# Migrant Farmworker Children: Health Status, Barriers to Care, and Nursing Innovations in Health Care Delivery

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## ABSTRACT

Migrant farmworkers are one of the most health care–impoverished populations in the United States. Mobility, hazardous occupations, cultural diversity, and low socioeconomic status place migrants, and particularly migrant children, at high risk for inadequate health care and preventable health problems. This article presents a synthesis of the existing research on migrant demographics, major health risks, and geographic, financial, and cultural barriers to health care access. Innovative nursing strategies to enhance access and improve the health of migrant children are explored. These include the use of lay community outreach workers, the creation of alternative health care delivery models, and the development of information tracking systems.

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The Office of Migrant Health of the U.S. Public Health Service defines a migrant farmworker as "an individual whose principal employment is agriculture on a seasonal basis, who has been so employed within the last 24 months and who establishes for the purpose of such employment a temporary abode" (Office of the Federal Registrar, 1994, p. 238). Approximately 1 million migrant farmworkers and dependents live in the United States for part or all of the year. Eighty-two percent of the estimated 590,000 migrant farmworkers are men. Between 11% and 18% are women, the percentage varying by region of the country. Eighty-three percent of the estimated 410,000 dependents of migrant farmworkers are children younger than 14 years of age (Gabbard, Mines, & Boccalandro, 1994). Most migrant farmworkers are U.S. citizens or legal residents (U.S. Department of Labor, 1991).

Migrant agricultural workers in the United States travel in three principal "streams," eastern, midwestern, and western. The east coast stream

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stretches from Florida through the mid-Atlantic to the northern Atlantic states. Although Latinos represent most of its population, the stream is the most ethnically diverse, including African-Americans, Anglos, Haitians, and Jamaicans. The midwestern stream begins in Texas and northern New Mexico and cuts across the southwestern and midwestern states. The western stream is the largest, beginning in California and Arizona, and includes several western states. The vast majority of those working in the midwestern and western streams are Latino (primarily Mexican), but there are also Native Americans and Southeast Asians (Wright, Fasciano, Hill, Zimmerman, & Pincus, 1994).

Migrant farmworkers can be further classified on the basis of how they travel within the stream. According to the Department of Labor's National Agricultural Worker's Survey, approximately 13% of migrant farmworkers are "follow-the-crop" migrants, traveling from job to job after the harvest. Approximately 69% of the group are "back-and-forth" migrants who shuttle between "home bases" in Mexico or the United States (home base states are Florida, Texas, and California) and a smaller number of job sites. The remainder (18%) fit into both categories at various times during the year (U.S. Department of Labor, 1991).

Migrant farmworkers are disproportionately young and poor. The median annual family income for migrant farmworkers between 1989 and 1991 was approximately $5000 (Gabbard et al., 1994). On average, migrant farmworkers have fewer than 8 years of formal education, and fewer than half of migrant farmworkers speak English (Slesinger, 1992). These demographics, consistent with those of many developing countries, help to explain the pattern of morbidity characteristic of the population, described in more depth in the following text.

## HEALTH STATUS AND CARE USE OF MIGRANT FARMWORKER CHILDREN

Several studies demonstrate that the health status of migrant farmworker children is poorer than that of the general population. In a seminal study, Dever (1991) compared data from 6969 medical encounters at four midwestern migrant health centers in 1986-1987 with data from the 1985 National Ambulatory Medical Care Survey. Dever found that the migrant clinics had twice as many visits with children younger than 15 years of age as ambulatory care settings in general. Overall, 43.9% of the migrant workers surveyed had more than one morbidity. The highest rates of comorbidity were for those patients younger than 5 years of age and older than 64 years of age.

**Beyond occupational factors, the isolation of migrants from prevention and treatment services puts pregnant women at risk for poor birth outcomes.**

In another study, a retrospective review of school health records of 1000 randomly selected migrant children ranging in age from newborn to 18 years was conducted with the Migrant Student Record Transfer System. Sixty-one percent of the children had at least one health-related problem, and 43% had multiple problems. Twenty-two percent had physical ailments (most common were respiratory conditions), 10.8% had vision difficulties, 10.4% had dental problems, 7.3% had auditory problems (the most common problem was infection), and 5.5% exhibited nutritional deficits (Michael & Salend, 1985).

Finally, the incidence of chronic conditions reported by mothers in a sample of 330 Wisconsin migrant children ranging in age from newborn to 15 years was 10.9%, several times higher than the national average. The most common problems reported included asthma and hearing difficulties. Childhood mortality by the age of 5 years was found to be 1.6 times the national average (Slesinger, Christenson, & Cautley, 1986).

### Reproductive Health and Birth Outcomes

The health status of migrant children begins with the health of pregnant migrant women. Although there is a dearth of literature on the health status of migrant women as distinct from their male counterparts, there is a small but significant amount of literature on maternal health status and birth outcomes of migrant farmworkers.

In one study, Wisconsin migrants had an infant mortality rate of 29/1000 live births compared with the national average of 14/1000 (Slesinger et al., 1986). In another study, 24% of migrant women in California had had at least one miscarriage or stillbirth (De la Torre & Rush, 1989). Finally, in a Colorado investigation, 32.5% of migrant women had experienced a miscarriage or abortion (Littlefield & Stout, 1987).

Occupational factors that undermine migrant maternal health include prolonged standing and bending, overexertion, extremes in temperature and weather, dehydration, chemical exposure, and lack of sanitary washing facilities in the fields (Smith, 1986). These occupational hazards might lead to spontaneous abortion, premature delivery, fetal malformation or growth retardation, and abnormal postnatal development (Wilk, 1986).

Beyond occupational factors, the isolation of migrants from prevention and treatment services puts pregnant women at risk for poor birth outcomes. Migrant women enter prenatal care late and see a provider less than what is recommended by the Kessner Index of Adequate Prenatal Care (Watkins, Larson, Harlan, & Young, 1990). Late or little prenatal care combined with low socioeconomic status and frequently young age (many Mexican and Mexican-American migrant women begin childbearing between 13 and 17 years of age) put migrants at risk for complications during pregnancy (Schneider, 1986).

### Hazards of Farm Labor

Agriculture surpasses mining and construction as the most hazardous occupation in the United States. In 1987

there were an estimated 49 work-related deaths per 100,000 agricultural workers compared with an average national rate of 11 deaths per 100,000 workers (Mosbed & Schenker, 1992). Disability rates among migrant farmworkers may be as much as three times higher than those of the general population (Wilk, 1986). Many of those who are injured delay seeking medical attention or never receive it because of financial barriers to care. In a study of North Carolina migrants, employers covered medical expenses of injured workers in only 38% of cases, and only 20% were compensated for lost work (Ciesielski, Hall, & Sweeney, 1991).

According to a study by the American Friends Service Committee, nearly one fourth of all farm labor in the United States is performed by children (Migrant Clinician's Network, 1990). Children, being physically weaker and less experienced with farm operations, are more at risk for injury than are their adult counterparts. Each year some 23,500 children working in agriculture (including migrants and others) experience nonfatal trauma, and nearly 300 children die, primarily as a result of farm machinery accidents (Rivara, 1985).

Beyond physical injury, children involved in agriculture are at risk for school failure and dropout because of the need for their labor. For migrant children these risks are frequently further compounded by family mobility and economic hardship.

The Fair Labor Standards Act of 1938 remains the major federal legislation regulating child labor practices. Under the Act no child younger than 16 years of age may work during school hours, and there is a limit to the amount of time a child can work during the school week. Hazardous occupations are prohibited for those younger than 18 years of age. However, in agriculture the age of 12 years is the legal age for labor, and children may do hazardous occupations (e.g., operate heavy machinery or apply toxic pesticides) at 16 years of age (Migrant Clinician's Network, 1990; Pollack, Landrigan, & Mallino, 1990).

## Chemical Exposure

Children are at risk for pesticide exposure both in the fields where they work and play and at home, where they can be exposed through pesticide drift or household contact. Although research on childhood exposures is limited, it is believed that children are at greater risk than adults for pesticide-related illnesses given their higher metabolism, increased body surface area, and potential for long-term chronic exposure (Pollack et al., 1990).

Long-term exposure to pesticides has been implicated in several types of cancer, birth defects, sterility, spontaneous abortion, and cognitive deficits (Meister, 1991). In a study of Mexican-American farmworker children in New York, 48% reported having worked in fields still wet with pesticides, and 38% had been sprayed directly or indirectly by drift from the fields (Pollack et al., 1990).

**Agricultural work and crowded unsanitary living conditions with frequent migration to new camps expose migrant children to many potential reservoirs of infection and create the opportunity for rapid disease spread.**

In a survey of 460 farmworkers in Washington state, pesticides had been sprayed on or drifted on 43% of workers, and half had fallen ill from pesticides, yet only 8% of these ill workers sought treatment (Mentzer & Villalba, 1988). Reported health problems included convulsions, pinpoint pupils, chest pain, liver problems, heart palpitations, tingling or numbness in the fingers or toes, excess salivation, miscarriage, kidney problems, and blurred vision. Eighty-five percent of the sample had never been supplied with protective clothing, including 52% of the pesticide applicators. No washing facilities were available in 75% of cases, and thus contact time with pesticides was increased.

## Infectious Disease

The conditions of migrant life place families, and especially children, at increased risk for contracting a variety of viral, bacterial, and fungal infections, including, among others, rabies, anthrax, Rocky Mountain spotted fever, tetanus, tularemia, plague, coccidioidomycosis, typhoid, and hepatitis (Smith, 1986). Agricultural work and crowded unsanitary living conditions with frequent migration to new camps expose migrant children to many potential reservoirs of infection and create the opportunity for rapid disease spread. Finally, lack of access to health care services results in a high incidence of preventable disease in the migrant population.

Although there are widespread anecdotal reports of high rates of a variety of common infectious diseases in pregnant women and migrant children, rigorous research has been conducted on only a limited number of infectious diseases (Rust, 1990). Recent literature focuses primarily on parasitic infections, tuberculosis, and the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome.

Several studies have documented the high prevalence of intestinal parasites in the migrant population. Children, who typically have poorer hygienic practices than adults, are at particular risk. The diarrhea frequently caused by these infections puts children at risk for dehydration, malabsorption, and weight loss. Edwards (1988) found a parasitic infection rate of 47.9% among 317 eastern stream migrant children 6 weeks to 14 years old. Girdia lamblia, the most commonly found parasitical infection in the United States, had a prevalence of 34.3% in this study compared with a national incidence of 4%.

Migrant farmworkers are approximately six times more likely to have tuberculosis than the general population of employed adults (Centers for Disease Control [CDC], 1992b). The high

incidence of tuberculosis in this population has been linked with high rates of infection in migrants' countries of origin, substandard housing and overcrowding, poor baseline health status, a high incidence of malnutrition, and lack of access to preventive health care services. Children are at risk for getting tuberculosis infection from household contacts. The Advisory Council for the Elimination of Tuberculosis has set adequate screening and appropriate preventive therapy for migrant children as a national priority (CDC, 1992b).

Research demonstrates an increase in HIV infection in the migrant population. A 1987 nationwide study found 0.5% HIV seropositivity in migrants attending health clinics in the United States. Eighty-seven percent of HIV-positive migrant workers were in the eastern stream states (Castro & Narkunas, 1989). In another study, 13% of 198 migrant farmworkers (85% men) tested in 15 South Carolina camps were HIV-positive. This high rate was attributed to superior case finding, because all counseling and testing occurred within the migrant camps (Jones, Rion, Hollis, Longshore, Leverette, & Ziff, 1991). A study in Florida in 1992 similar to the 1987 national study found a 5% HIV positivity rate, 10 times the 1987 rate (CDC, 1992a). Specifically, the number of women with HIV is rising, putting children at risk for contracting the virus in utero or at birth. Migrant women are particularly at risk because of their lack of access to educational counseling, prevention, and treatment services. The National Commission to Prevent Infant Mortality has recommended that the Secretary of Health and Human Services establish the prevention and treatment of HIV and acquired immunodeficiency syndrome in migrant women and children as a national funding priority (HIV Risk, 1994).

### Nutrition-related Conditions

Migrant children are frequently nutritionally at risk. Migrant communities often have limited choices for the purchase of food, and their low incomes may preclude them from receiving adequate amounts of nourishment. Furthermore, migrants often lack the means for properly storing or preparing foods (e.g., lack of refrigeration, impotable water). Although many migrant families are currently eligible for supplementation through programs like WIC and Food Stamps, many do not participate because of the multiple barriers to these services. In recent years few studies have investigated the nutritional intake of migrant farmworkers specifically. In a 1989 survey nearly one third of migrant farmworkers reported running out of food or not having enough to eat during the past year (Fact Sheet, 1989). Iron-deficiency anemia is a common diagnosis reported by clinics serving migrant children (Dever, 1991, Schneider, 1986). Childhood obesity is also raised as a major clinical concern (Schneider, 1986), given the link of obesity to diabetes and hypertension, two prevalent health problems in adult Hispanics.

Dental caries (including those created by baby bottle mouth syndrome) are the most common untreated health problem in migrant children (Schneider, 1986). Access to dental care is inadequate by most accounts. Slesinger, Christenson, and Cautley (1986) found that 37.3% of the migrant children in their sample had never visited a dentist.

### Social/Mental Health Problems

Clinicians involved in treating migrants have reported that the stress and isolation associated with the migrant condition frequently results in episodes of psychologic illness (De Leon Siantz, 1994), family violence (Lambert, 1995; Rodriguez, 1993), and alcohol and other drug abuse (Smith, 1986). Several researchers have begun to investigate and intervene on behalf of children in families at risk for these problems. A study in New York State of 7408 migrant children younger than 18 years of age found a child maltreatment incident rate of 40.2/1000 per person years, six times the state average (Alvarez, Doris, & Larson, 1989). A project by the East Coast Migrant Head Start Project designed to facilitate preventive and intervention strategies to deal with the incidence of child abuse reduced the reported incidence of maltreatment from 12.4 cases per 1000 to 5.4 per 1000 (Markello, 1989).

## BARRIERS TO HEALTH CARE ACCESS FOR MIGRANT CHILDREN

It is estimated that the migrant health care system, a system of approximately 400 clinic sites federally authorized and funded under Section 329 of the Public Health Service Act, reaches only 12% to 15% of the migrant population annually (Wright et al., 1994). This reality and further research demonstrating delayed immunization (Lee, McDermott, & Elliott, 1990) and higher than average hospitalization rates (Slesinger et al., 1986) among migrant children suggest an underuse of preventive primary care services. Key barriers to primary health care access for migrant children and their families are geographic, financial, and cultural.

### Geographic

The migrant condition generally prohibits a long-term relationship with a health care provider. Thus the mobility of migrant children presents barriers to appropriate adequate follow-up and referral for health problems. Also, the rural communities where most migrant workers live generally lack primary care providers, and many migrant workers lack the transportation necessary to secure clinic services for their children (Meister, 1991).

### Financial

As a low-wage work group, migrant workers frequently cannot afford to pay for health care or to forego work to seek care when ill. Week-to-week earnings can vary greatly with the availability of work. Furthermore, many migrant workers are paid on a piece rate system; that is, they are paid according to how much they harvest. Thus earnings are dependent on quality of the harvest and time spent working, creating major disincentives for lost work hours (Meister, 1991).

Migrants rarely have health insurance. Even though many migrants, especially pregnant women and children, are eligible for public programs such as Medicaid, they do not participate in large numbers. Fear of immigration penalties, a lack of knowledge of avail-

**BOX** Selected resources for clinicians serving migrant farmworkers

**National Center for Farmworker Health, Inc.**
1515 Capital of Texas Hwy. South, Ste 220
Austin, TX 78746
tel: (512) 328-7682 or 1-800-531-5120
FAX: (512) 328-8559
Internet: http://www.ncfh.org
— Private, not-for-profit corporation dedicated to improving the health status of farmworker families through the appropriate application of human, technical, and information resources (operates a Resource Center and publishes catalog).

**Migrant Clinician's Network (MCN)**
P.O. Box 164285
Austin, TX 78716
tel: (512) 327-2017
FAX: (512) 327-0719
Karen Mountain, MBA, MSN, RN, Executive Director
— MCN is dedicated to providing avenues for networking among health providers serving migrant farmworkers.

**Farmworker Justice Fund, Inc.**
2001 S St., N.W., Suite 210
Washington DC, 20009
tel: (202) 462-8192
FAX: (202) 462-0472
Mike Hancock, Executive Director
— Advocacy organization providing policy analysis and technical assistance on farmworker occupational health issues.

**Bureau of Primary Health Care (BPHC)**
**Health Resources and Services Administration (HRSA)**
**BPHC/DCMH/Migrant Health Branch**
**U.S. Department of Health and Human Services**
4350 East-West Hwy., Room 7-4A1
Bethesda, MD 20814
tel: (301) 594-4303
FAX: (301) 594-4997
Antonio Duran, JD, Director
— Federal office charged with advancing health care delivery to migrant farmworkers.

Source: National Center for Farmworker Health, Inc. See listing at http://www.ncfh.org

able benefits, and inconvenient hours and location of enrollment offices are major hindrances to enrollment. Migrant populations do not fit easily into Medicaid managed care systems, because they cannot maintain a single primary care provider over time. Furthermore, benefits are linked to residence in a particular state (Wright et al., 1994).

### Cultural

Cultural barriers between migrant clients and providers create many difficulties. First, many migrants do not speak or read English, and most providers do not speak Spanish. This language barrier can make it difficult for migrants to negotiate appointments, apply for insurance, or adhere to treatment plans (Bechtel, Shepherd, & Rogers, 1995).

Second, many providers do not possess an adequate understanding of the impact of migrants' cultural beliefs on their health behavior and their expectations for the patient-provider relationship (Bectel et al., 1995). Martaus (1986) analyzed the impact of cultural beliefs on symptom interpretation, treatment actions, and provider-patient relationships in a group of 20 Mexican-American migrant workers in Ohio. She found that migrant workers' explanations for symptoms fit into three models: the hot/cold imbalance model, the emotional origin model, and the more western germ theory model (adopted most frequently by younger migrants with schooling in the United States). Treatment actions frequently involved remedies approved by the male head of household and implemented by the female member of the household including the use of folk remedies, over-the-counter medications, and religious rituals. Migrants' expectations of the provider in treatment were that symptoms be relieved quickly and effectively and that the provider use a personal, warm approach that duly considered the client in the context of his or her family. Health care providers' sensitivity to cultural beliefs will increase the effective treatment of migrant children.

## NURSING INTERVENTIONS TO IMPROVE HEALTH STATUS AND ACCESS TO CARE

The use of lay community outreach workers, the creation of alternative health care delivery models, and the development of information tracking systems are important methods for improving the health status and resource use of migrant children. Community/public health nurses and nurse practitioners, major providers of migrant health services, have had a crucial role in the development and management of these interventions.

### Lay Community Outreach Workers

Positive maternal and child health outcomes have been achieved by employing migrant lay community outreach

workers who have basic training in health care and resource availability (Meister, Warrick, de Zapien, & Wood, 1992; Watkins, Harlan, Eng, Gansky, Gehan, & Larson, 1994). Lay workers in migrant and other communities typically are trained and supervised by community health nurses. When 40 Latina lay health advisors in two migrant health centers in North Carolina were evaluated, they had interacted with 50% to 82% of 470 migrant women and infants over the year-long study period. Mothers who had contact with advisors were more likely to bring their children for sick care and had greater knowledge about health practices than did mothers without such contact (Watkins et al, 1994).

A similar lay outreach project in Yuma County, Arizona, employed nine female "promotoras" to address the problem of inadequate prenatal care in a low-income Hispanic population along the U.S.-Mexico border. The community-based prenatal education and home visiting interventions were found to be highly successful in increasing prenatal enrollment and reducing fear of labor and delivery for 147 pregnant migrant women (Meister et al., 1992).

### Alternative Delivery Models

Federally supported Migrant Head Start and School programs have an infrastructure for effective health services delivery at convenient times and locations. In fiscal year 1990, $60.4 million in federal funding went to 23 projects in 33 states. Federal funding for migrant education under section 1201 of the Elementary and Secondary Education Act totaled $285.6 million in fiscal year 1991 (Wright et al., 1994).

Collaboration between migrant health centers and migrant school programs promote early identification, intervention, and follow-up of migrant children's health problems (Miller, 1988). A comprehensive health program for migrant summer school students in Colorado delivered vision, audiometry, blood pressure, nutrition, dental and scoliosis screening, and health education and follow-up for identified health problems through home visiting (Wheeler, 1991). Services were provided by registered nurses, nutritionists, dental hygienists, and nursing and dental students.

Providing health services from mobile vans in migrant camps has also proven to be a highly successful method of service delivery. By going to the migrant camps during nonwork hours, access to services is increased for those who have no transportation or cannot afford to leave field work to receive medical attention. In Maricopa County, Arizona, mobile van clinics staffed by teams of family nurse practitioners, registered nurses, and medical assistants addressed most of the primary care needs of five migrant communities (Stein, 1993). Child health services included well baby and child care, immunizations, management of acute and chronic health conditions, pharmacy, and referrals to local dental and prenatal care services.

### Information Tracking Systems

Information systems will simplify the monitoring of the health status of individual farmworkers as they migrate and will contribute to population-based health services research (Horton, 1989). Data provided by these systems are critical for achieving good follow-up of migrant patients, conducting effective long-range health planning for the migrant population, and justifying the appropriation of federal, state, and local monies to agencies involved in providing migrant health services.

The Migrant Student Record Transfer System is one such system. It is an automated national communication system based in Little Rock, Arkansas, that stores health and academic records for more than 500,000 children in the migrant education system. Health data typically collected by school nurses include family and patient medical history, immunization records, visual, auditory, dental, and nutrition screening information, and known physical conditions by ICD-9 code (Michael & Salend, 1985).

## CONCLUSION

There is a critical need for nurses working with migrants to advocate for the health of this population, which has very little economic or political power to advocate for itself. Nurses must not only act as health educators for their patients, but they must also aid them in negotiating a complex and dynamic health care system that is unfamiliar (see Box).

Changes in both agricultural and health care policy can have a tremendous impact on the well-being of migrant farmworkers. Thus it is equally important that those familiar with the lives of migrant families educate the public and its leaders about the significant contributions of these workers to our economy and their unique needs.

Finally, the research literature on migrant children has many critical gaps. Basic information on the number and distribution of migrant children in the United States, prevalence rates for common causes of morbidity and mortality in this group, and measures of the impact of the migrant health system on child health status are lacking (Rust, 1990). Nurses and other clinicians are in key positions to fill these gaps, thus expanding the knowledge base from which further targeted interventions may be developed.

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