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A QUANTITATIVE PROFILE OF RURAL MATERNAL AND CHILD HEALTH

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This report presents a profile of rural maternal and child health in the 1990s, including demographics, fertility and mortality, health status indicators, health insurance, and the availability of health care providers and institutions. It utilizes recent, national data only; findings from small-area or single-state studies and from research conducted prior to 1990 are not included in statistical comparisons, although they are referenced occasionally to support or inform statements about related issues. The purpose is to describe the current situation, suggest recent trends, and inform policy decisions concerning maternal, child and adolescent health in rural America.

A limitation to this type of analysis is the quality and availability of data. In their 1989 analysis of rural maternal and child health, McManus and Newacheck¹ lamented the fact that “data from most national health surveys can be broken into only very gross dichotomies, such as metro and nonmetro counties” despite the existence of very different settings within these county groups. They recommended more specific rural-urban classifications be used to monitor maternal and child health issues, and listed sixteen areas in need of further research. Unfortunately, little progress has been made in the subsequent nine years since their report was finished. Data with rural-urban classification continues to be scarce, and even the less precise metro-nonmetro data is unavailable for most detailed analysis unless an individual from the National Center for Health Statistics (NCHS) or the Centers for Disease Control and Prevention (CDC) is willing to perform the analyses. Additional problems exist with respect to sampling in rural areas. These issues are described in greater detail in an accompanying report.

With those limitations in mind, the following analysis of rural maternal and child health uses the best available datasets to frame the discussion, including the National Health Interview Survey, the US Census [with definitions for metropolitan-nonmetropolitan assigned by Modified Federal Information Processing Standards codes], the National Survey of Family Growth, the Area Resource File, the National Crime Survey, and the American Hospital Association’s Annual Survey of Hospitals. Unpublished data were provided by individual staff at the CDC and at NCHS.

The datasets used for this report generally classify children based on their residence in a metropolitan or nonmetropolitan county. For some variables, metropolitan residence is further stratified as either central city or noncentral city, and in one case (Table 27), counties are described in greater detail using a nine-category urban influence classification. Despite these variations, all metropolitan or nonmetropolitan classifications in this report are based on county of residence. For ease of reading, the more familiar terms *urban*, *suburban* and *rural* are used throughout this report; however, they are not intended to represent more precise classifications of “rural” or “urban.”²

DEMOGRAPHICS

As of 1990, over 15 million children and youth—21% of all US residents under 21 years of age—reside in nonmetropolitan counties of the United States (Table 1). They represent 31% of the total nonmetropolitan population. The total number of rural children has decreased substantially from the figure of 21 million cited in the McManus and Newacheck report.¹ Rural children continue to reside predominantly in the South and Midwest. In contrast, the Northeast and West regions comprise very small rural populations, and their proportions have decreased considerably over the past decade.¹

Several important demographic differences between rural and urban populations are noted (Table 1). A greater proportion of the rural child population is white, compared with the urban population. Blacks and Asians constitute greater proportions of the urban child popula-

tion, as do children of Hispanic origin; the rural population includes a larger proportion of Native American children. Rural children are more likely to reside in larger families with married parents, whereas a greater proportion of urban children live in families headed by a single mother. Rural preschool-aged children are more likely to have both or their only parent working.

Table 1. Demographic Characteristics of Children, 1996

	% Distribution per place of residence		population (in 1000s) per place of residence	
	Metro	Nonmetro	Metro	Nonmetro
<i>Age</i>				
Under 1 year	1.5	1.3	3,246	656
Age 1 to 5 yrs	7.8	7.4	16,639	3,780
Age 6 to 17 yrs	17.4	18.9	36,986	9,680
Age 18 to 20 yrs	4.1	4.1	8,605	2,127
Age >20 yrs	69.2	68.3	146,876	35,093
<i>Gender*</i>				
Male	51.1	51.4	29,080	7,249
Female	48.9	48.6	27,791	6,866
<i>Race*</i>				
White	77.1	83.9	43,875	11,845
Black	17.2	12.0	9,809	1,691
Native American	0.9	2.4	521	337
Asian	4.7	1.7	2,667	242
<i>Hispanic origin*</i>	17.8	7.8	10,115	1,107
<i>Residence by Region*</i>				
Northeast	20.5	10.0	11,685	1,414
Midwest	21.9	31.4	12,429	4,430
South	32.2	42.5	18,326	6,001
West	25.4	16.1	14,431	2,271
<i>Family Size**</i>				
Four or fewer	79.3	73.3	23,877	5,358
Five or more	20.7	26.7	6,221	1,949
<i>Family Composition**</i>				
Married parents	72.5	73.8	19,189	4,742
Single, female-headed	22.8	20.9	6,044	1,342
Single, male-headed	4.7	5.4	1,236	344
<i>Parental Employment***</i>				
Married parents, both working	53.3	58.5	7,062	1,738
Single, female-headed, mother working	46.9	53.8	1,638	415
Single, male-headed, father working	76.7	78.3	503	106

*children <18 years only

** families with children <18 years

***families with children <6 years

Source: 1996 Current Population Survey.

Rural families are, on the whole, poorer than urban families. Overall, 23.2% of rural children under age 18 live in poverty, compared with 21.0% of urban children. This difference is consistent across all categories of age, gender, and family status (Table 2).

Table 2. Percent of Children Under 18 Living in Poverty, 1996

	Metro	Nonmetro
<i>Age</i>		
under 1 year	23.8	29.7
age 1 to 5	24.1	27.3
age 6 to 17	19.4	21.2
<i>Gender</i>		
male <18	20.5	23.1
female <18	21.5	23.4
<i>Family Status</i>		
Married parents	9.5	12.2
Single, female-headed	49.1	52.7
Single, male-headed	30.2	33.9

Source: 1996 Current Population Survey.

Several housing characteristics pertain directly to health issues in the daily lives of mothers and children (Table 3). Rural families are less likely to obtain water for residential use from a public system or private company, and much more likely to use well water or another source. This may place rural children at a health disadvantage in terms of the need for fluoride supplementation, the availability of safe water for mixing infant formula, and the potential for bacterial contamination of drinking water. Rural families are also significantly more likely to use a septic tank or other sewage source, rather than a public system, and to have incomplete plumbing facilities; again, this may have a direct impact on health related to the transmission of bacteria and disease.

Table 3. Health-Related Characteristics of Family Dwellings, 1990

	% Distribution per place of residence		population (in 1000s) per place of residence	
	Metro	Nonmetro	Metro	Nonmetro
<i>Water Source</i>				
public system/private company	89.5	64.4	72,076	13,993
drilled well	9.0	28.6	7,244	6,224
dug well	1.0	3.9	813	852
other	0.5	3.1	387	676
<i>Sewage Source</i>				
public system	81.8	48.6	65,891	10,564
septic tank or cesspool	17.5	48.5	14,121	10,550
other	0.6	2.9	506	631
<i>Plumbing</i>				
complete	99.5	98.5	57,766	13,174
incomplete	0.5	1.5	317	205

Source: 1990 Census of Population and Housing, Standard Tape File 3c.

FERTILITY AND MATERNAL HEALTH

Over 4 million infants were born in the United States in 1992, with 20% born to rural mothers. The age distribution of live births is presented in Table 4. Overall, greater proportions of rural mothers were teenagers or in their 20s, while more urban mothers were in their 30s. This pattern is consistent when stratified by race, but more pronounced among blacks: over one-quarter of rural black infants were born to teenage mothers, compared to only 15% for rural white infants.

Table 4. Live Births by Age of Mother, 1992

	total (%)	<15 yrs (%)	15-19 yrs (%)	20-29 yrs (%)	30-39 yrs (%)	40+ yrs (%)
<i>All Races - total</i>	4,065,014 (100.0)	12,220 (0.3)	505,415 (12.4)	2,249,754 (55.3)	1,239,915 (30.5)	57,710 (1.4)
Metro	3,263,248 (100.0)	9,788 (0.3)	380,983 (11.7)	1,771,276 (54.2)	1,051,779 (32.2)	49,422 (1.5)
Nonmetro	801,766 (100.0)	2,432 (0.3)	124,432 (15.5)	478,478 (59.7)	188,136 (23.5)	8,288 (1.0)
<i>White - total</i>	3,201,678 (100.0)	5,367 (0.2)	342,739 (10.7)	1,779,008 (55.6)	1,028,127 (32.1)	46,437 (1.5)
Metro	2,528,179 (100.0)	4,230 (0.2)	248,685 (9.8)	1,372,897 (54.3)	863,048 (34.1)	39,319 (1.6)
Nonmetro	673,499 (100.0)	1,137 (0.2)	94,054 (14.0)	406,111 (60.3)	165,079 (24.5)	7,118 (1.1)
<i>Black - total</i>	673,633 (100.0)	6,448 (1.0)	146,800 (21.8)	374,017 (55.5)	139,728 (20.7)	6,640 (1.0)
Metro	576,964 (100.0)	5,260 (0.9)	121,802 (21.1)	319,569 (55.3)	124,418 (21.6)	5,915 (1.0)
Nonmetro	96,669 (100.0)	1,188 (1.2)	24,998 (25.9)	54,448 (56.3)	15,310 (15.8)	725 (0.7)

Source: Vital Statistics of the United States, 1992. Volume I—Nativity. National Center for Health Statistics, 1996.

Trends in distribution of live births by mother's age are presented in Table 5. Since 1980, the percentage of births to girls younger than 15 years has remained constant in both rural and urban areas. The percentage of births to older teens decreased in both rural and urban areas from 1980 to 1988, and then increased slightly in 1990 and has remained stable. The percentage of births to mothers aged 30-39 years and over 40 years has increased consistently in both rural and urban areas since 1980.

Table 5. Distribution of Births by Maternal Age, 1980-1992

	<15 yrs (%)	15-19 yrs (%)	20-29 yrs (%)	30-39 yrs (%)	40+ yrs (%)
1980					
Metro	0.3	14.4	64.3	20.3	0.7
Nonmetro	0.3	17.8	65.5	15.7	0.7
1985					
Metro	0.3	11.7	61.6	25.6	0.8
Nonmetro	0.3	14.9	64.6	19.5	0.7
1988					
Metro	0.3	11.6	58.1	29.0	1.0
Nonmetro	0.3	14.7	62.2	22.0	0.8
1990					
Metro	0.3	11.8	56.1	30.5	1.3
Nonmetro	0.3	15.5	60.7	22.5	0.9
1992					
Metro	0.3	11.7	54.2	32.2	1.5
Nonmetro	0.3	15.5	59.7	23.5	1.0

Source: Vital Statistics of the United States

Table 6 presents more comprehensive information about fertility among females aged 22 to 44 years. Rural women were more likely than urban or suburban women to have had three or more children, and were less likely to have no pregnancies and to have borne no children. Although abortion rates are not available, there appears to be a greater discrepancy between total number of pregnancies and total number of births among urban than rural women.

Prenatal care is an indicator of overall quality of obstetric care. Prenatal care, which should begin early in pregnancy, provides an opportunity to intervene with mothers who use tobacco and other drugs, to screen for birth defects, and to manage problems associated with pregnancy and delivery such as gestational diabetes and preeclampsia. For rural women, rates of early initiation of prenatal care were lower than that for suburban women but higher than the rate for urban women (Table 6). Following the same pattern, more rural than suburban women had delayed initiation of prenatal care (≥ 5 months), while urban mothers had the highest proportion of late initiation of prenatal care.

Table 6. Characteristics of Current and Potential Mothers aged 22-44 Years, 1995

	Metro central city	Metro noncentral city	Nonmetro
Total number (thousands)	18550	29303	12347
<i>Number of pregnancies</i>			
0	35.0	33.2	31.5
1	16.9	16.3	15.9
2	18.4	20.4	22.5
3 or more	29.7	30.0	29.9
<i>Number of children born</i>			
0	44.7	41.7	38.2
1	18.2	17.6	17.6
2	20.0	24.0	25.3
3 or more	17.0	16.6	18.9
<i>Month Prenatal Care Began*</i>			
< 3 months pregnant	86.1	89.7	87.4
3-4 months	5.5	5.0	6.0
5 months or more	8.4	5.4	6.5

*live births only, 1991-95
 Source: 1995 National Survey of Family Growth.

Fetal (before birth), neonatal (in the first 28 days of life), and infant (in the first year of life) mortality are thought to reflect the quality of obstetric and neonatal care. Table 7 presents these rates among urban and rural populations for the year 1992. For black babies, fetal death rates were significantly higher in rural areas, while neonatal and infant mortality rates were higher in urban areas. In contrast, infant mortality among white babies was higher in rural areas.

For both rural and urban populations, overall fetal death, neonatal mortality and infant mortality have decreased steadily since 1980 (Table 8). For white babies, death rates were consistently lower than the overall average, and steadily declined throughout this period. However, the infant mortality rate for rural whites has remained higher than that for urban whites. For nonwhites, death rates were substantially higher than the overall average, with declines through the 1980s and then a leveling off. For both white and nonwhite babies fetal death rates have remained higher in rural areas since 1980, although rates have declined among all subgroups.

Table 7. Fetal, Neonatal, and Infant Deaths, 1992

	United States	Metro	Nonmetro
	total number (rate/1000)	total number (rate/1000)	total number (rate/1000)
<i>Fetal Deaths</i>			
Total	30256 (7.4)	24085 (7.3)	6171 (7.6)
White	20131 (6.2)	15573 (6.1)	4558 (6.7)
Nonwhite	10125 (11.6)	8512 (11.4)	1613 (12.4)
Black [#]	9055 (13.3)	7669 (13.1)	1386 (14.1)
<i>Neonatal Mortality*</i>			
Total	21849 (5.4)	17711 (5.4)	4138 (5.2)
White	13915 (4.3)	10899 (4.3)	3016 (4.5)
Nonwhite	7934 (9.2)	6812 (9.3)	1122 (8.7)
Black [#]	7296 (10.8)	6331 (11.0)	965 (10.0)
<i>Infant Mortality**</i>			
Total	34628 (8.5)	27701 (8.5)	6927 (8.6)
White	22164 (6.9)	17048 (6.7)	5116 (7.6)
Nonwhite	12464 (14.4)	10653 (14.5)	1811 (14.1)
Black [#]	11348 (16.8)	9854 (17.1)	1494 (15.5)

*death prior to 28 days of life

** death between 29 days and 1 year of age

[#]Black is a subset of Nonwhite

Source: Vital Statistics of the United States, 1992. Volume II—Mortality. Part B.

Table 8. Trends in Fetal, Neonatal, and Infant Mortality Rates, 1980-1992

	1980	1985	1988	1990	1992
Fetal Death Ratio					
Metro	9.0	7.8	7.4	7.4	7.3
Nonmetro	9.9	8.3	7.9	7.8	7.6
Neonatal Mortality Rate					
Metro	8.6	7.1	6.5	5.9	5.4
Nonmetro	8.1	6.6	5.8	5.5	5.2
Infant Mortality Rate					
Metro	12.6	10.7	10.0	9.2	8.5
Nonmetro	12.6	10.5	9.8	9.2	8.6

Source: Vital Statistics of the United States

HIV/AIDS

Through June 1997, a cumulative total of 612,078 AIDS cases were reported in the United States; 84% of these cases were among men, 15% among women, and 1% among children.³ Between 1990 and 1995, the overall incidence of AIDS increased through the United States (Table 9), with substantially lower rates in rural than urban areas. However, the gap between urban and rural narrowed substantially over this period, indicated by the steady decline in the rate ratio. The same pattern is evident for AIDS cases among women aged 13-34 years. For pediatric AIDS cases, the metro:nonmetro rate ratio declined from 1990 to 1993, but did not change appreciably in 1995.

The increasing incidence of AIDS among women is an area of great concern, as over 90% of new cases of pediatric AIDS since 1990 were transmitted from mother to infant.³ Awareness of maternal HIV status is critical to enable obstetric and neonatal care to focus on the prevention of perinatal HIV transmission. According to 1995 data, utilization of HIV testing differs among rural and urban women in their childbearing years (Table 10). Considerably more rural women had never been tested for HIV, and fewer had been tested in the previous 12 months. Rural women were more likely than urban women to be tested during the course of

**Table 9. Trends in AIDS Cases, 1990-1995
(rates per 100,000 population)**

	1990	1993	1995
<i>All AIDS Cases</i>			
Metro	21.91	26.43	27.25
Nonmetro	4.65	6.26	7.29
(rate ratio)	(4.72)	(4.22)	(3.74)
<i>Women 13-34 Years*</i>			
Metro	7.80	12.06	13.81
Nonmetro	1.85	3.52	4.57
(rate ratio)	(4.21)	(3.43)	(3.02)
<i>Children <13 Years*</i>			
Metro	2.04	2.13	1.55
Nonmetro	0.38	0.55	0.40
(rate ratio)	(5.30)	(3.86)	(3.82)

*age at initial diagnosis of AIDS

Source: unpublished data from the Centers for Disease Control and Prevention.

Table 10. HIV Testing among Women aged 22-44 Years, 1995

	Metro central city	Metro noncentral city	Nonmetro
Total population	18550	29303	12347
<i>History of HIV testing (%):</i>			
Never tested	48.7	52.3	56.8
Tested in previous 12 months	21.3	16.1	14.6
Tested prior to 12 months ago	30.0	31.6	28.6
<i>Reason for testing (%):</i>			
hospitalization/surgery	6.0	7.0	7.9
applying for insurance	6.8	8.5	6.6
prenatal care	22.2	22.4	25.5
finding out if infected	44.6	37.9	36.5
doctor's referral	8.1	6.5	6.4
as part of blood donation	14.5	17.8	16.5

Source: 1995 National Survey of Family Growth

hospital or prenatal care, and less likely to seek HIV testing to find out if they are infected. Among younger women (aged 15 to 29 years), education about HIV and other sexual-related topics also differed by residence. More rural than urban women had received instruction in safe sex to prevent HIV transmission (Table 11), while slightly more rural women reported receiving no formal sex education at all. Rates of instruction about birth control methods, other sexually transmitted disease, and “saying no to sex” were similar between rural and urban young women.

Table 11. Sex Education among Women aged 15-29 Years, 1995

	Metro central city	Metro noncentral city	Nonmetro
<i>Received instruction in:</i>			
birth control methods	63.3	61.4	61.5
STDs	63.8	62.4	62.0
Safe sex to prevent HIV	51.0	50.5	57.0
How to say no to sex	56.9	53.8	55.0
<i>Received no formal sex education</i>	26.5	27.0	29.0

Source: 1995 National Survey of Family Growth.

CHILDREN’S HEALTH STATUS AND SOURCE OF CARE

Children are, in general, very healthy. It is difficult to detect differences in health status or health outcomes according to certain characteristics, especially measures of function typically used with adults. Furthermore, the primary focus of children’s health care is prevention: immunization, growth monitoring, vision and hearing screening, lead screening, developmental assessment, and counseling for parents. These components of preventive care usually are provided during the course of well-child visits, recommended at scheduled intervals during the first years of a child’s life.⁴

Because many aspects of preventive care are not routinely or uniformly recorded in the medical record or collected in national or state datasets, immunization rates have historically served as a proxy for the overall delivery of children’s well-child care. CDC data from 1994 for the primary immunization series [4 doses of diphtheria-tetanus-pertussis (DTP) vaccine, 3 doses of polio vaccine, 1 dose of measles-mumps-rubella (MMR) vaccine, and 3 doses of *Haemophilus influenzae*, type b (Hib) vaccine] found a rate of 66% for rural children, compared with 71% for suburban children and 62% for urban children.⁵ National immunization rates for the primary series have risen considerably over the past five years, but updated data published by the CDC have not included national rural-urban trends. The sampling frames used to generate immunization rates have been altered to allow for stable estimates by state and for select urban areas, but with limited ability to analyze trends in rural areas. Furthermore, computerized immunization registry systems that can generate small-area immunization rates (and enable providers to determine which children are behind on immunizations) are being developed almost exclusively in urban areas.

One indicator of the adequacy of children’s health care pertains to needed medical care that cannot be obtained. Rural children are at increased risk of unmet medical need (Table 12). Overall, rural children were more likely to need but not receive dental care, and were more likely to delay care due to cost.

Table 12. Unmet Medical Needs Among Children Aged 0-17, 1993

	Metro central city	Metro noncentral city	Nonmetro
Any unmet need	10.3	9.8	13.4
Needed but not able to get care	2.2	1.8	1.8
Delayed care due to cost	3.8	3.7	5.4
Needed dental care	6.1	5.3	8.4
Needed prescription	1.5	1.3	1.2
Needed glasses	1.4	1.2	1.6
Needed mental health care	0.4	0.5	0.3

Source: Vital Statistics of the United States, 1993. Access to Health Care Part 1: Children.

Having a regular source of medical care—often referred to as a “medical home”—enhances the likelihood that children receive recommended well-child care and appropriate follow-up for acute and chronic conditions.⁶ In 1993, 6% of US children (4.2 million) had no regular source of care. Overall, poor children, blacks, and Hispanics were at increased risk of having no source of care. As shown in Table 13, most children with insurance have a regular

source of medical care; fewer uninsured children have a regular source of care. Rural children are as likely as urban children to have a regular source of care. In fact, among children who are uninsured or enrolled in Medicaid, rural children have a greater likelihood of having a regular source of care, compared with urban and suburban children. Nationally, the most common reasons for having no source of care were not being able to afford care (34%), not needing a physician (31%), and care being unavailable or not convenient (17%).⁶

Table 13. Regular Source of Medical Care by Insurance Status for Children Aged 0-17, 1993

	Metro central city	Metro noncentral city	Nonmetro
<i>Had regular source of care</i>			
All	92.3	94.4	94.1
Private health insurance	96.9	97.1	96.0
Public health insurance	94.4	92.5	95.6
No health insurance	73.3	79.8	85.3
<i>No regular source of care</i>			
All	7.7	5.6	5.9
Private health insurance	3.1	2.9	4.0
Public health insurance	5.6	7.5	4.4
No health insurance	26.7	20.2	14.7

Source: Vital Statistics of the United States, 1993. Access to Health Care Part 1: Children.

Table 14 presents the setting of the regular source of care (private physician, public clinic, or emergency room) for different types of insurance. Rural children, particularly those who are uninsured or enrolled in Medicaid, are substantially more likely than urban children to name a private practice as their regular source of care. Research has shown that rural physicians are more likely to accept patients of varying insurance status, likely because they must retain a high proportion of the available patient pool in order to remain financially viable, whereas an urban practices “self-select” their patient population by limiting numbers of Medicaid or uninsured children.⁷

There is an interesting contrast to the discussion of regular source of care for rural children. Although rural physicians are more likely to accept a broad patient base, they are less likely to offer immunizations⁸; those that do provide immunization services are more likely to

Table 14. Type of Regular Source of Care by Insurance Status, 1993

	Metro central city	Metro noncentral city	Nonmetro
<i>Private insurance</i>			
Private MD	90.9	95.1	93.8
Public clinic	7.1	3.3	4.7
Emergency room	1.0	0.1	0.7
<i>Public insurance</i>			
Private MD	49.1	69.8	85.2
Public clinic	42.3	24.7	6.6
Emergency room	5.5	4.2	2.8
<i>No insurance</i>			
Private MD	62.7	76.6	84.0
Public clinic	28.1	20.8	9.7
Emergency room	3.4	1.0	4.1

Source: Vital Statistics of the United States, 1993. Access to Health Care Part 1: Children.

refer uninsured and Medicaid-enrolled children to the health department for immunizations.⁹ Such referrals occur because of the high cost of vaccines or because the rural physician does not see enough child patients to warrant the offering of immunization services.^{10,11} Generally, any disruption of the medical home is thought to create additional barriers to care related to increased waiting time, problems with transportation, and parental loss of work. However, analysis of public health department immunization data from eleven states concluded that health departments in rural areas are highly effective in providing timely immunizations, often more so than urban health departments and private practices.¹³ Additionally, the federal Vaccines for Children program and several state programs aim to specifically reduce the referral of children for immunizations only by decreasing patient charges for vaccines. There is some evidence that such programs are effective for this purpose.^{8,13,14}

DEATH AND INJURY AMONG CHILDREN

Mortality rates among older children (past 1 year of age) reflect both the quality of children's health care and societal problems such as violence and substance abuse. In 1992, over

Table 15. Deaths among Persons under Age 25 Years, 1992

	total < 25 yrs (%)	Under 1 yr (%)	1-4 yrs (%)	5-14 yrs (%)	15-24 yrs (%)
<i>US - total</i>	84133 (100.0)	34628 (41.2)	6764 (8.0)	8193 (9.7)	34548 (41.1)
Metro	64898 (100.0)	27701 (42.7)	5171 (8.0)	5871 (9.0)	26155 (40.3)
Nonmetro	19235 (100.0)	6927 (36.0)	1593 (8.3)	2322 (12.1)	8393 (43.6)
<i>White - total</i>	57179 (100.0)	22164 (38.8)	4685 (8.2)	5989 (10.5)	24341 (42.6)
Metro	42276 (100.0)	17048 (40.3)	3498 (8.3)	4112 (9.7)	17618 (41.7)
Nonmetro	14903 (100.0)	5116 (34.3)	1187 (8.0)	1877 (12.6)	6723 (45.1)
<i>Nonwhite - total</i>	26954 (100.0)	12464 (46.2)	2079 (7.7)	2204 (8.2)	10207 (37.9)
Metro	22622 (100.0)	10653 (47.1)	1673 (7.4)	1759 (7.8)	8537 (37.7)
Nonmetro	4332 (100.0)	1811 (41.8)	406 (9.4)	445 (10.3)	1670 (38.6)
<i>Black[#] - total</i>	24005 (100.0)	11348 (47.3)	1799 (7.5)	1876 (7.8)	8982 (37.4)
Metro	20588 (100.0)	9854 (47.9)	1492 (7.2)	1541 (7.5)	7701 (37.4)
Nonmetro	3417 (100.0)	1494 (43.7)	307 (9.0)	335 (9.8)	1281 (37.5)
<i>Male - total</i>	54641 (100.0)	19545 (35.8)	3809 (7.0)	5080 (9.3)	26207 (48.0)
Metro	42046 (100.0)	15569 (37.0)	2879 (6.8)	3634 (8.6)	19964 (47.5)
Nonmetro	12595 (100.0)	3976 (31.6)	930 (7.4)	1446 (11.5)	6243 (49.6)
<i>Female - total</i>	29492 (100.0)	15083 (51.1)	2955 (10.0)	3113 (10.6)	8341 (28.3)
Metro	22852 (100.0)	12132 (53.1)	2292 (10.0)	2237 (9.8)	6191 (27.1)
Nonmetro	6640 (100.0)	2951 (44.4)	663 (1.0)	876 (13.2)	2150 (32.4)

[#]Black is a subset of Nonwhite

Source: Vital Statistics of the United States, 1992. Volume II—Mortality. Part B.

80,000 children under the age of 25 years died (Table 15). Twenty-three percent of deaths were among rural children, which is slightly higher than the overall proportion of the child population that is rural (21%).

Overall, infant and neonatal mortality (discussed above) and deaths to children aged 15-24 years constitute the greatest proportion of total deaths. However, the proportion of deaths in the 15-24 age group is slightly greater in rural than urban areas, as is the 5-14 age group. Similarly, for whites and males, more deaths occur in the 15-24 age group, while infant mortality is more likely among nonwhites and females.

For children over one year of age, mortality is associated primarily with injury: motor vehicle crashes, firearm injuries, drowning, burning, suffocation, and poisoning. Data from the National Vital Statistics System demonstrate that in 1992, fatal injuries were 44% higher among rural children aged 1-19 years compared with their urban counterparts. Among children aged 1-14 years, death rates for all races were at least 20% higher in rural than urban areas. Among children 15-19 years, mortality among urban blacks was 50% higher than rural blacks; for all other races, mortality rates were higher in rural areas. Homicide rates were 4 times higher among urban males 15-19 years, while suicide rates were higher among rural males 15-19 years old. In all age groups, mortality from motor vehicle crashes is highest in rural areas, reflecting the increased travel time and distance required of rural populations. Finally, over the period of 1985 to 1992, rural injury mortality rates remained consistently higher than urban rates with one exception: the mortality rate for rural and urban males 15-19 years is equal.¹⁵

CRIME, VIOLENCE, AND SUBSTANCE ABUSE

Detailed data on victims of criminal activity are collected through the National Crime Survey (NCS). Over the past 20 years, victimization of rural residents to violent crime has

**Table 16. Victims of Violent Crimes, Theft, and Household Crimes, 1991
(victimizations per 1000 households or persons)**

	Metro central city	Metro noncentral city	Nonmetro
Crimes of Violence			
Total population	40.6	26.0	21.1
Age 12-19 yrs	86.2	63.0	47.9
Crimes of Theft			
Total population	86.0	70.1	45.1
Age 12-19 yrs	128.2	115.5	93.1
Household Crimes			
Total population	232.1	152.7	120.4
Age 12-19 yrs	410.5	382.4	356.0

Source: Donnermeyer JF. Crime and violence in rural communities. In Blaser SM, Blaser J, Pantoja K (eds). Perspectives on Violence and Substance Use in Rural American. North Central Regional Educational Laboratory, Midwest Regional Center for Drug-Free Schools and Communities, 1995.

increased, while crimes of theft and household crimes have decreased. Table 16 presents victimization rates for crimes of violence (rape, robbery, aggravated assault, and simple assault), crimes of theft (purse snatching, pocket picking), and household crimes (burglary, larceny, and motor vehicle theft). Overall victimization rates are lowest in rural areas and highest in urban areas; however, in all areas, rates are substantially increased among youths 12-19 years. In each of the three criminal categories, the victimization rate for rural youths is higher than the rate for the overall urban population. Further, the urban-rural rate ratio is 1.9 for all categories of

the total population; among youths, that gap narrows, with a rate ratio of 1.4 for crimes of theft and 1.2 for household crimes.

In 1989, a special supplement to the NCS contained questions on the youths' victimization experiences at school, their opinions about crime, the availability of drugs, and awareness of gangs (Table 17). There was only a narrow difference in crime experiences among students by rural and urban location—a stark contrast to the larger rural-urban differences found in the regular NCS data. More rural students reported that drugs were readily available at their school, and rural students were more likely to have attended drug education classes. Gang

**Table 17. Crime in the School Setting, 1989
(percent reporting various criminal activity)**

Percent reporting:	Metro central city	Metro noncentral city	Nonmetro
being a victim of property crime	8	7	7
being a victim of violent crime	2	2	1
drugs available at their school	66	67	71
have attended drug education classes	40	35	44
gangs active in their school	25	14	8
avoiding certain places at school	8	5	6
fear of being attacked at school	24	20	20
fear of being attacked going to/from school	19	12	13

Source: Bastian LD & Taylor BM. School Crime: A National Crime Victimization Survey Report. Washington, DC: Office of Justice Programs, Bureau of Justice Statistics. NCJ-131645. 1991.

activity in school was cited three times more frequently among urban than rural youths. However, a substantial number of rural students exhibited fear about violence at school. These results indicate that rural youth are experiencing crime at a level and in ways similar to youth from the cities and suburbs.

Criminal activity is often linked to drug use, particularly among children. Current data demonstrate that rural-urban differences in drug use have decreased nationwide. Table 18 presents the lifetime prevalence of drug use among rural and urban 8th graders and 12th graders, based on data were during the 1992-93 school year. Of the overall trends demonstrated, most surprising in that inhalants were more common than marijuana among 8th graders; it appears that during the 1990s inhalants, which are inexpensive and easily accessible, have replaced marijuana as the “gateway” drug.¹⁷ For all other drugs, lifetime prevalence among 12th graders was higher than that for 8th graders. With respect to rural-urban differences, urban youths are more likely to have used marijuana, cocaine, and LSD; rural youths are more likely to have used smokeless tobacco. Use of alcohol and cigarettes is high, with similar rates in both groups.

Patterns of the intensity of drug use among youths are helpful in evaluating the effectiveness of school or community drug education efforts, which are targeted toward youths who are moderately involved in drug use or who abstain from use. These data also assist in determining the need for drug treatment programs for youths who are heavily involved with drugs. Among 8th graders, urban youth have slightly greater involvement in drugs (Table 19); the same pattern holds true for 12th graders, with the exception of slight alcohol use, which is more common among rural youth. Furthermore, rural 12th graders are more likely to report using alcohol

while “driving around,” which greatly contributes to the higher rates of motor vehicle fatalities among rural youth.¹⁸

Table 18. Lifetime Prevalence of Drug Use Among 8th Graders and 12th Graders, 1993 (percent reporting any use)

	8th Graders		12th Graders	
	Metro	Nonmetro	Metro	Nonmetro
Marijuana	12.7	11.2	40.3	30.3
Cocaine	2.6	2.3	6.8	5.7
Crack	2.4	2.0	2.3	2.7
Inhalants	15.3	14.7	11.9	11.5
LSD	3.9	3.4	12.4	7.7
Stimulants	5.2	5.5	21.5	18.5
Smokeless Tobacco	19.0	25.1	32.5	39.7
Alcohol - any	71.3	70.3	90.2	90.2
Alcohol - got drunk	25.7	27.3	69.6	69.6
Cigarettes	46.5	45.7	63.0	63.1

Source: Edwards RW. Alcohol, tobacco, and other drug use by youth in rural communities. In Blaser SM, Blaser J, Pantoja K (eds). Perspectives on Violence and Substance Use in Rural American. North Central Regional Educational Laboratory, Midwest Regional Center for Drug-Free Schools and Communities, 1995.

Table 19. Intensity of Drug Use Among 8th Graders and 12th Graders, 1993 (percent classified in each category)

	8th Graders		12 Graders	
	Metro	Nonmetro	Metro	Nonmetro
High drug involvement*	3.6	3.5	16.1	14.3
Moderate involvement**	12.6	11.9	18.4	13.4
Drug experimenters	11.1	10.7	14.4	14.1
Light alcohol users	13.8	13.0	20.3	24.7
Negligible or no use	58.9	60.9	30.8	33.5

*Defined as multi-drug user, stimulant user, heavy marijuana user, and/or heavy alcohol user.

**Defined as occasional drug user or light marijuana user.

Source: Edwards RW. Alcohol, tobacco, and other drug use by youth in rural communities. In Blaser SM, Blaser J, Pantoja K (eds). Perspectives on Violence and Substance Use in Rural American. North Central Regional Educational Laboratory, Midwest Regional Center for Drug-Free Schools and Communities, 1995.

HEALTH INSURANCE

Insurance status is a strong predictor of the adequacy of children’s health care; research has demonstrated that uninsured children experience problems with access to medical care, delays in necessary treatment, and inadequate immunization.¹⁸⁻²⁰ As shown in Table 20, being uninsured is more prevalent among rural than urban children. Urban children were more likely

Table 20. Health Insurance Status for Children Aged 0-18 Years, 1996

	Metro number (%)	Nonmetro number (%)
Private, employer-sponsored	33800920 (59.4)	7769107 (55.1)
Private, self-purchased	3234503 (5.7)	1128542 (8.0)
Medicaid	11123131 (19.6)	2859262 (20.3)
Champus	945860 (1.7)	218035 (1.5)
Medicare	41868 (0.1)	17223 (0.1)
No health insurance	7724784 (13.6)	2123727 (15.0)

Source: 1996 Current Population Survey.

than rural children to have private insurance coverage (65% vs 63%); of those privately insured, a greater proportion of rural than urban children were on a self-purchased policy, while more urban children were covered under an employer-sponsored group plan. The proportions of Medicaid-enrolled children were roughly equal, even though many more rural children live in poverty.

Insurance status among women in their childbearing years differs substantially between rural, urban, and suburban populations (Table 21). Unmarried women are more likely than married women to be uninsured; rural unmarried women are particularly vulnerable. Rural women are less likely than either urban or suburban women to be covered under health insurance sponsored by their own employer. Rural married women are more likely than their urban or suburban counterparts to purchase their own insurance and to be enrolled in Medicaid; rural unmarried women are less likely than urban women, but more likely than suburban women, to be enrolled in Medicaid. More unmarried rural women are covered under a parent's health insurance policy, compared with unmarried urban and suburban women.

Table 21. Source of Insurance Coverage for Women aged 15-44 Years, 1995

	Metro central city	Metro noncentral city	Nonmetro
<i>Married Women:</i>			
Not covered	11.4	7.8	10.0
Woman's employer	39.9	39.2	34.6
Husband's employer	39.6	49.8	46.6
Medicaid	11.0	6.2	11.5
Champus	3.8	3.0	2.2
Self-purchased	4.5	5.3	7.2
<i>Unmarried Women:</i>			
Not covered	14.2	12.9	16.6
Woman's employer	33.3	37.6	26.1
Parent's employer	19.1	28.5	29.2
Medicaid	29.7	16.2	24.5
Champus	1.9	1.9	1.8
Self-purchased	4.0	3.6	2.8
Other	3.5	5.2	4.2

Source: 1995 National Survey of Family Growth

Similar patterns occur with payment sources for women's most recent labor and delivery charges (Table 22). A small proportion of rural women had full coverage for obstetric care under their insurance. Rural women were slightly more likely than either urban or suburban women to pay out-of-pocket (in part or in whole) for costs associated with labor and delivery. Rural women were less likely than urban women, but more likely than suburban women, to have labor and delivery charges covered under Medicaid.

Table 22. Payment Source for Labor and Delivery Charges, 1995

	Metro central city	Metro noncentral city	Nonmetro
<i>Payment for Most Recent Delivery</i>			
Own income only	7.2	6.9	6.1
Insurance only	32.7	44.3	28.4
Own income plus insurance	14.5	23.6	26.0
Medicaid	44.5	24.2	38.5
Other sources	1.1	1.1	1.0

Source: 1995 National Survey of Family Growth.

Over the last two decades, the most prominent change in the area of health insurance has been the dramatic increase in managed care organizations. Currently more than 80% of rural counties are included in the service area of at least one commercial HMO, but actual enrollment rates are very low.²¹ The vast majority of service was offered by urban HMOs who had expanded into rural areas. Rural counties less likely to be included in an HMO service area are those with low population density and with a predominantly agricultural economy.²¹ The potential impact of rural managed care is unclear at this time but certainly merits future research.

AVAILABILITY OF HEALTH CARE PROVIDERS AND SERVICES

The presence of primary care physicians in a community is an important marker for availability of health care. Pediatricians, family physicians, general practitioners, and obstetricians deliver basic preventive and acute care for most of the population. Table 23 presents trends in the supply of primary care physicians. Although the proportion of all physicians practicing in rural areas, across specialties, decreased from 1985 to 1995, the magnitude of those decreases were small. The simultaneous increase in family physicians and decrease in general practitioners reflects the phasing out of GP training programs in favor of family medicine training. Family physicians and general practitioners continue to provide care for many rural children; over 20% of these physicians practice in rural areas, while pediatricians are predominantly concentrated in metropolitan areas. The vast majority of obstetricians also practice in metropolitan areas, likely creating a reliance on family physicians and general practitioners, as well as mid-level providers (e.g., nurse midwives), for obstetric care of rural mothers.

Table 23. Supply of Primary Care Providers* 1985-1995

	All MDs	Pediatricians	Family Physicians	General Practitioners	Obstetricians
1985 Total	426721	30224	37002	25106	28526
Metro (%)	89.9	92.8	77.2	75.1	91.5
Nonmetro (%)	10.1	7.2	22.8	24.9	8.5
1990 Total	481773	35826	44326	20872	31367
Metro (%)	90.5	93.3	77.9	76.2	91.7
Nonmetro (%)	8.5	6.7	22.1	23.8	8.3
1995 Total	557397	45211	54990	14799	35244
Metro (%)	91.0	93.9	79.7	77.2	91.9
Nonmetro (%)	9.0	6.1	20.3	22.8	8.1

*includes only non-federal physicians providing total patient care, office- or hospital-based
 Source: Area Resource File, February 1997 Release, Office of Research and Planning, Bureau of Health Professions Health Resources and Services Administration, US Department of Health and Human Services.

Further insight into the supply of primary care providers is gained by examining the physician-to-population rate for different types of metro and nonmetro counties, as defined by the Office of Management and Budget.

Metro Counties:

- 1 Large - Central and fringe counties of metro areas of 1 million population or more
- 2 Small - Counties in metro areas of fewer than 1 million population

Nonmetro Counties:

- 3 Adjacent to a large metro area with a city of 10,000 or more
- 4 Adjacent to a large metro area without a city of at least 10,000
- 5 Adjacent to a small metro area with a city of 10,000 or more
- 6 Adjacent to a small metro area without a city of at least 10,000

- 7 Not adjacent to a metro area and with a city of 10,000 or more
- 8 Not adjacent to a metro area and with a city of 2,500 to 9,999
- 9 Not adjacent to a metro area and with no city or a city of less than 2,500

As shown in Table 24, there were increases in the physician-to-population rate for the total number of physicians. Overall the two types of metro counties experienced a greater magnitude of increase than the nonmetro counties, and in counties with no city of more than 10,000,

Table 24. Physician-to-Population Ratios for Primary Care Providers* by OMB Urban Influence Classification, 1985-1995

	All MDs	Pediatricians [#]	Family Physicians	General Practitioners	Obstetricians ^{**}
<i>1:Large Metro</i>					
1985	23.58	8.19	1.42	1.11	5.62
1990	23.85	9.13	1.53	0.83	5.62
1995	27.57	11.57	1.96	0.60	6.31
% change 1985-1995	+16.92	+41.27	+38.03	-45.95	+12.28
<i>2:Small Metro</i>					
1985	18.26	5.29	1.89	0.97	4.33
1990	18.77	5.85	2.06	0.74	4.43
1995	22.15	7.51	2.59	0.52	5.03
% change 1985-1995	+21.30	+41.97	+37.04	-46.39	+16.17
<i>3:Adj LM City 10K</i>					
1985	11.02	2.76	1.66	1.21	2.97
1990	11.21	3.10	1.86	0.90	3.14
1995	12.30	3.25	2.23	0.60	3.70
% change 1985-1995	+11.62	+17.75	+34.34	-50.41	+24.58
<i>4:Adj LM no 10K city</i>					
1985	6.33	1.02	1.63	1.31	1.27
1990	6.31	1.06	1.78	1.01	1.23
1995	6.86	1.58	2.03	0.69	1.48
% change 1985-1995	+8.37	+54.90	+24.54	-47.33	+16.54
<i>5:Adj SM city 10K</i>					
1985	10.51	2.69	1.54	1.11	2.61
1990	10.81	2.97	1.75	0.86	2.79
1995	11.72	3.45	1.98	0.60	2.88
% change 1985-1995	+11.51	+28.25	+28.57	-45.95	+10.34
<i>6:Adj SM no 10K city</i>					
1985	6.80	1.11	1.73	1.36	1.11
1990	6.91	1.35	1.89	1.06	1.29
1995	7.45	1.55	2.14	0.71	1.29
% change 1985-1995	+9.56	+39.64	+23.70	-47.79	+16.22
<i>7:not adj city 10K</i>					
1985	13.75	3.50	1.91	1.28	3.31
1990	14.36	3.99	2.20	0.94	3.51
1995	16.31	4.37	2.67	0.62	3.90
% change 1985-1995	+18.62	+24.86	+39.79	-51.56	+17.82
<i>8:not adj, city 2.5K</i>					
1985	7.30	1.20	1.92	1.37	1.24
1990	7.64	1.42	2.25	1.10	1.50
1995	8.29	1.70	2.47	0.76	1.76
% change 1985-1995	+13.56	+41.67	+28.65	-44.53	+41.94
<i>9:not adj no city</i>					
1985	5.37	0.75	1.69	1.41	0.55
1990	5.59	0.81	1.99	1.21	0.49
1995	5.73	0.97	2.16	0.80	0.52
% change 1985-1995	+6.70	+29.33	+27.81	-43.26	-5.45

** rate per 10,000 women aged 15-44 years

[#] rate per 10,000 children aged 0-15 years

Source: Area Resource File, February 1997

total increases were less than 10% (categories 4, 6 and 9). The ratio of pediatricians to the population of children under 15 increased in all county types; the largest increases were seen in counties adjacent to large metro areas with no city (category 4), in the metro counties (categories 1-2) and in nonadjacent counties with a city of between 2,500 and 9,999 people (category 8). In all county types, the ratio of family physicians to total population increased between 20% and 40%, while the ratio for general practitioners decreased between 40% and 50%.

For obstetricians, nonadjacent counties with a city of between 2,500 and 9,999 people (category 8) had the greatest increases in obstetrician-to-female population ratios, followed by counties adjacent to a large metro county with a city of at least 10,000 (category 3). Nonadjacent counties with no city of at least 2,500 (category 9) experienced a decrease in obstetrician supply. Because information on obstetric services among family physicians and general practitioners is not included, it is unclear whether this decline has an impact on the availability of maternity care in these areas.

In sum, the supply of physicians relative to their patient population is increasing in both rural and urban areas, although the magnitude of increases may be slightly greater in urban counties. Although pockets of underservice undoubtedly persist, there appears to be a trend toward increased availability of maternal and child health care in rural areas.

In addition to primary care providers, hospital settings are a critical source of medical care availability in both rural and urban areas. While a broad assessment of service delivery is limited by the lack of standardized data on outpatient service availability, the 1996 American Hospital Association database enables assessment of several pertinent issues related to the organization and availability of maternal and child health services.

Table 25. Hospital Ownership and Control, 1995

	% distribution		Total numbers	
	Metro	Nonmetro	Metro	Nonmetro
All hospitals	62.3	37.7	4018	2430
<i>Hospital controlled by:</i>				
Government	21.9	45.7	880	1110
Church	11.1	6.6	447	160
Other Nonprofit	43.3	38.6	1740	939
For Profit	23.7	9.1	951	221

Source: 1995 Annual Survey of Hospitals, American Hospital Association.

Hospital ownership and control are increasingly of interest to policy makers. As shown in Table 25, about one third of all hospitals are located in rural areas; the majority are government-owned or other non-profit, while urban hospitals are predominantly public-sector non-profit and for-profit hospitals. A larger proportion of rural hospitals (23%) are contract-managed, compared with only 7% in urban areas.

Family planning services are an important part of the continuum of services related to maternal and child health. These services are provided in a variety of clinic settings: health department, hospital, community/migrant health center, independent or unaffiliated, and Planned Parenthood. As shown in Table 26, the overall number of family planning clinics is roughly equal in rural and urban areas. The predominant providers in rural areas are health departments and community/migrant health centers, while hospitals and Planned Parenthood affiliates are more common in urban areas.

Table 26. Number and Distribution of Family Planning Clinics, 1994

Type of provider:	% distribution		Total numbers	
	Metro	Nonmetro	Metro	Nonmetro
Health Department	34.2	54.9	1294	1830
Hospital	16.1	5.2	610	174
Community Health Center	17.8	16.3	676	543
Independent	14.1	15.7	534	524
Planned Parenthood	17.8	7.9	675	262

Source: Frost JJ. Family planning clinic services in the United States, 1994. *Family Planning Perspectives* 1996;28(3):92-100.

The distribution of family planning services clients parallels the distribution of facilities (Table 27). In rural areas, over half of clients are served at health departments, while hospitals and Planned Parenthood affiliates serve over half of all urban clients.

Table 27. Number and Distribution of Clients Served at Family Planning Clinics, 1994

Type of provider:	% distribution		Total number served, in 1000s	
	Metro	Nonmetro	Metro	Nonmetro
Health Department	21.4	55.4	1193	933
Hospital	19.8	4.0	967	68
Community Health Center	0.5	8.1	465	136
Independent	12.2	16.1	596	271
Planned Parenthood	34.1	16.4	1667	276

Source: Unpublished tabulations, Alan Guttmacher Institute, 1994.

Perinatal services are important factors in reducing neonatal and infant mortality rates. For most perinatal services, the proportion of hospitals offering such care is higher in urban areas (Table 28). However, much progress has been made in rural areas to narrow this gap. In fact, the degree of obstetric service availability is actually slightly higher in rural versus urban areas, with higher levels of care being triaged to urban centers as would be expected based on perinatal regionalization trends dating backs to the early 1970s.²²

Table 28. Percent of Hospitals Providing Select Perinatal Services, 1995

	Metro	Nonmetro
Inpatient services:		
Obstetric care	63	68
Neonatal Intensive Care	36	7
Neonatal Intermediate Care	27	8
Outpatient services:		
Reproductive Health	32	11

Source: 1995 Annual Survey of Hospitals, American Hospital Association.

Health services for children and adolescents include inpatient and outpatient hospital-based care (Table 29). These are considered specialty services, and as such are less available in rural versus urban areas. However, it is encouraging to note that half of all rural hospitals are providing inpatient surgical services for general pediatric cases. There also is an increase in outpatient child wellness and teen outreach services in both rural and urban areas, an important expansion of the continuum of health care delivery offered in hospital-based settings.

Table 29. Percent of Hospitals Providing Child and Adolescent Services, 1995

	Metro	Nonmetro
Inpatient services:		
Pediatric general medical surgery	63	50
Pediatric intensive care	23	6
Child/Adolescent Psychiatry	45	18
Outpatient services:		
Child Wellness	24	11
Teen Outreach	22	7

Source: 1995 Annual Survey of Hospitals, American Hospital Association.

SUMMARY

Overall, the profile of rural children in the United States has changed very little from that presented in McManus and Newacheck’s 1989 report.¹ Demographic changes include a decrease in the total number of rural residents, a decrease in the proportion of rural children who live in the Northeast or West, and a slight increase in the proportion of rural residents who are white. Changes in many aspects of children’s health status cannot be determined, largely due to inadequacies in available data. However, the health of rural children appears to be worsening with regard to crime, substance abuse, and AIDS, and fatal injuries continue to affect a disproportionate number of rural children. In contrast, rural areas appear to be experiencing an increase in the availability of health care services and health care providers.

The recommendations called for in the original profile of rural maternal and child health still ring true: better data is necessary for a better understanding of the critical issues in this area. Heightened efforts to evaluate sampling frames, residence classification systems, and sharing of coded data should take place with regard to national health surveys and monitoring systems. These efforts are necessary to ensure that the well-being of rural mothers and children is not overlooked when important policy decisions are rendered.

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