the soil, the environmental conditions—that makes everything happen,” she says, invoking a metaphor often employed by NCCP co-director Sharon Lynn Kagan, EdD. “We need to look at the environments in which people live and create systems that are designed to take care of kids.”

Duch and her colleagues are investigating the underlying conditions that perpetuate the cycle of poverty, in a quest for interventions that can disrupt the status quo. They’re finding that the answer boils down to the physical and social environment, including a child’s relationships with the adults who care for her.

At the individual level, exposure to lead and other environmental pollutants, as well as the chronic stress caused by living in poor, crime-ridden neighborhoods, can replicate the biochemical effects of the genetic conditions that give rise to mental disorders and poorer cognitive performance. Disproportionately greater rates of incarceration among those in poverty—both a symptom and a cause of these environmental exposures—sabotage efforts to create a better life, deepening the spiral.

“You have a combination of adverse factors for a developing child that clearly will have an impact on centers of the brain that will affect how that individual behaves,” says Tomás Guilarte, PhD, chair of Environmental Health Sciences. Guilarte has spent two decades studying the effects of lead exposure on the brain in animal models, linking it to neurochemical pathways associated with increased delinquency and potentially an increased susceptibility to drug addiction and mental disorders. “Certainly genes play an important role, but the environment that an individual lives in also has a very significant impact on disease onset and progression,” he explains. “Many of these environmental pollutants and social stresses hijack the same neural systems and brain sensors that genetically defined neurodegenerative or mental diseases do.”
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In mouse and human studies, Guilarte and other researchers have demonstrated that an enriched early childhood environment can buffer the effects of prior exposure to a toxic environment. In a cage with running wheels, hammocks, tunnels, toys, and the weekly introduction of something novel, lead-exposed mice thrived compared with their counterparts in plain cages. Creating an enriched environment for children, however, requires a bit more than a regular rotation of cool toys: visiting the library or the theater, taking violin lessons, playing sports or educational games, and above all, interacting positively with adults.

Early childhood education can help provide that enriched environment. But for many impoverished kids, such enrichment is too little, too late, if it’s even available at all. And meanwhile, the health disparities that plague those living in poverty keep piling up. Children from lower-income homes have a higher risk from childhood through adulthood of asthma, obesity, mental and behavioral conditions, heart disease, stroke, and myriad other health problems. Due to limited resources, many of their symptoms go undiagnosed, untreated, or undertreated, compounding what might otherwise have been relatively manageable complaints.

By the time these children reach public school, their unmet health needs interfere with their ability to make academic progress, further eroding their prospects for lifelong well-being. “The interaction between health and academic achievement is well known,” says Caroline Volel, MD, MPH ’01 (pictured above), a part-time assistant clinical professor of Pediatrics and of Population and Family Health and director of the Mailman School’s academic School Health Program. “An unhealthy child can’t learn. It’s simple. The more difficult thing is that schools are in the business of teaching and making sure kids learn, but more and more, there’s a public health burden on the schools.”

Public schools may be ill equipped to carry that burden, but they also present an opportunity to lighten the load, says Volel, who also works as a field physician for New York City’s Office of School Health serving 25 schools in Central and East Harlem. “You have to put an intervention where you have a lot of people,” she says. “School is compulsory and there are a lot of people involved, so it’s not a bad place to start.”

For the past three years, Volel’s seminar Issues in School-Based Health has challenged Mailman School students to integrate public health into public education. Volel’s timing couldn’t have been better: A growing number of New York City public schools have opted to transition to a paradigm known as the community school model.

“Making schools community schools means using a public health approach to leverage everything you have in your community to make sure everything in the school is working well and all the neighborhood and community assets are reflected in the school,” Volel says. Whether partnering with banks, grocery stores, churches, or gyms, a community school embodies the idea that it takes a village to raise a child. Achieving that level of integration requires identifying the array of resources available in a particular community, building relationships with community leaders and stakeholders, and then working together to establish programs and partnerships. “The skill set to do an assessment and find the resources and evaluate whether this connection is working—that’s public health,” Volel says.

“We can reverse a lot of the negative impact, especially with early interventions.”
And that’s precisely what Volel’s students learn to do. Last year, they worked with PS 154 to identify resources within the community to address children’s mental health needs and created a “referral pipeline,” a directory the school can use to get students the help they need so that they can thrive in the classroom.

“Dr. Volel wants the class to be more than just pedagogy. She wants it to be about how we can impact our community in New York City,” says former school nurse Jill Humphrey, an MPH candidate in Population and Family Health who took the course this past spring. “The real world is our classroom.”

Progress takes hard work, and time: One of the highlights of Humphrey’s work in the eight-week course was bringing together the school nurse, representatives of a community clinic, and community outreach professionals for a two-hour meeting to discuss goals and begin addressing the health needs of students at Community Health Academy of the Heights. It may not sound like much, Humphrey says, but it’s challenging—and essential—to give these stakeholders an uninterrupted opportunity to collaborate. Ideally, Volel says, such collaborations will help city schools harness the local resources within every community that can help families make the most of a challenging environment.

The trick—as work by Mindy Thompson Fullilove, a professor of Psychiatry and of Sociomedical Sciences, reveals—becomes holding tight to those resources. Whereas Volel uses a public health framework to help schools address the many effects of poverty on students, Fullilove focuses on an underlying cause of the perpetuation of poverty and the biggest threat to successful intervention: displacement, by which impoverished communities are uprooted when the land they occupy is reappropriated—for a highway or a convention center, for example.

Fullilove’s research builds on the work of previous scholars who described how access to resources affects patterns of disease. That is, it’s not just whether smoking causes cancer, but whether a person has the resources to quit smoking. And perhaps the ultimate magnifier of resource disparities is urban renewal. “Urban renewal destroys resources,” Fullilove says. “When communities are broken they lose financial, social, cultural, and political capital. There’s a devastating loss of resources, and there’s an opportunity cost because they have to rebuild while other communities that haven’t experienced upheaval can move forward.”

This process, echoed in cities nationwide, leads to “root shock,” a term Fullilove coined in her 2004 book Root Shock: How Tearing Up City Neighborhoods Hurts America, and What We Can Do About It. A seedling handled roughly during transplant wilts; similarly, people displaced by urban renewal are wrenched from robust community ecosystems, with withering effect. “It’s a spectrum of problems that has horrific effects on neighborhood stability and community functioning, and therefore health,” Fullilove says. Unemployment and myriad other social ills follow; risk of incarceration rises. As the ripples spread, the destruction of community ties rends the nation’s social fabric.

And there’s no quick fix. Shuttered factories don’t reopen and bulldozed homes don’t rebuild themselves, so the first step is simply to stop urban renewal. “You can’t undo something that’s done,” Fullilove says. “But as a society, we can evolve and adapt to harm, and going forward we can pursue more equitable and more inclusive policies.” That’s where interventions that we know to be effective enter the equation: eliminating lead from paint and plumbing, implementing screening programs to identify early health problems and refer children for early intervention, expanding early childhood education programs, and forging school-community partnerships that lead to an enriched environment for children. “Every once in a while,” says Fullilove, “there’s a tipping point. That’s what you have to stay focused on.”

TARA HAELE writes about health, science, and social research for Scientific American, Politico, HealthDay, and NPR.

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