

Family-Centered Care

Integrated Medical and Dental Health in Primary Care

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Family-Centered Care provides a forum for sharing information about basic components of caring for children and families, including respect, information sharing, collaboration, family-to-family support, and confidence building.

Pediatric and family nurse practitioners in primary care settings are uniquely positioned to change the perception that oral health is in some way less important than and separate from general health. In response to emerging data supporting the positive impact of oral health on overall well-being, the Neighborhood Outreach Action for Health (NOAH) school-linked and school-based clinics developed an innovative health infrastructure that meets oral health needs and integrates oral health into comprehensive care for families through school-based, primary medical care processes. Oral health assessment, care planning, and treatment are included in well-child care, and plans are underway to integrate oral health in prenatal care and diabetes disease state management programs. This family-centered care model of integrated service delivery is destined to improve the health of low-income, uninsured children who suffer disproportionately from oral disease.

Integrating Dental Care

Scottsdale, Arizona, is known as an affluent, resort community and rarely evokes images of poverty, hunger, and need. However, like many urban Arizona communities, Scottsdale is home to a large immigrant population that is drawn to job opportunities in the booming construction and support service industries. Conservative estimates predict that more than 3,000 immigrant families live and work in greater Scottsdale. To meet the healthcare needs of this large, primarily uninsured, immigrant population, Scottsdale Healthcare, a nonprofit hospital system, operates year-round, school-based and school-linked health centers.

The NOAH school-based and school-linked health centers, staffed by two nurse practitioners and a part-time physician, provide primary medical services

to more than 3,200 uninsured patients each year. The clinic staff understands the role of prevention in cost-effective, primary care. Prenatal care, well-child exams, immunizations, diabetes, and hypertension management top the list of diagnoses treated in the clinics each year. Another diagnosis that makes the clinics' "Top 10" lists every year is dental caries.

Dental caries is the single most common chronic disease of childhood, occurring five to eight times more frequently than asthma, the second most common chronic disease in children (U.S. Department of Health and Human Services, 2000). A recent publication from the Arizona Department of Health Services, Office of Oral Health (2005) acknowledges that Arizona children, on average, have five teeth affected by tooth decay. This is three times higher than the national average and equates to about one out of every four teeth in a child's mouth. The NOAH population is especially vulnerable because prevalence of tooth decay is nearly 1.5 times higher among lower socioeconomic status children; 68% of children of Hispanic ethnicity have experienced decay.

Tooth decay is a chronic, progressive disease that can affect health in adulthood. Research continues to link oral health with diabetes, cardiovascular disease, premature and low-birth-weight babies, and failure to thrive. In controlled studies, periodontal therapy with focus on nonsurgical, oral hygiene treatment is shown to improve outcomes. Root planing and full-mouth scaling are shown to improve glycemic control in patients with type II diabetes (Kiram, Arkpak, Unsal, & Erdogan, 2005). Likewise, early detection and treatment of periodontal infection and treatment prior to 28 weeks of gestation (with ongoing oral hygiene throughout pregnancy) significantly reduced preterm labor rates and low-birth-weight babies (Lopez, Da Silva, Ipinza, & Gutierrez, 2005).

Nursing literature supports reshaping practice to include assessment and interventions for oral health to improve health outcomes. Carl, Roux, and Matalca (2000) note that although advanced practice nurses are uniquely positioned to address oral health needs, they

Family-Centered Care

tend to pay less attention, due to limited knowledge of the relationship among oral health and overall health. Time constraints, practice models that do not incorporate interdisciplinary care, poor access to dental care for low-income clients, and lack of emphasis in nursing literature and education also contribute to limited evidence of integrated oral and medical health practice. For these reasons, the nurse practitioners at NOAH began investigating the evidence to link oral health with other diseases and the implications of poor oral health on normal growth and development. As school-based/linked programs, the first oral health integration efforts targeted children at risk.

The NOAH Oral Health Program

The NOAH oral health program began with oral screenings and referrals for restorative care services; since that time, it has evolved to include interdisciplinary, integrated care planning and provision of preventative and restorative dental health services at health clinic sites. In 2001, nurse practitioners began screening for oral disease, and the NOAH program referred and funded approximately 400 dental visits for children annually through a contractual partnership with a local community dental health center. Families were provided with transportation from the NOAH school-based and school-linked clinics to the dental health center. Using the 2005 Medicaid, Arizona Healthcare Cost Containment System (AHCCCS) fee schedule as a guide, the value of annual services provided by NOAH to uninsured children was close to \$100,000 each year. In addition, approximately \$6,000 was spent annually for dental transportation services. However, despite these efforts, dental caries continued to be among the top 10 diagnoses in the clinics, and children who had received costly restorative dental services were presenting with new caries and oral cavity disease.

NOAH providers recognized that early and ongoing hygiene care was needed to prevent oral cavity disease and maintain oral health. Oral screening data

from the clinic clearly shows that despite significant expenditures on restorative dental care, more than half of the NOAH children required further urgent or immediate restorative intervention. There was clearly a need to focus on maintaining oral health following restorative care and, more importantly, ensuring that children receive early hygiene care, education, and proven preventative applications, including fluoride varnish and sealants.

In response, the NOAH nurse practitioners placed greater emphasis on oral screenings and a more family-centered approach to oral health education during routine well-child exams. Even before the first tooth erupted, mothers were shown how to examine an infant's mouth to look for signs of gum disease (Arizona Department of Health Services, 2004). Once teeth were present, the nurse practitioners applied fluoride varnish (see Table 1), began oral hygiene education, and discussed age-appropriate nutrition for improved oral health. Babies were seen every 3 months for fluoride varnish application through 2 years of age. Ongoing education with families took place at each visit. Oral health videos were added to the patient education library in family waiting areas.

The Arizona Hygiene Affiliated Practice Act opened a new door for the NOAH program. Legislation HB2214, which was passed in late 2004, allowed for a registered dental hygienist to provide dental hygiene services under an affiliated practice relationship (as prescribed in Arizona Revised Statutes section [A.R.S.] §32-1289 and §32-1281). This legislation allows a public health agency or institution, or a public or private school authority, to employ a dental hygienist to perform dental hygiene procedures under either general or direct supervision, or to enter into a contract for dental hygiene services with licensees who have entered into an affiliated practice relationship with a licensed dentist. The Affiliated Hygienists' duties are described in Table 2. NOAH was the first organization in Arizona to employ an Affiliated Hygienist and begin integrating dental hygiene services in traditional primary medical care.

Table 1. Fluoride Varnish Application*

Supplies required for fluoride application:

- Mouth mirror
- Gloves
- 2 × 2 gauze sponges
- Infant size toothbrush
- Disposable brush (“Bend-a-brush”)
- Disposable Dappen dish
- Two (2) drops fluoride varnish OR
- Pre-measured fluoride varnish units

Procedure:

1. Assume the knee-to-knee position and have the caretaker lower the child’s head onto your lap.
 2. Dry the teeth to be treated with the 2 × 2 gauze sponges.
 3. Using the applicator brush, apply fluoride varnish to all surfaces of the teeth. The varnish will set upon contact with saliva.
 4. Advise the caretaker that the varnish is slightly yellow and that it may be visible for a few hours. Request the caretaker not to resume brushing until the next day or a minimum of 4–6 h, to preserve the varnish coating as long as possible.
 5. In high risk populations, it is generally recommended that fluoride varnish be reapplied at intervals of 3–6 months
- Fluoride varnish should be available from your local supplier. For additional product ordering information and references to studies on fluoride varnish, visit the California Dental Association Web site at: www.cda.org/member/pubs/journal/jour0303/donly

*Arizona Department of Health Services: Division of Public Health Services, Public Health Prevention Services, Office of Oral Health (2004).

Table 2. Affiliated Hygienist Services*

Affiliated hygienist performs dental hygiene services within the terms of the affiliated practice relationship. Those duties include but are not limited to:

- Prophylaxis
- Scaling
- Polishing
- Examining the oral cavity and surrounding structures
- Periodontal examination
- Documentation of findings
- Compiling case histories
- Expos and process radiographs
- Applying topical fluoride and varnish
- Performing all functions authorized and deemed appropriate for dental assistants
- Applying preventative and therapeutic agents, used in relationship to dental procedures to hard and soft tissues.
- Referring and coordinating restorative care services provided by community dentists.

Hygienists in affiliated practice relationships are prohibited from performing root planing, administering local anesthetics and nitrous oxide, and placing periodontal sutures.

*State of Arizona. (2004). Arizona Revised Statutes. Affiliated Practice Relationships, A.R.S. 32 § 32–1289 (2004).

Family-Centered Care

In spring 2006, NOAH completed construction of dental health operatories at medical clinic sites in northeast Phoenix and south Scottsdale to address the overwhelming oral health needs of children enrolled in the program. At both locations, adjacent storage areas, formerly used as classrooms, were converted to fully functional oral health operatories complete with X-ray capabilities. Families are astounded at the ability to leave the nurse practitioner's exam room and enter a fully functional dental care service space and complete their clinic visit with the Affiliated Hygienist.

In just a few short months, remarkable progress has been made in integrated primary oral and medical care delivery for children. At the south Scottsdale school-linked health center, the pediatric nurse practitioner boasts an 88% completion rate of Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) services, immunizations, and routine hygiene and restorative dental care for all children ages 0 to 6 enrolled in the NOAH program. When children are seen at their first EPSDT visit, they are screened by the Affiliated Hygienists, and oral hygiene care and treatment planning is coordinated with their primary medical care. Appointments are scheduled for dental and medical care, using the same electronic scheduler, and documentation is completed in the same database. Medical clearance for oral care and, if needed, adjunct therapy, including antibiotic treatment of oral infections, is provided in a seamless care environment. Interdisciplinary care coordination allows reinforcement of health education practices. For example, nutrition education for growth and development, including adequate calcium intake, limited sugar, and increased fruits and vegetables, are the same as those encouraged for optimum oral health. Coordinated and integrated care models encourage better communication with families and providers.

Families have responded favorably to integrated care. Patient satisfaction survey scores show marked improvement with the addition of the Affiliated Pediatric Hygienists. No-show rates have decreased since integrating medical and oral health in EPSTD visits.

NOAH providers are convinced that by placing emphasis on preventative oral health services, the need for painful, hard-to-find, expensive, restorative care will decrease. In addition, they believe that the unique approach of integrating oral health care into established medical age-related prevention strategies will provide a new model for EPSDT visits. Integrated care will dramatically improve access to oral hygiene services and improve overall health outcomes. The Arizona Department of Health Services, Office of Oral Health (OOH) will assist NOAH in a formal evaluation of their efforts in spring 2007.

The NOAH program specifically targets vulnerable populations with limited ability to pay and strives to prevent costly and debilitating disease. The integration of oral hygiene services in our primary care setting is destined to significantly decrease the need for and subsequent expense of restorative oral care services. However, we believe the value of integrated medical and oral care reaches far beyond the financial impact. Families receive coordinated care among multiple disciplines during a single patient visit. Providers form a care team and reinforce consistent health messages. Patient outcomes as measured by immunizations, well-child care, and restorative dental care completion rates are at their highest levels, and more importantly, recall systems are in place to ensure that these numbers remain high. Unexpectedly, no-show rates are steadily declining. Although these early findings are remarkable, time and further evaluation of school attendance, academic achievement, and long-term health outcomes will be the true measures of success for this progressive, integrated treatment model.

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