The NEW ENGLAND JOURNAL of MEDICINE

Perspective

APRIL 6, 2017

RURAL HEALTH CARE

Out of Sight, Out of Mind — Behavioral and Developmental Care for Rural Children

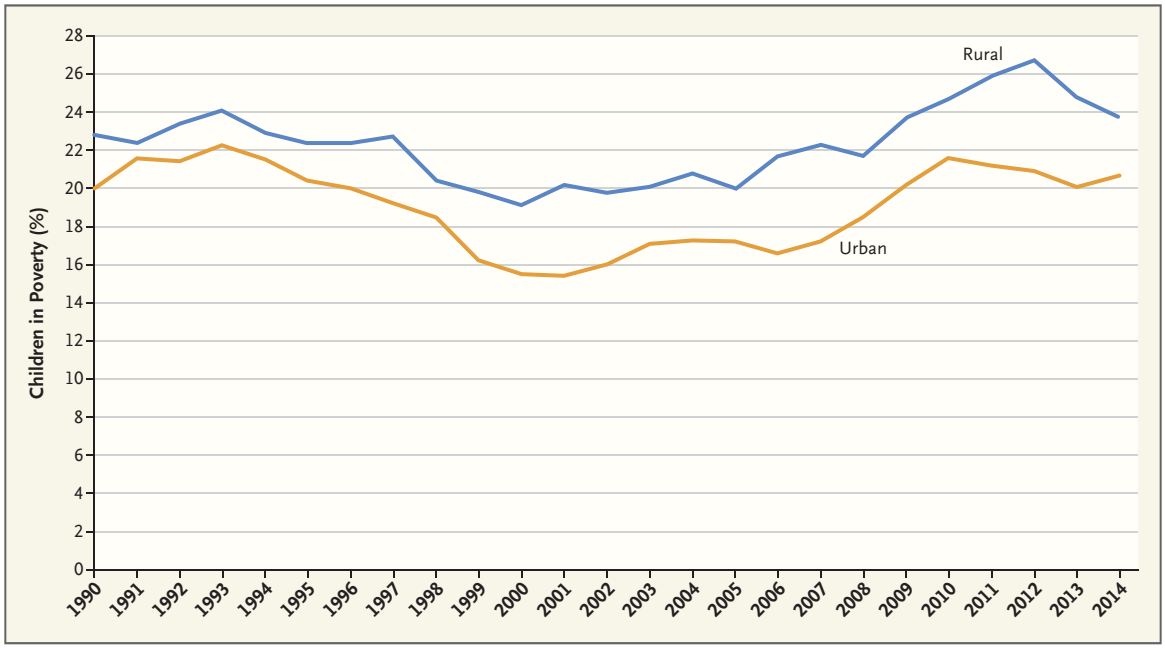
Kelly J. Kelleher, M.D., and William Gardner, Ph.D.

The Centers for Disease Control and Prevention (CDC) has just offered further evidence that American children — and rural children in particular — are in trouble. Previously, the CDC had noted that poor U.S. children 2 to 8 years of age have higher rates of parent-reported mental, behavioral, and developmental disorders (MBDDs) than their wealthier counterparts. Now, in the latest of a series of reports, the agency documents the finding that rural children from small communities are more likely to have MBDDs than those living in cities and suburbs.[1]

What might cause this disparity? One important factor is that rural children often live in poverty, the severity of which is increasing. According to the U.S. Department of Agriculture, about one in four rural children in the United States lives in poverty,[2] as compared with one in five children nationwide (see graph). Poverty harms the developing brain through both biologic and social effects.[3] One pathway from poverty to MBDDs may be parental alcohol and drug use, which is associated with lower birth weight and developmental delay in offspring and risk for behavioral disorders in childhood. (Causation could also run reciprocally from MBDDs to poverty: families coping with children with such disorders can lose income and incur increased out-of-pocket costs.)

Another possible cause is perinatal or early-childhood teratogen exposure from extraction and processing industries, although no differential exposures between rural and metropolitan areas have been associated with rates of MBDDs. Rural communities also offer fewer evidence-based, early-intervention programs than urban areas, and these programs might help prevent or ameliorate some cases of MBDDs. Further research is needed to elucidate the contribution of these factors to the burden of MBDDs among rural children.

In the meantime, how do we care for rural children with MBDDs and their families? Our traditional model of service delivery requires patients to visit pediatric behavioral and developmental health specialists regularly. There are national shortages of specialists trained in addressing childhood MBDDs, but the shortfalls are greatest in rural areas, where low population density makes it difficult to support specialist practices. For the past 50 years, calls for placing more behavioral and developmental



Estimated Rates of Child Poverty in the United States, 1990–2014.

Poverty status is based on family money income in the prior calendar year, as measured by the Current Population Survey's Annual Social and Economic Supplement.

health care providers in rural areas have failed. Long travel distances keep rural families from making routine visits to specialists even if they can find one, so not surprisingly, attrition rates for behavioral and developmental health services are high among rural patients. Continued reliance on traditional delivery systems will clearly mean continued lack of access for rural children and families.

So how can we do a better job delivering care to rural children with MBDDs? Our view extends that of Robinson et al.[1] We believe that rural communities should partner with agencies that operate in alternative settings, use telehealth services, and employ primary care and alternative providers to coordinate care and deliver low-intensity interventions.

It's possible to deliver behavioral and developmental health care in settings other than medical offices. School-based services are attractive because rural schools are often used as community activity centers, and the concentration of students makes them efficient access points. School-based health centers that offer comprehensive behavioral health services can coordinate with primary care providers, school transportation systems, and (with appropriate consent) teachers and other health professionals to improve billing, electronic record sharing, assessments, and communication. Resource-poor rural towns have little money for such activities, but costs may be reduced if regional health care provider networks and accountable care organizations use low-overhead settings such as schools.

Federally qualified health centers (FQHCs) also offer advantages in providing mental health services in rural areas. They may use the National Health Service Corps Loan Repayment program to recruit professionals, participate in telehealth programs for mental health, and use internal or externally contracted providers to meet federal requirements for adding mental health services. FQHCs are often the only providers in a rural area, and their recent growth suggests that their financial model may work well for rural communities.

Telehealth services enable behavioral and developmental health specialists to deliver care in underserved areas. Unfortunately, shortages of these specialists even in many urban areas mean that synchronous telehealth care can solve only a portion of rural access problems. In contrast, psychoeducation, group sessions, and online therapies (e.g., online cognitive behavioral therapy) can provide

useful clinical responses when patients and families are connected with digital services through their clinicians. The Australian experience[4] demonstrates what is possible; several efficacy studies have revealed similar outcomes and engagement with telehealth interventions as with in-person clinical services. Similar programs could be extended, and indeed 20% annual growth in telehealth visits is predicted for the next 5 years, although some rural communities still lack broadband connectivity.

Beyond telehealth, many low-severity mental health problems can be effectively treated in primary care, particularly under collaborative care arrangements with specialists.[5] Thus, coordination of specialist services with primary care, schools, or other trusted rural settings will be an essential element of improved care models for rural children. Efforts such as Project ECHO (http://echo.unm.edu), a specialty model for training primary care clinicians through case-based learning, have helped primary care providers address other chronic conditions.

Reliance on alternative providers will be critical to expanding care for rural children with MBDDs. New models of effective mental health care by trained peers or parents and by community workers are emerging from consumer movements and impoverished areas such as low-income countries. Among appropriately screened patients, these models are effective and acceptable to patients. Parents of children with MBDDs can be trained to provide structured, brief interventions that include emotional support, problem solving, or brief cognitive behavioral therapy. Such peer parents or advocates can be trained, certified, and employed on the treatment team. New York State, for example, has formal licensing and payment models in place for trained parents who join treatment teams.

Unfortunately, there are substantial financial and regulatory obstacles to implementing innovative rural service-delivery models. Alternative settings such as rural schools are often resource-starved and lack capacity to expand services for children with MBDDs. Restrictive credentialing and licensing practices make it difficult to use alternative providers to deliver care in isolated areas. Clinicians avoid some of these barriers by labeling services as educational rather than clinical, but doing so may prevent integration with other health care. Traditional fee-for-service payments reinforce guild restrictions and encourage separate contracts and service agencies for special education, foster care, and juvenile justice in rural communities.

Fragmentation of services reimbursed through fee-for-service systems might be overcome with value-based purchasing that rewards outcomes rather than volume. Global budgets and other forms of value-based payment can encourage use of lower-cost providers and settings, while focusing providers' attention on population health. Unfortunately, value-based payment mechanisms for care of children have been implemented mostly in urban academic medical centers rather than rural areas. Moreover, the future of U.S. health care reform is uncertain.

A romantic and pastoral view of the countryside as a place of healing is ingrained in American culture. The increased burden of MBDDs among rural children belies this image, as does the failure of the traditional behavioral and developmental health care system to address rural children's needs. These problems have received too little attention, because most behavioral and developmental health specialists, researchers, and health policymakers live in cities. The problems of rural children, their families' crises, and the lack of services have been out of sight and out of mind.

Disclosure forms provided by the authors are available at NEJM.org.

From the Center for Innovation in Pediatric Practice, Research Institute at Nationwide Children's Hospital, Columbus, OH (K.J.K.); and the Centre for Child Mental Health Services and Policy Research, Children's Hospital of Eastern Ontario Research Institute, Ottawa (W.G.).

This article was published on March 16, 2017, at NEJM.org.

1. Robinson L, Holbrook J, Bitsko R, et al. Differences in health care, family, and community factors associated with mental, behavioral, and developmental disorders among children aged 2–8 years in rural and urban settings — United States, 2011–2012. MMWR Surveill Summ 2017;66(SS-8):1-11
2. Farrigan T, Hertz T. Understanding the rise in rural child poverty, 2003–2014. Washington, DC: Department of Agriculture, Economic Research Service, May 2016 (https://www.ers.usda.gov/publications/pub-details/?pubid=45543).
3. Shonkoff JP, Phillips DA. From neurons to neighborhoods: the science of early childhood development. Washington, DC: National Academies Press, 2000 (https://www.nap.edu/read/9824/chapter/1).
4. Rooksby M, Elouafkaoui P, Humphris G, Clarkson J, Freeman R. Internet-assisted delivery of cognitive behavioural therapy (CBT) for childhood anxiety: systematic review and meta-analysis. J Anxiety Disord 2015;29:83-92.
5. Richardson LP, Ludman E, McCauley E, et al. Collaborative care for adolescents with depression in primary care: a randomized clinical trial. JAMA 2014;312:809-16.

DOI: 10.1056/NEJMp1700713