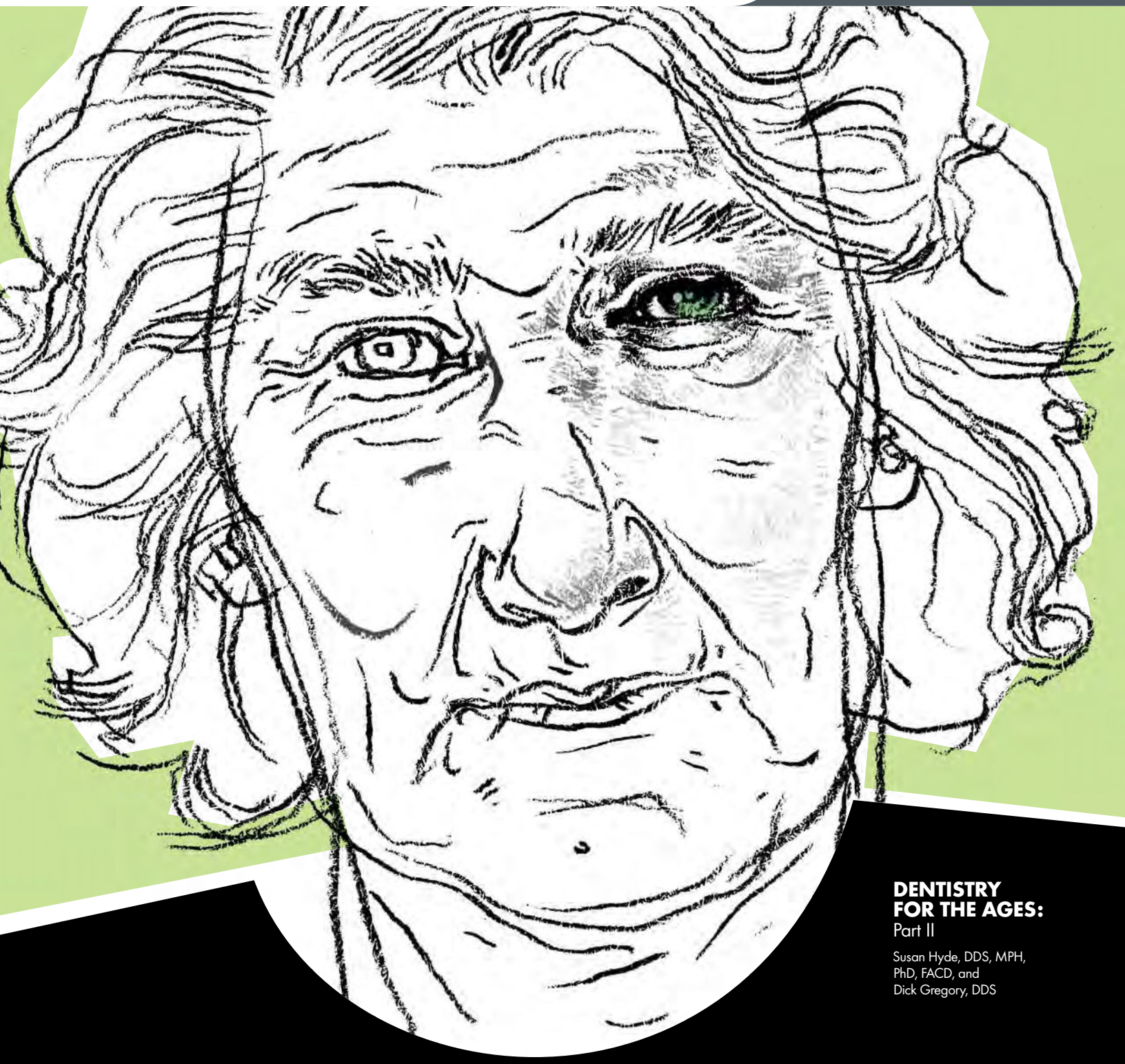
Journal

CALIFORNIA DENTAL ASSOCIATION

August 2015



DENTISTRY FOR THE AGES: Part II

Susan Hyde, DDS, MPH, PhD, FACD, and Dick Gregory, DDS

CDA JOURNAL, VOL 43, N°8

Apple Tree Dental: An Innovative Oral Health Solution

Deborah Jacobi, RDH, MA, and Michael J. Helgeson, DDS

ABSTRACT The Surgeon General's Report on Oral Health called attention to the "silent epidemic" of dental disease. Older adults and other vulnerable people continue to suffer disproportionately from dental disease and inadequate access to care. As a society and as dental professionals, we face multiple challenges to care for our aging patients, parents and grandparents. Apple Tree Dental's community collaborative practice model illustrates a sustainable, patient-centered approach to overcoming barriers to care across the lifespan.

AUTHORS

Deborah Jacobi, RDH, MA, is the policy director for Apple Tree Dental. She holds degrees in sociology and public policy and health administration from the University of Wisconsin, Madison.
Conflict of Interest Disclosure: None reported.

Michael J. Helgeson, DDS, is the CEO and co-founder of Apple Tree Dental. He completed his dental degree and a two-year postgraduate fellowship in geriatric dentistry at the University of Minnesota.
Conflict of Interest Disclosure: None reported.

The July and August issues of the *Journal* highlight the multiple challenges we face as a society and as dental professionals to care for our aging patients, parents and grandparents. We undoubtedly possess sufficient expertise to successfully prevent and treat dental diseases. And yet, older adults and other vulnerable people continue to suffer disproportionately from dental diseases. Apple Tree Dental's (Apple Tree) "Community Collaborative Practice" model illustrates a sustainable, patient-centered approach to overcoming barriers to care across the lifespan.

Why Apple Tree Dental?

Multiple national organizations and initiatives have highlighted oral health as essential to overall health and called for the development of safe, effective, accessible and affordable systems of care (**TABLE**).

Driven by unsustainable costs and unsatisfactory health outcomes, the three goals for health reform, often called the "triple aim," are to:

- Improve the experience of care.
- Improve the health of populations.
- Reduce per capita costs of health care.[1]

Achieving the triple aim for oral health depends on providing both appropriate dental care and effectively influencing the key factors that produce and maintain health over the lifespan. These factors include common medical conditions, health literacy of older adults and their caregivers and the effectiveness of daily mouth care routines. While children and pregnant women have long been the primary beneficiaries of most publicly funded dental programs, and the value of a healthy start for children is indisputable, there are multiple reasons that a limited focus on pediatric benefits is ultimately costly.

TABLE

Reports Calling for Action on Oral Health

Report	Link
Office of the Surgeon General. National Call to Action to Promote Oral Health, 2003	nidcr.nih.gov/DataStatistics/SurgeonGeneral/NationalCalltoAction/nationalcalltoaction.htm
A State of Decay: Are older Americans coming of age without oral health care? Oral Health America	b.3cdn.net/teeth/1a112ba122b6192a9d_1dm6bks67.pdf
Dental Crisis in America, Report to the Subcommittee on Primary Health and Aging From Bernie Sanders	sanders.senate.gov/imo/media/doc/DENTALCRISIS.REPORT.pdf
Improving Access to Oral Health for Vulnerable and Underserved Populations. Institute of Medicine and National Research Council	hrsa.gov/publichealth/clinical/oralhealth/improvingaccess.pdf
Policy Options to Increase Access to Oral Health Care and Improve Oral Health by Expanding the Oral Health Workforce Network for Public Health Law Oral Health Care Science and Law Brief	networkforphl.org/_asset/92jtkp/Access-to-Oral-Health-Care-Science-and-Law-Brief.pdf

As baby boomers reach the age of 65, there are many more elders who have kept more of their natural teeth and have much higher expectations regarding dental care in their old age than did previous generations.[2] Older adults, particularly those who live in long-term care settings, suffer disproportionately from active and untreated mouth infections, aging and ill-fitting dentures, and impairments in salivation and masticatory functions. Many are more dependent upon others for help with daily mouth care than children are. They are also more likely to have chronic conditions, such as diabetes and heart disease, which are negatively affected by mouth diseases. Aspiration pneumonia, a leading cause of hospitalization and death in elders, has been directly linked with bacteria from the mouth.[3] For multiple reasons, institutionalized and community dwelling elders are often unable to access traditional dental offices and clinics to the same degree as younger and much healthier population groups.[4] Such access disparities, in combination with the significant health and financial consequences of untreated mouth diseases in vulnerable adults, have come to the attention of policymakers and funders and resulted in calls for sustainable oral health care delivery models that meet the needs of underserved populations, including the rapidly growing population of older adults and people with disabilities. The following describes the development and impact of a successful, replicable approach.

FIGURE 1. Apple Tree's Centers for Dental Health also serve as regional hubs for on-site services and care coordination.

What Is Apple Tree Dental?

Apple Tree is a nonprofit group dental practice founded in 1985 to address the unmet dental needs of individuals living in Minnesota. The mission of Apple Tree is to improve the oral health of

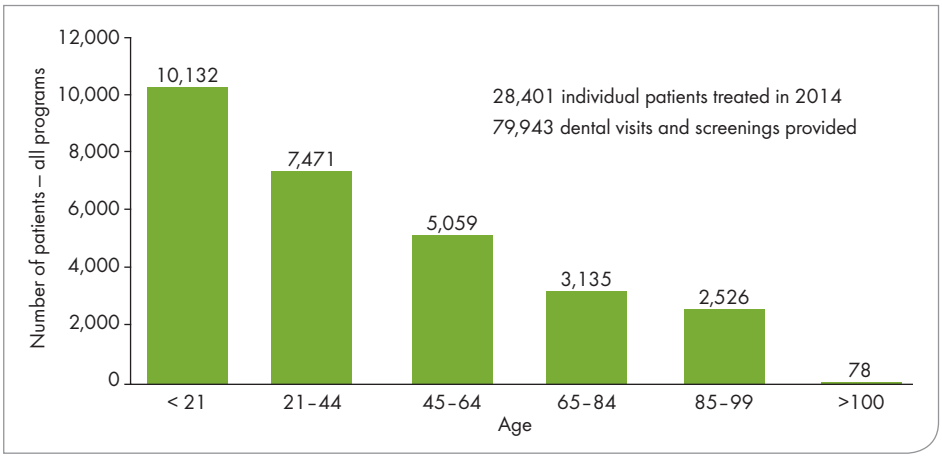


FIGURE 2. 2014 Patients' age distribution. Originally founded to serve nursing facility residents, Apple Tree now serves patients of all ages.

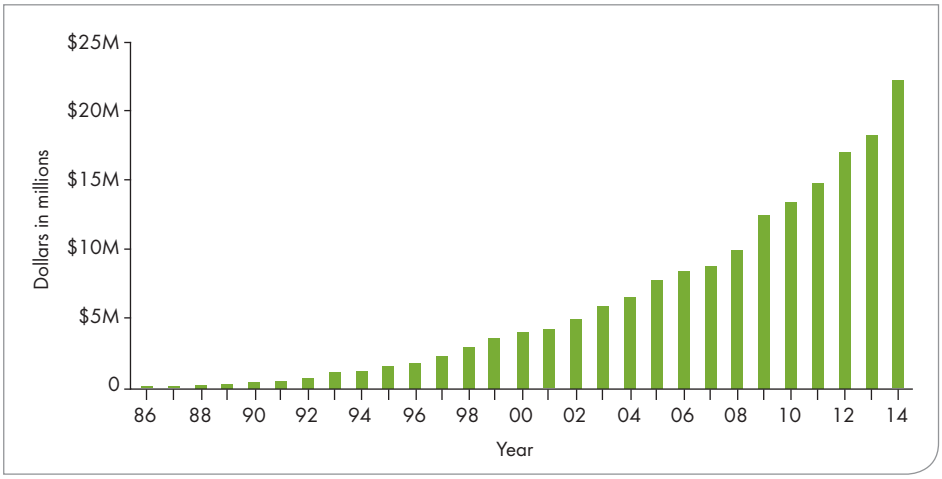


FIGURE 3. Dental care value: 1986 to 2014. Sustained growth demonstrates the viability of Apple Tree's patient-centered approach to overcoming barriers to care across the lifespan.

all people, including those with special dental access needs who face barriers to care. Apple Tree's staff works to achieve its mission by delivering education, prevention and restorative dental services to vulnerable populations and by providing leadership and innovation to transform the health care system.

Inspired by the Mayo Clinic's nonprofit group medical practice model, Apple Tree's interdisciplinary group dental practice includes clinical and support staff working together on the patient's behalf. These teams collaborate with teachers, nurses, physicians, family members and other caregivers to restore and maintain patients' oral health and to share their interprofessional knowledge and experience.

A volunteer board of directors is responsible for strategic planning to meet Apple Tree's mission, contributing expertise in health care administration and research, dentistry, public policy, nonprofit governance, early childhood development and epidemiology. Apple Tree's executive and administrative staff has expertise in program planning, management and evaluation, fundraising, finance and administration, implementing internal and external education programs, and promoting policy development and dental access legislation. Staff work collaboratively within Apple Tree and create strong, long-lasting community partnerships to achieve a common goal of strengthening and creating healthy communities.

Originally focused on nursing facility residents, Apple Tree's programs have expanded to reach other underserved populations in response to requests from local community leaders. In addition to establishing its own regional programs in Minnesota, Apple Tree has assisted local leaders in Louisiana and North Carolina to replicate aspects of its model.[5]

Apple Tree currently has more than 200 paid employees who serve low-income children and families in rural and urban areas, veterans, adults with disabilities, minorities and new immigrants, mental health patients and elders living in nursing and long-term care facilities. Apple Tree provides dental care at regional Centers for Dental Health (Centers) in Mounds View, Coon Rapids, Hawley, Madelia, Fergus Falls and Rochester, Minn., and recently opened a Center for Dental Health in San Mateo, Calif. (**FIGURE 1**).

Apple Tree also delivers on-site dental services year-round at more than 130 community oral health care sites including Head Start centers, schools, nursing facilities and other long-term care settings. With seamless integration between care provided at the Centers and on-site locations, Apple Tree provides a comprehensive range of oral health care services including diagnostic consultations, preventive, educational and restorative services. Advanced services provided include periodontics, endodontics, prosthodontics and oral surgery. In 2014, Apple Tree provided nearly 80,000 dental visits and screenings for 28,400 patients (**FIGURE 2**). The value of dental services delivered in 2014 exceeded $22 million (**FIGURE 3**).

FIGURE 4. Dr. Michael Helgeson, Apple Tree's CEO, with a Mobile Dental Office used to provide comprehensive dental care in a variety of settings.

FIGURE 5. Specially equipped trucks are used to transport multiple Mobile Dental Offices to community sites. On-site care eliminates transportation barriers common amongst older adults.

Partnerships, Policy and Advocacy

Partnership is a hallmark of Apple Tree's approach to care delivery and policy development. Successful collaborations with long-term care facilities helped identify a solution for long-standing barriers to dental care. For young children, a partnership with the Minnesota Dental Association, Minnesota Dental Hygienists' Association and the Minnesota Head Start Association expanded the use of collaborative practice and improved access to care for Head Start preschoolers statewide. This effort helped federal officials recognize the need for new staffing and care delivery models and allowed local private dentists and hygienists to establish collaborative practices to serve local Head Start programs. This effort increased the percentage of Head Start children obtaining examinations statewide from less than 70 percent to nearly 90 percent.[6]

Apple Tree is actively involved in policy development at the state and national levels including:

- California Dental Association's Phased Strategies for Reducing the Barriers to Dental Care in California Access Report — citing Apple Tree Dental as a potential solution.
- Minnesota Dental Association — supporting legislation to improve public program reimbursement and workforce innovations.
- Minnesota Oral Health Coalition — raising awareness about the importance of oral health.
- American Dental Association's National Elder Care Advisory Committee — advancing dental care delivery, education and research to improve the oral health of older adults.
- Administration for Community Living (formerly the U.S. Administration on Aging) Oral Health for Older Adults Subject Matter Expert Group — developing best practice models.
- Special Care Dentistry Association — advocating for dental care for people with disabilities, older adults and people requiring hospital-based dental care.

Apple Tree has been recognized as a leading model by the American and California Dental Associations, in the Surgeon General's Call to Action and by national foundations including the Robert Wood Johnson and Kellogg Foundations.[7]

Education and Research

Michael Helgeson, DDS, the CEO and co-founder, has lectured widely on geriatric and special needs dentistry as well as on the Apple Tree model. With support from multiple Minnesota Department of Health Clinical Dental Education Innovation grants, Apple Tree has offered new learning experiences in partnership with the University of Minnesota School of Dentistry, Minnesota State Colleges and Universities and other dental education programs. Dental, dental therapy, dental hygiene, dental assisting and nursing students have experienced interprofessional care for elders and children, oral health screening and assessment, safe patient handling, dental laboratory procedures and the use of telehealth technologies.

From its inception in 1985, Apple Tree has been recording diagnostic codes along with billing information in its custom information systems. The result is an unprecedented longitudinal database, which has been used by researchers to understand the impact of prevention and treatment on oral health outcomes for institutionalized elders.[8]

How Does Apple Tree Deliver Care?

Although often referred to as a "safety net" provider, Apple Tree is not content to catch people who have already fallen into a dental access chasm. Instead, Apple Tree utilizes a proactive, prevention-oriented, patient-centered practice approach, called community collaborative practice, to deliver dental care and education. Apple Tree's delivery system goal is to reach at-risk individuals when they are healthy and to provide education, prevention and restorative care to keep them healthy. Apple Tree's philosophy is to practice dentistry as an integrated team of professionals focused on meeting the needs of children, adults and elders across the lifespan.

Apple Tree employs unique workforce teams that include dentists, oral surgeons, nurse anesthetists, advanced dental therapists, dental hygienists, dental assistants, community care coordinators and lab technicians. Through collaborative practice, dental hygienists are able to serve as front line clinicians in community settings as described below.

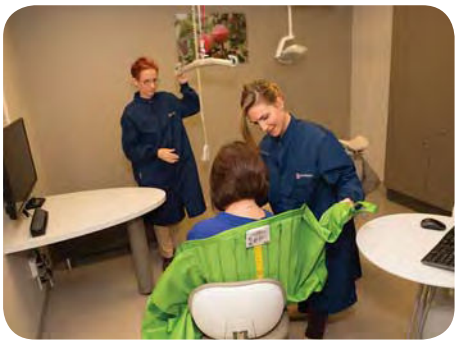


FIGURE 6A.

FIGURE 6B.

FIGURE 6C.

FIGURES 6A–6C. Apple Tree's Centers for Dental Health are equipped to serve people with special needs. Shown here is a ceiling lift used to transfer nonambulatory patients into a dental chair.

Delivering On-Site Care

Apple Tree's on-site services can be delivered at a wide variety of community sites within a 60-minute travel time radius of each Center for Dental Health (**FIGURES 4** and **5**).

Community partnerships allow Apple Tree to co-locate on-site dental services within long-term care facilities and other settings where people live, learn and receive other health and social services. Sometimes described as a "hub and spoke" delivery system, the model creates an accessible care network linked via a fully certified electronic health record (EHR) and allows multiple points of accessible care for patients and communities.

Apple Tree uses both lightweight portable equipment and heavier custom mobile units to provide on-site care in shared spaces within long-term care facilities and other community settings. Portable dental units are transported in a car or minivan and used by dental hygienists to provide preventive services. For restorative and surgical services, specially designed trucks can transport multiple complete Mobile Dental Offices. In a carefully planned route, staff truck drivers pick up and drop off one or more complete Mobile Dental Offices at each scheduled location in the afternoon and evening, outside of normal business hours. On-site dental care teams provide dental care at each location for one or more days according to the number of patients due to be seen.

The Apple Tree Mobile Dental Office is nearly identical ergonomically and functionally to the equipment in Apple Tree's Centers. One difference is that the dental chair and other units are on wheels so they can be spread out, making it easier to safely transfer patients to and from wheelchairs. Dental treatment may also be provided at a Center, where operatories are designed to accommodate wheelchairs, have specialized lifts to transfer patients into the dental chair and are equipped for sedation if required for a successful visit (**FIGURES 6A–6C**).

Long-term care residents in facilities served by Apple Tree enter the dental care system through a program established for all residents and managed by a dental director. Similar to a nursing facility's medical director, Apple Tree takes on the role of dental director, working closely with nursing facility staff to establish programs and processes that help ensure that every residents' oral health needs are met. The Minimum Data Set (MDS) is a standardized health assessment instrument used to assess the overall health of older adults admitted to nursing facilities. Research has documented that oral health conditions are typically underreported when the MDS is completed by nurses or aides, that the majority of dependent residents are resistant to daily oral care and also suggests that most receive inadequate oral health care.[9] To provide accurate oral health assessments, Apple Tree's on-site dental hygienist becomes part of the nursing facility's assessment team and is responsible for completing the oral health portions of the MDS. In addition, the hygienist develops a personalized daily mouth care plan for each new resident, coaches facility caregivers on how to care for residents' teeth and dentures, triages residents needing follow-up care and provides periodic in-service education for the facility's staff.

For nursing facility residents choosing Apple Tree as their dental provider, community care coordinators on staff at Apple Tree take all necessary steps to obtain consent for treatment from the responsible party, facilitate and document needed medical-dental consultations and schedule on-site dental appointments for treatment. On-site dental treatment is scheduled on a regular basis throughout the year by a consistent team ensuring timely care and strong patient-provider relationships. When residents have extensive disease or special needs, they may also be scheduled at a nearby Apple Tree center, where care can be seamlessly provided using the same EHR.

A Sustainable Solution

High levels of uncompensated care associated with Medicaid and uninsured populations make it difficult or impossible for most private practices to accept significant numbers of public program and low-income patients. In order to

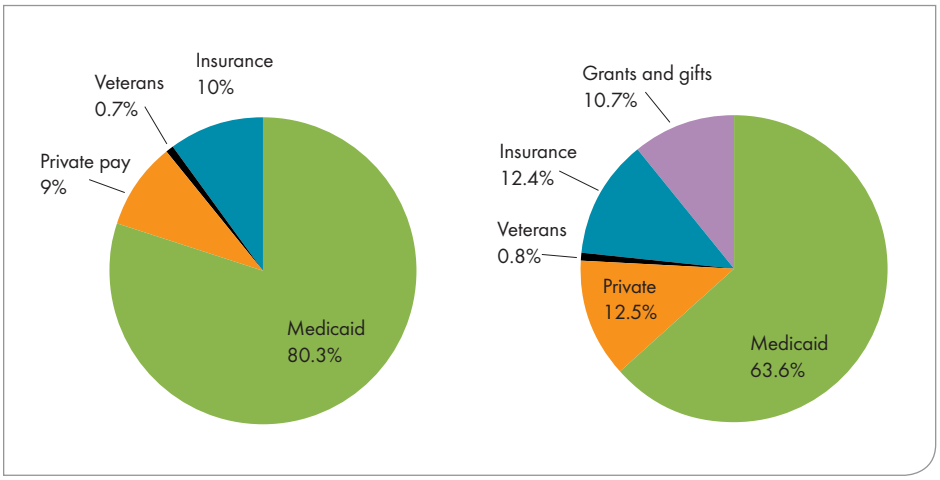


FIGURE 7A. 2014 gross revenues by source.

FIGURE 7B. 2014 net revenues by source.

FIGURES 7A and **7B.** Comparison of gross and net revenue sources reveals the low reimbursement levels paid by public insurance programs.

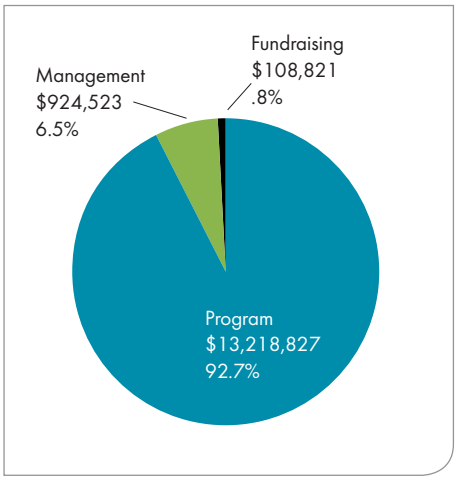


FIGURE 8. 2014 expenses by category. Management and fundraising make up a small portion of Apple Tree's expenses.

serve these populations, Apple Tree has developed multiple funding streams to support a sustainable business model. Earned revenue, including insured and full-pay patients, is supplemented with federal, state and local foundation grants, corporate support and individual gifts (**FIGURES 7A** and **7B**).

Apple Tree's nonprofit status and delivery model keep costs low and allow fundraising efforts to help fill the uncompensated care gap. Innovative collaborative practices allow services to be provided in shared spaces, with shared staffing leveraging community resources and eliminating transportation barriers (**FIGURE 8**).

According to the Institute of Medicine's 2011 report, "Improving Access to Oral Health for Vulnerable Populations,"[10] to be successful, an evidence-based oral health system will:

- Eliminate barriers that contribute to oral health disparities.
- Prioritize disease prevention and health promotion.
- Provide oral health services in a variety of settings.
- Rely on a diverse and expanded array of providers who are competent, compensated and authorized to provide evidence-based care.
- Include collaborative and multidisciplinary teams working across the health care system.
- Foster continuous improvement and innovation.

All these markers of success are evident in Apple Tree's founding mission and the evolution of its model. With a culture of patient-centered innovation, Apple Tree has continually incorporated new providers, new technologies and evidence-based services into its practice. The provision of on-site care by interdisciplinary teams eliminates transportation barriers and helps integrate oral health with other health care services. ■

REFERENCES

1. Berwick DM, Nolan TW, Whittington J. The Triple Aim: Care, Health and Cost Health Aff (Millwood). 2008 May-Jun;27(3):759-69. Institute for Healthcare Improvement (IHI), "The Triple Aim Initiative." www.ihi.org/offerings/Initiatives/TripleAim/Pages/default.aspx. Accessed April 30, 2015.
2. CDC. Public health and aging: Retention of natural teeth among older adults – United States, 2002. *MMWR* 2003;52(50):1226-9.
3. van der Maarel-Wierink CD, Vanobbergen JN, Bronkhorst EM, Schols JM, de Baat C. Oral health care and aspiration pneumonia in frail older people: A systematic literature review. *Gerodontology* 2013 Mar;30(1):3-9.
4. Dolan TA, Atchison K, Huynh TN. Access to Dental Care Among Older Adults in the United States. *J Dent Educ* 2005 69(9), 961-974. www.jdentaled.org/content/69/9/961.long. Accessed April 30, 2015.
5. www.accessdentalcare.org/pages/More_About_Us_Page.html. Accessed April 30, 2015.
6. www.mnheadstart.org/HS08%20REPORT6%20KEYLINE.pdf.
7. U.S. Department of Health and Human Services. *A National Call to Action to Promote Oral Health*. Rockville, Md.: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health, National Institute of Dental and Craniofacial Research. NIH Publication No. 03-5303, May 2003.
8. Smith BJ, Shay K. What predicts oral health stability in a long-term care population? *Spec Care Dentist* 25(3): 150-157, 2005.
9. Thai PH, Shuman SK, Davidson GB. Nurses' dental assessments and subsequent care in Minnesota nursing homes. *Spec Care Dentist* 1997 Jan-Feb;17(1):13-8.
10. Institute of Medicine and National Research Council (2011). *Improving Access to Oral Health for Vulnerable and Underserved Populations*. The National Academies Press, Washington D.C. www.hrsa.gov/publichealth/clinical/oralhealth/improvingaccess.pdf. Accessed April 30, 2015.

THE CORRESPONDING AUTHOR, Deborah Jacobi, RDH, MA, can be reached at djacobi@appletreedental.org.