



Trends in the Development of the Dental Service Organization Model: Implications for the Oral Health Workforce and Access to Services



Center for Health Workforce Studies
School of Public Health
University at Albany, State University of New York

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PREFACE

The Oral Health Workforce Research Center (OHWRC) at the Center for Health Workforce Studies (CHWS) at the University at Albany's School of Public Health completed a research project using mixed methods to describe the development of dental support organizations in the US. A survey of a convenience sample of DSOs was conducted and case studies of 6 dental support organizations delivering general or specialty dental services to patients were compiled. The study was conducted in the spring of 2017.

This report was prepared for OHWRC by Margaret Langelier, Shen Wang, and Simona Surdu from CHWS and by Elizabeth Mertz and Cynthia Wides of the Healthforce Center at the University of California, San Francisco, with layout design by Leanne Keough. OHWRC is supported by the US Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) under grant number U81HP27843, a Cooperative Agreement for a Regional Center for Health Workforce Studies. The content and conclusions of this report are those of OHWRC and should not be constructed as the official position or policy of HRSA, HHS, or the US government, nor should any endorsements be inferred.

The mission of OHWRC is to provide accurate and policy-relevant research on the impact of the oral health workforce on oral health outcomes. The research conducted by OHWRC informs strategies designed to increase access to oral health services for vulnerable populations. OHWRC is based at CHWS at the School of Public Health, University at Albany, State University of New York (SUNY), and is the only HRSA-sponsored research center with a unique focus on the oral health workforce.

The views expressed in this report are those of OHWRC and do not necessarily represent positions or policies of the School of Public Health, University at Albany, SUNY, or other subcontractors.

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BACKGROUND

Dental services in the US are traditionally provided in private dental practices operating as small businesses. These practices generally consist of one or two dentists employing dental hygienists, dental assistants, and administrative support staff. While this continues to be the mode of delivery of dental services at present, organizational structures for oral health service delivery and for managing business functions are changing, resulting in a variety of options for patients seeking dental services from dental provider organizations. Perhaps the most noticeable change in the dental practice paradigm is the consolidation of small private dental practices into large groups.

Group dental practices are variously organized under assorted business models and structural labels. The term “group practice” encompasses different organizational configurations, including large general or specialty dental practices under dentists’ ownership, consolidated practices owned by corporate business entities, consortia of small private dental practices in contract with dental support or service organizations or under partial or total ownership of dental management organizations, staff model health/dental maintenance organizations, dental accountable care organizations, and so on. These entities may be publicly or privately held, for-profit or not-for-profit, and organized under a variety of legal arrangements including professional partnerships and publicly held corporations.

Dental support organizations (DSOs) provide practice management services such as employment and human resources, billing, accounting, regulatory compliance, lease arrangements, purchasing services, and information infrastructure and technical tools for clinical decision-making. DSO-affiliated dentists and practices often share clinical information systems to aid in evaluating progress toward meaningful use objectives and monitoring of clinical outcomes in the patient population. The configurations of DSOs vary widely, with some consisting only of DSO-employed dentists and others comprising small private practices that retain individual ownership and contract with a DSO for nonclinical administrative services.

Recently, the number of DSOs has grown substantially across the US, driven in part by the Affordable Care Act, which increased enrollment in state Medicaid programs, especially among adults. Medicaid dental benefits vary by state. Although all children in the US who qualify for a health insurance benefit through Medicaid or the Children’s Health Insurance Program (CHIP) also have a dental benefit, in many states, qualifying adults have no coverage for dental services within the Medicaid program or dental coverage is limited to emergency care. Because of this state-by-state variation in coverage, a DSO may provide services for patients with Medicaid in one state while the same DSO may not treat Medicaid-eligible people in another state where there is either no or a very limited adult dental benefit.

Concerns around those who do not regularly receive dental services due to social, economic, and geographic disparities are pervasive. The market for dental services to low- and low-middle-income people, especially adults, is largely untapped. These populations are underserved for health and dental services, presenting a market opportunity for dental providers. As state Medicaid programs increasingly shift patients to managed care plans, some DSOs have leveraged their business model to serve more Medicaid patients.

DSOs with sufficient and efficient scale and with the agility to contain costs are able to enter these markets and increase the availability of and access to oral health services. As a result of the economies accruing to practice consolidations, DSOs appear to be more apt and perhaps more able to accommodate lower reimbursement from public insurance programs than smaller private dental practices, partly due to their ability to treat patients at lower individual cost and reduced overhead.

Dental health maintenance and dental accountable care organizations that participate with state Medicaid programs are often capitated for patient care through a per-member, per-month payment system. This reimbursement incentivizes value-based care focusing on prevention and early intervention in oral disease processes to preclude less costly treatment services. These payment models also support the importance of establishing a dental home where preventive oral health services are provided.

DSOs now account for a growing share of provider organizations. The impact of DSOs on increased access to services for underserved populations has been noted, but their actual contributions to care for these populations is only sparsely documented.

STUDY DESIGN

Trends in consolidation of dental practices and the business, organizational, and workforce models that enable these large practices have not been well researched. One objective of this study was to identify and analyze data describing these organizations; another was to conduct interviews with DSOs to understand the qualitative aspects and benefits of management alliances. This mixed-methods study was exploratory in nature.

This report examines the available literature on DSOs, focusing on the patients served, workforce recruitment and retention strategies, new and established dentists' career pathways, and evolving models of DSOs' service deployment. In addition, it presents secondary data from national data sources to describe growth in large group dental practices in the US and primary data from an online survey of a convenience sample of 47 DSOs in the US. These data describe the services provided by respondents, the states in which the DSOs are located, and the patients served by the organizations. Finally, the report describes qualitative case studies of 6 DSOs to understand their organizational models, recruitment and retention practices for the dental workforce, and impact on access to services for underserved populations.

FINDINGS

Secondary Data Describing DSOs

The Economic Census of the US Census Bureau provides some important information about changes in the configuration of dental practices over the decade beginning in 2002 and ending in 2012. This survey of business firms occurs every 5 years, and the data are reported by North American Industry Classification System (NAICS) codes. The Health Care and Social Assistance Sector of the NAICS (Sector 62) includes the offices of dentists (NAIC Codes 6212, 62121, 621210). The census collects information on several characteristics of businesses, including the number of employees by type, specialty of practice, annual revenues, number of individual establishments operated by the firm, and annual payroll. Because of the consistent data elements in the survey over time, it is possible to track the size of dental practices over the 10-year period.

In the period between 2002 and 2012, the number of firms (offices of dentists) with 50 to more than 1,000 employees increased from 284 to 438. The number of establishments (locations) operated by larger firms increased from 2,691 in 2002 to 5,485 in 2012. While the number of very large firms remains small, there was growth in the number of establishments/sites at which these firms operate. In 2002, 3 firms operated with more than 1,000 employees in 788 establishments. By 2012, 11 firms reported more than 1,000 employees working in 3,005 establishments.

A similar magnitude of growth was observed in the number of firms (offices of dentists) reporting 10 or more establishments/sites for providing dental services. In 2002, 41 firms reported operations in more than 10 establishments, totaling 2,131 locations in the US. In 2012, 67 firms reported operations in more than 10 establishments, totaling 4,480 locations, an increase of 110% in the number of establishments reported by firms in this category.

Primary Data Describing DSOs

The Survey of DSOs

In the spring and early summer of 2017, the OHWRC conducted a short survey of a convenience sample of 47 DSOs in the US. The online survey included questions about the structure and location of DSOs and the patients served by affiliates. The survey contained 15 questions and used a skip-logic design to encourage survey completion. This method prompts a “yes” respondent to an elaborating question while a “no” respondent moves to a subsequent question. The survey took between 10 and 15 minutes to complete. Some questions had predefined response options, while others were open-ended to allow

for a narrative response. The survey instrument is included in Appendix C of the technical report. Narrative responses to the survey are included in Appendix D.

The Web-based survey was mounted on the Qualtrics platform; responses were directed to and resided on a dedicated server at the OHWRC at CHWS. This project was reviewed by the New York State Department of Health Institutional Review Board (IRB) (Study #1035761-1).

Potential respondents were members of the Association of Dental Support Organizations (ADSO). Executive staff at ADSO sent a personalized email to their US members in May 2017 requesting participation in the online survey. The email explained the purposes of the research and the confidentiality of responses, and provided respondents with contact information for study personnel at the OHWRC as well as for IRB staff.

Two reminder emails were sent to nonrespondents at 2-week intervals. Reminder emails were sent only when there had been no response from the organization. The survey closed to accruals on Monday, June 19, 2017. The number of responding organizations was 32 of the 47 solicited to participate; the response rate was 68.1%.

Due to the limitations of the sample design and the inability to determine representativeness of the responding organizations, these results may not be broadly generalizable. However, they are of interest especially because they explain the diversity of DSOs in the US. The detailed frequencies and cross-tabulations that provide a summary description of the DSOs responding to the survey can be found in the technical report of project activities.

Findings from the survey included the following:

- DSOs defined their organizations in various ways, suggesting functional differences among similar organizations within the broad class known as “dental support organizations” (87.5%). Many additionally defined themselves as a “dental service organization” (46.8%), a “dental management organization” (34.4%), or a “dental management service organization” (28.1%).
- DSOs were mainly for-profit organizations (96.8%), and a majority were privately held (62.5%).
- DSOs were operating in 48 states and in the District of Columbia. There was no DSO presence among respondent groups in Alaska and Montana.
- All DSOs (100.0%) provided similar business and management services. However, fewer than

- three-quarters (71.9%) had a common electronic dental record, and fewer than half (46.9%) provided clinical care protocols to affiliates.
- DSOs varied in the number of patients served by practice affiliates in 2016. The range was 6,000 to 1,600,000 patients.
 - The number of patients served by a DSO was not necessarily an indicator of the number of states in which that DSO operated. Some DSOs with large numbers of patients operated in only one state, while other DSOs with smaller numbers of patients operated in multiple states.
 - Dentists affiliated with DSOs in various ways, including as associates (66.7%), owners (66.7%), and employees (53.7%).
 - The mean number of full-time (FT) dentists affiliated with a DSO was 213; the number of FT dentists in DSOs ranged from a minimum of 6 to a maximum of 1500. The median number of FT dentists was 60.
 - Eighteen (56.3%) of the 32 DSOs indicated that they had some part-time (PT) dentists. The mean number of PT dentists in those DSOs was 36. The median number was 28, and the mode was 100; the range was from 3 to 100 PT dentists.
 - DSOs' affiliate practices were mainly staffed by general dentists. Approximately 90% of survey respondents indicated that between 61% and 100% of dentists in the organization were general dentists.
 - DSOs indicated that they experienced more-than-average difficulty (mean of 3.6 on a 5-point scale) recruiting dentists to their organizations. However, DSOs also indicated below-average difficulty (mean of 2.67 on a 5-point scale) retaining dentists once hired to the organization.
 - DSOs recruited some new dental school graduates annually, but the main source of new recruits to many of the organizations was experienced dentists. Sixty percent of survey respondents indicated that between 51% and 100% of new recruits annually were experienced dentists.
 - DSOs observed that dentists are attracted to work with a DSO by the salary/compensation packages, by the location of DSO practices, and by the career opportunities afforded within the organization.

- While DSO affiliate practice staff included dental hygienists (DHs) and dental assistants (DAs), the use of auxiliaries varied substantially across organizations. Most DSOs had between 1 and 2 DAs, on average, per dentist. Most had less than 1 DH per dentist on average.
- The number of FT and PT DHs varied widely among DSOs. The range in number of FT DHs was 0 to 800. The range in number of PT DHs was 0 to 100.
- The number of FT and PT DAs also varied widely among DSOs. The range in number of FT DAs was 0 to 2,900. The range in number of PT DAs was 0 to 200.
- Thirty of the DSOs that participated in the survey research responded to a question asking if any of the dentists affiliated with the organization treated patients insured by Medicaid or CHIP. Eighty percent indicated that at least some dentists affiliated with the DSO treated publicly insured people.
- Sixty-one percent of DSOs that served Medicaid-insured patients indicated that 50% or more of the dentists affiliated with the organization treated some patients insured by Medicaid or CHIP, with 43.5% of DSOs indicating that between 91% and 100% of affiliated dentists served some patients who were publicly insured.
- Twenty-two DSOs answered a question about the percentage of the patient population that was Medicaid or CHIP insured. More than one-third of these DSOs (36.4%) indicated that 50% to 95% of the patient population served by the organization was publicly insured.
- Most of the Medicaid or CHIP population served by DSO affiliate practices were children. Nearly two-thirds (63.6%) of respondents indicated that more than 60% of the Medicaid-insured population served in affiliate practices were children.
- Twenty-three of the 32 survey respondents (71.9%) indicated that they served Medicaid- or CHIP-insured patients in at least one state in which they had dental practice affiliates.

Summary of Survey Findings

This survey of DSOs was conducted to further the literature describing business support organizations in the dental service delivery market in the US. The accumulated data describe a diverse group of management organizations that provide a common core of business and information services but otherwise vary substantially in size and focus. DSOs appear to be diverse in locations of practice, in types of offered services, and in patients served.

The DSOs that responded to this survey described a focus on management services with only limited involvement in any aspect of clinical dentistry. Some DSO affiliates focused on specialty services, while most provided general dentistry services or a mixture of general and specialty care. Some DSOs were located in only a single state while others showed significant penetration in multiple states.

DSOs were actively recruiting workforce, including dentists, DHs, and DAs. DSOs appeared to have some difficulty in recruiting dentists to their organization. This may be due to an increasing variety of options available to dentists—for example, private practice, working in a DSO, the military and public health service, and employment with not-for-profit provider organizations such as federally qualified health centers.

DSOs affiliated with dentists through a variety of mechanisms, including direct employment, association with a professional corporation or practice association, and even contractual arrangements. One interesting finding was that most dentists recruited to DSOs each year were experienced dentists. This finding is likely coincidental to DSOs' strategy of affiliating with private-practice dentists who already have established practices.

As anticipated, DSOs were largely supported by investments of private equity, but none of the respondent organizations was a publicly held corporation. The involvement of private equity was an expected finding because the scale of management services offered by these organizations would generally require substantial capital investment beyond the capability of many individual dentists. However, it is not currently possible to anticipate further moves to public holding, as DSOs are gaining in size and may eventually evolve to public entities.

One of the most important findings from this survey is that DSOs are serving Medicaid- and CHIP-eligible patients to an appreciable degree. Reimbursement from public dental benefits is below usual and customary fees, making it difficult for small-scale providers to absorb costs related to dental service provision to the publicly insured. DSOs leverage size and market penetration to the advantage of both their organizational affiliates and the public, making dental services more affordable and readily accessible.

While the survey data are mainly descriptive, they are helpful in understanding the wide variation within the classification of DSOs. Further research is needed to better understand the universe of DSOs in the US.

Case Studies of 6 DSOs in the US

In April and May of 2017, project staff conducted telephone interviews with key personnel at 6 DSOs in the US. These organizations generally fell within the American Dental Association’s classification of “dental management organization affiliated group practices.” The more commonly used “DSO” is the collective term employed throughout this report to describe these large group dental practices under common business management.

Although guided by a protocol of questions, the interviews for these case studies were largely unstructured to allow informants to provide general information about the composition and structure of their organizations and the patients served. Representatives of the 6 DSOs that provided interviews self-selected to participate in the case studies after hearing about the project during a presentation by project staff to the Medicaid Compliance Committee at the annual meeting of ADSO in March 2017. Most of the DSOs in the case studies were serving patients insured by Medicaid in the states in which these DSOs operated—hence the presence of their executive staff at the Medicaid compliance meeting. The targeting of Medicaid-predominant DSOs for the interviews was purposeful and was among the criteria in the original proposal for this project. Descriptive summaries of each of these DSOs may be found in Appendix A of the technical report for this study. The interview protocol may be found in Appendix B.

The 6 DSOs participating in the case study interviews were:

- **Affordable Care LLC** headquartered in Raleigh and Kinston, North Carolina
- **Benevis** headquartered in Marietta, Georgia
- **Community Dental Partners** headquartered in Denton, Texas
- **Dental Care Alliance** headquartered in Sarasota, Florida
- **Perfect Dental Management** headquartered in Needham, Massachusetts
- **STX Healthcare Management Services, Inc.** headquartered in Bellaire, Texas

The purpose of the case studies was to identify common themes and differences among a selection of DSOs in the US. Although the DSOs in the case studies had differing target populations and catchment areas, there were common characteristics and objectives, which are summarized under the following themes. As the number of interviews was small, these findings may not be broadly generalizable.

Common Themes From the Interviews

The following common themes emerged from the interviews.

- **Economic and regulatory influences, including costs associated with delivering oral health services, drive the growth in the number of DSOs across the US and their organizational structures.**

The current focus in the policy environment and among provider communities and patients on the ever-increasing costs of health and oral health services and on their disproportionate distribution and availability is forcing change in the structure of dental practices. Informants to the case studies were clear that the small business model in which dentists have historically operated is less able to perform optimally in the current business and regulatory environments than in the past.

According to informants, practice consolidations that enable sharing of administrative resources with expertise in business management and regulatory compliance reduce practice management burdens for dentists. Association with a support organization allows clinical providers to spend less time on management functions and to focus instead on clinical quality and service provision. While there was certainly agreement among informants that the local private dental practice is an ideal model for some patients to conveniently access services and is therefore unlikely to disappear, the ways in which those practices are managed will likely evolve away from the historical pattern.

- **Affiliations between dental practices and DSOs may be more common than current data suggest.**

The manner in which DSO affiliations occur make it difficult to fully identify practices that are no longer under private dentists' management. While some affiliations are transparent, especially in branded dental practices, other business relationships are more opaque. Private dentists may contract for management services with a DSO, but that relationship is not readily apparent either to patients or to the public generally.

In some DSOs that participated in the case studies, a portion or all of the affiliated practices were branded under one or more names in a "franchise" model, although this designation is not entirely appropriate when applied to branded dental practices. Clinical service provision remains differentiated across practices, even among those with the same name, since clinical treatment decisions reside with individual affiliated dentists. One DSO may, therefore, own one or several brands; consequently, counting by brand would be inaccurate. In addition, DSO informants provided the caution that not all branded dental

practices are DSOs; some are large group dental practices that remain under the ownership and management of dentist owners.

Thus, the ongoing multi-model reconfigurations occurring in dentistry are confounding efforts to identify, count, and describe the penetration of DSOs in the oral health service delivery market. Current data may not accurately enumerate DSOs in the US.

- **DSOs clearly delineate between the management functions of the organization and any clinical functions of dentistry.**

Interview participants were definite that DSOs provide only business, management, and marketing support to dentists and that clinical functions related to the practice of dentistry—including hiring and training of clinical staff, supervision and delegation of clinical tasks to that staff, and dental treatment and planning—remain under the exclusive auspices of dentists. While the DSOs' business staff generally provided compliance and billing audits to ensure that services to patients are consistent with regulatory requirements, informants were clear that these functionaries do not interfere with the practice of clinical dentistry at any level. All case study participants were well informed regarding the various legal requirements in states regarding the practice of dentistry and ownership of dental practices. In some states, a DSO may only provide management services under contract to dentists; in others, they may own the nonclinical assets of the practice.

This differentiation between clinical and practice management functions was notable in the organizational structures discussed during the interviews. Each DSO had from one to many clinical directors who were dentists, often one or more in each state in which the DSO had a presence. Clinical directors were responsible for all clinical aspects of dental practice. The clinical director(s) and/or clinical services divisions of the DSOs interfaced with affiliated dentists when any aspect of clinical decision-making was in question. Clinical directors and clinical affiliates were involved in hiring new dentists and DHs, in establishing and managing evidenced-based clinical protocols, and in managing the training and precepting of new dentists to the organization.

- **DSOs locate and configure as variously as the practices that comprise them.**

The 6 DSOs varied in size, scope, and history. While the number of DSOs participating in the case studies was small, it was notable that each organization varied from the others in focus and configuration. Although there were common business functions performed by all the DSOs, each was differently positioned in its respective market depending on the geography of the practice, the dental specialties and services offered, and the characteristics of the targeted population(s) in the communities for which each was providing services.

All of the organizations provided a consistent range of business and human resource services, such as leasing or purchasing of equipment, supplies, and real estate; human resource and benefit management; billing; accounts payable and receivable; legal services; compliance activities and audits; marketing and public relations; patient call centers; information technology, including electronic dental records; treasury services; and facility management and maintenance.

Despite these commonalities, there were broad differences in the focus areas of DSOs and their affiliated dental practices. One DSO exclusively provided specialty dental services (prosthetics and implants). Some focused on particular populations, such as children. Still others were configured as large vertically integrated organizations providing a full spectrum of general and specialty dental services with both small and large dental practice affiliates, which were sometimes branded and sometimes not.

- **DSOs contribute to increased availability of oral health services for underserved populations.**

As informants discussed the mission and focus of each organization, many commented that the originator of the DSO was a founding dentist with a desire to increase access to services for a particular population by making services either more available or more affordable (or both). All reported that this remained an objective of their DSO.

Several case study participants discussed the need for providing high-quality dental services to underserved populations and the market opportunities that exist in areas where dental services are either not available or in short supply. Many also discussed the agility of a DSO to reduce the overhead and supply costs related to dental practice, as the DSO is able to leverage service volume to purchasing and contracting advantage. This permits DSOs to operate with improved margins between cost and revenue and participate with state Medicaid programs that generally pay less than the prevailing usual and customary fees for dental services. Cost efficiencies permit DSOs to operate more easily in the Medicaid market than many small private dental practices, although informants commented that operating in these markets can still be quite difficult.

Informants also commented on interesting downstream effects from DSOs' choice of practice locations. In many cases, other service providers, including private dental practices and other DSOs, subsequently move to the same areas in which DSOs originate practices, recognizing a new market with community need for dental services. Thus, patients in those areas are not only afforded services but also a choice of providers, an option that had been unavailable prior to the location of the DSO to the community.

- **Providing dental services to people insured by Medicaid has unique challenges in each of the states in which DSOs operate.**

The variation in dental benefits among state Medicaid programs and the different service approval criteria make participation with public insurance programs difficult for any dental provider. Because of their size and centralized management, DSOs have more resources to participate with state Medicaid plans than smaller practices, though they still encounter these challenges. DSOs struggle to provide services in some Medicaid markets because reimbursement rates are low and limitations on allowable services are prohibitive.

In some states, it is difficult to operate in the Medicaid marketplace because benefits for adults are volatile. Some states have now eliminated an established adult dental benefit, making dental services essentially unavailable to adults with Medicaid unless the patient chooses to self-pay. Some states use the adult dental benefit to negotiate challenging budget processes, either supporting or eliminating it during changing budget cycles. For DSO practices that have a patient base that is largely Medicaid insured, these benefit changes make the market very unstable. DSOs discussed feeling forced to make a strategic decision to leave the adult Medicaid market because of uncertainties surrounding the continuation of the benefit. Informants to the case study described this as especially unfortunate, as they are willing providers who would be available to the population if the benefit were more secure. The dental benefit for children is an essential benefit for all eligible children; thus, that market is more sustainable.

- **Recruitment and retention strategies for dentists and other clinical providers varied by DSO and by individual practice need within each DSO.**

According to interview participants, recruitment strategies generally depend on the type of practice in which the new hire will serve patients, on the size of the practice, and on the characteristics of the patients. All DSOs acknowledged hiring some new dental school graduates, but this was not necessarily a pervasive preference. The comments of informants suggested that recruiting new dental school graduates is only one part of a mixed approach to recruiting workforce. New dental school graduates sometimes require further clinical training and, thus, the physical presence of an experienced precepting dentist. Another perceived limitation of hiring newly graduated dentists was that patient flow in some practices required optimal efficiencies in treatment planning and service provision that were possible only with appreciable clinical experience.

DSO informants differentiated between hiring recent dental school graduates and hiring recent graduates of specialty dental residency programs who have spent several years in clinical practice developing the required clinical capacity and efficiency. DSOs that provided specialty services for patients

actively recruited from among residency graduates. One DSO was rotating dental specialists through the DSO's general dentistry practices to allow patients in need of specialty services to obtain them directly from their dental home. An oral surgeon or a periodontist might see patients in the general dentistry office one day a month or more often, depending on the patient population.

The pool of more experienced dentists was also a source of dentist recruitment for DSOs. Some older dentists are seeking acquisition of their practices by a DSO as an exit strategy or as a means to reduce clinical practice hours as they age. DSO affiliation eliminates concerns about selling the equipment and physical assets of the practice. It may also allow the dentist to work part time or to make the choice to practice longer owing to reduced stress with the elimination of practice management functions. One case study informant identified the ideal candidate for affiliation with a DSO as a dentist with at least 5 years of practice experience in private practice, in the military, or in another DSO.

- **A common electronic dental record, including administrative modules, is essential to managing practices in multiple locations and to enabling compliance, cost containment, human resources, and other management services.**

Each of the DSOs had an electronic dental record which was either currently used by all affiliated practices or to which all practices were in the process of converting. Case study informants discussed ongoing challenges related to converting and/or integrating legacy dental record systems from small dental practices as they affiliate with the DSO. "De novo" practices were equipped from the beginning with the DSO's electronic dental record, so immediate management of those practices was described as seamless.

One DSO had created a hybrid information system using patches and bridges to allow each practice access to the larger administrative record system; another DSO was in the process of building a new system on an incremental basis to ensure that each of the modules within the system fully met the needs of all DSO dentists and management. Each DSO used different software, but all discussed the importance of central data management to audit compliance, leverage purchase contracts, and maximize service capacity.

Case Study Summary

The case studies provided information about both the common and the distinct characteristics of DSOs. While DSOs are often collectively cast as “corporate dentistry” practices in discussions of dental practice management, it was apparent that each has differently evolved to meet the needs of its targeted populations and that each has done so organically, based on local need and conditions for practice. It was also evident that these organizations were required to be nimble to provide cost-effective services that meet the quality goals of the organization and the extensive clinical needs of patients. Many were operating in difficult insurance markets with populations that had been underserved until the arrival of the DSO.

Many of the DSOs that participated in the case studies were founded by dentists who had recognized the opportunities in consolidated practices, including economies of scale to allow for more affordable dental services. These dentists often teamed with business entrepreneurs to design and implement the amalgamated practice model. According to case study participants, DSOs founded by dentists are generally well-rounded organizations because they understand all aspects of clinical service delivery.

Consolidated practice management is currently a common business model in medicine and in allied health. Physician management organizations, independent practice associations, and hospital-owned physician practices are all examples of this business model. Consolidations in dentistry have accelerated recently, and many oral health stakeholders have concerns about the impact of the business model on the quality of services provided to patients. DSO informants acknowledged awareness of the current pervasive tension between profitability of practices and quality of patient services throughout health care; interview participants were confident of the possibility of providing high-quality oral health clinical services in resource-restrained environments if close attention is paid to cost management and to stewardship of professional resources. In fact, many spoke of organizational missions to serve the underserved and of a commitment to improved outcomes for their patients.

DSOs are well positioned to work with insurers on value-based care. Several spoke of a willingness to assume risk for their patient populations, explaining that the organization’s philosophy of care included enhancing the oral health literacy of patients, encouraging routine preventive services, and creating dental homes for patients. They also explained that monitoring of clinical quality was much easier in DSOs than in smaller practices simply because variation in quality of services across practices was easier to identify and address. The importance of high-quality services that meet clinical guidelines established by a variety of professional organizations, including the American Academy of Pediatric Dentists and the American Dental Association, was consistently acknowledged.

DSOs were actively recruiting new graduates, but this was not their sole recruitment strategy. Several exogenous factors appear to contribute to a new graduate's propensity for employment in a large organization and thus to the scarcity of new graduates available to private practices. Case study participants talked about the burden of student loan debt that made it difficult for new dentists to buy into a small practice. In some DSOs, a dentist can be financed to build a practice without a large initial personal investment. Another determinant of practice selection was described as a generational preference for work-life balance that was affecting decisions by younger dentists seeking flexibility in their clinical practice. This flexibility was more readily available through employment than through ownership of a dental practice. Work-life balance was also described as a consideration for older dentists who were divesting practices to DSOs to have more control over personal time and to provide an avenue for easier exit from practice.

DSOs are thought to occupy a relatively small share of the dental marketplace at the present time. However, it was apparent from the interviews that the actual market share of DSOs is difficult to enumerate because the scale of DSO association with small dental practices is currently impossible to ascertain. Public perception of DSOs is mainly of large branded dental practices located in a variety of regional or national markets. However, this is only one part of DSO involvement in the dental services market. Informants to the case studies were clear that, in their view, there is an overemphasis in the environment on the importance of how dental practices obtain management functions. Case study participants suggested that, instead, there should be a greater focus on the quality of care that these organizations provide and on their impact on increasing access to oral health services for populations that had few or no options for dental care in the past.

DISCUSSION

This project was exploratory in nature and used a mixed-methods approach to describe the structure and organization of DSOs in the current dental service delivery market. The technical report for this project includes a literature review, an analysis of secondary data to describe growth in large dental practices in the US over time, an analysis of primary data obtained through survey research of a convenience sample of 47 DSOs in the US, and a summary of in-depth case study interviews with 6 DSOs serving Medicaid-insured populations in various states.

The dynamic policy and practice environment in health care generally is a primary motivator for the growth in large group dental practices across the US. One implied finding from the current study is that DSO involvement in dental practice management will continue to evolve in light of ongoing concerns around the availability of services, the need for accountability of providers, and the importance of generating efficiencies to reduce escalating costs. Patients, especially underserved populations, appear to benefit from an expanding delivery system that has made dental services more widely obtainable.

The findings from this study also suggest that further research is needed to fully understand the impact of the consolidations of dental practice management in states. Reconfiguration of practices is an important strategy to improve the affordability, accessibility, and quality of dental service delivery specifically and of health care service delivery generally. Thus, ongoing longitudinal and systematic review of the impact of emerging management structures and consolidated practice models in dentistry would be beneficial.

Technical Report

BACKGROUND

Traditionally, dental services in the US are provided in private dental practices operating as small businesses. These practices generally consist of one or two dentists employing dental hygienists, dental assistants, and administrative support staff. While this continues to be the mode of delivery of dental services at present, organizational structures for oral health service delivery and for managing business functions are changing, resulting in a variety of options for patients seeking dental services from dental provider organizations. Perhaps the most noticeable change in the dental practice paradigm is the consolidation of small private dental practices into large groups.

Group dental practices are variously organized under assorted business models and structural labels. The term “group practice” encompasses different organizational configurations, including large general or specialty dental practices under dentists’ ownership, consolidated practices owned by corporate business entities, consortia of small private dental practices in contract with dental support or service organizations or under partial or total ownership of dental management organizations, staff model health/dental maintenance organizations, dental accountable care organizations, and so on. These entities may be publicly or privately held, for-profit or not-for-profit, and organized under a variety of legal arrangements including professional partnerships and publicly held corporations.

The environmental drivers of dental practice consolidation are numerous and include:

- A general shift in the health service delivery paradigm in the US to an emphasis on quality of services and value-based care¹
- Greater reliance of payers on metrics to determine quality and of clinicians on clinical protocols to guide treatment
- Improvements in diagnostic and treatment technology and in dental materials
- High dental student debt^{2,4}
- Movement to team-based service delivery models³
- Efforts to integrate all aspects of health care delivery, including primary health, oral health, and behavioral health services^{3,4}
- Proliferation of interoperative electronic health records
- Economic factors, including the most recent recession²
- Decline in demand for dental services, especially among adults^{2,3}

- A greater proportion of patients with public insurance than in the past, resulting in a small but growing shift in payer mix³
- The continuing propensity for medical and dental insurers to create selective provider networks³
- Increasing costs associated with health and dental service delivery accompanied by pressure to reduce those costs through innovation^{3,4}
- Increased competition for patients⁴
- The aging of both the population and the dental workforce³
- Increasing diversity in the population, resulting in shifting disease patterns, variation in care-seeking behaviors, and variable ability to pay³
- The uneven distribution of dental practices in certain geographic areas²
- Increasing concerns about poor oral health outcomes in underserved populations¹

Each of these factors impact the configuration of dental practices differently, but the sum effect is a need to achieve greater efficiencies and improved capacities to provide oral health care to the population. Consolidation among practices of essential management and other business-related functions reduces the overall cost of oral health service delivery in dental practices and improves their ability to remain compliant with regulatory requirements, which continue to grow in both extent and complexity.

Dental support organizations (DSOs), dental service organizations (also DSOs), dental management organizations (DMOs), dental practice managements (DPMs), and dental management service organizations (DMSOs) are terms that describe dental practices clustered under common management through either ownership or contract. For purposes of this report, the term DSO will be used in a general context as inclusive of the various structural and organizational models that comprise large group dental practices with separate clinical and business management structures, as opposed to group dental practices in the US operating under integrated clinical and business management by partner dentists.

DSOs are also described in the literature as “the corporate practice of dentistry”²; however, that phrase may not fully reflect the wide array of entities operating as DSOs. DSOs emerged from the private sector in the 1990s as an organizational and management model intended to create economies of scale for dental providers by improving efficiency and capacity in practice operations and increasing access to dental services.⁵ DSOs in dentistry are sometimes compared to management service organizations (MSOs) that emerged in medicine in the 1990s.⁶

DSOs provide practice management services such as employment and human resources, billing, accounting, regulatory compliance, lease arrangements, purchasing services, and information infrastructure and technical tools for clinical decision-making. DSO-affiliated dentists and practices often share clinical information systems to aid in evaluating progress toward meaningful use objectives and monitoring of clinical outcomes in the patient population. The configurations of DSOs vary widely, with some consisting only of DSO-employed dentists and others comprising small private practices that retain individual ownership and contract with a DSO for nonclinical administrative services.⁷

Recently, the number of DSOs has grown substantially across the US, driven in part by the Affordable Care Act, which increased enrollment in state Medicaid programs, especially among adults. Medicaid dental benefits vary by state. Although all children in the US who qualify for a health insurance benefit through Medicaid or the Children's Health Insurance Program (CHIP) also have a dental benefit, in many states, qualifying adults have no coverage for dental services within the Medicaid program or dental coverage is limited to emergency care. Because of this state-by-state variation in coverage, a DSO may provide services for patients with Medicaid in one state while the same DSO may not treat Medicaid-eligible people in another state where there is either no or a very limited adult dental benefit.

Concerns around those who do not regularly receive dental services due to social, economic, and geographic disparities are pervasive. The market for dental services to low- and low-middle-income people, especially adults, is largely untapped. These populations are underserved for health and dental services, presenting a market opportunity for dental providers. As state Medicaid programs increasingly shift patients to managed care plans, some DSOs have leveraged their business model to serve more Medicaid patients.

DSOs with sufficient and efficient scale and with the agility to contain costs are able to enter these markets and increase the availability of and access to oral health services. As a result of the economies accruing to practice consolidations, DSOs appear to be more apt and perhaps more able to accommodate lower reimbursement from public insurance programs than smaller private dental practices, partly due to their ability to treat patients at lower individual cost and reduced overhead.

Dental health maintenance and dental accountable care organizations that participate with state Medicaid programs are often capitated for patient care through a per-member, per-month payment system. This reimbursement incentivizes value-based care focusing on prevention and early intervention in oral disease processes to preclude less costly treatment services. These payment models also support the importance of establishing a dental home where preventive oral health services are provided.

While DSOs and other large group practices vary in their commitment to treating high-needs populations in underserved communities, these practices appear to improve the dental services market by increasing access to oral health care. Research suggests that many of the existing DSOs provide services to historically underserved populations in greater volume than small private dental practices in the same geographic areas. The economies of scale generated by DSOs sometimes permit these entities to establish clinics in underserved areas, allowing service providers to focus on patients while the larger organization manages administration and regulatory compliance. As a result, it seems that underserved populations are increasingly engaged with DSO-affiliated dental providers.⁵

DSOs appear to create an attractive employment option for new dentists. Employment in, rather than ownership of, dental practices is an emerging preference among new dentists, many of whom are graduating with significant student debt due to the high cost of a dental education.⁸ DSOs eliminate the immediate need to invest in a dental practice post graduation by offering employment with reasonable salaries, often with opportunities to increase income through incentives. DSOs also provide new dentists with further clinical training by providing proximate mentors and preceptors, which are not always available in small private dental practices. DSOs influence the labor market for dentists through their hiring standards and training requirements, which often include a preference for residency-trained providers. The large size of these organizations may also increase their ability to provide other employment benefits, including health insurance and retirement plans that are attractive not only to dentists but also to other oral health providers such as dental hygienists. Small dental practices are often limited by size in their ability to offer robust employment benefits.

STUDY DESIGN

Trends in consolidation of dental practices and the business, organizational, and workforce models that enable these large practices have not been well researched. One objective of this study was to identify and analyze data describing these organizations; another was to conduct interviews with DSOs to understand the qualitative aspects and benefits of management alliances. This mixed-methods study was exploratory in nature.

This report examines the available literature on DSOs, focusing on the patients served, workforce recruitment and retention strategies, new and established dentists' career pathways, and evolving models of DSOs' service deployment. In addition, it presents secondary data from national data sources to describe growth in large group dental practices in the US and primary data from an online survey of a convenience sample of 47 DSOs in the US. These data describe the services provided by respondents, the states in which the DSOs are located, and the patients served by the organizations. Finally, the report describes qualitative case studies of 6 DSOs to understand their organizational models, recruitment and retention practices for the dental workforce, and impact on access to services for underserved populations.

FINDINGS

Current Literature

Project staff conducted a review of both peer-reviewed and grey literature on changing practice configurations in dentistry; a portion of that review is discussed below. Existing literature on the subject of large group practices appears to have been composed for varying purposes. Much of the descriptive/ grey literature was apparently authored to help dental professionals and others to understand the emerging organizational configurations of group practices for delivering dental services in the US. These papers generally described the legal implications for dentists of affiliation with management entities and discussed the anecdotal benefits and difficulties associated with joining group practices under a variety of management and financing structures. The peer-reviewed literature was mostly descriptive of the growth of group practice models over time in the US. Some included summaries of survey data collected from dentists about the benefits and challenges of working in the various organizational forms of large group practices.

Structural Frameworks to Classify Large Group Dental Practices

Several dental professional associations, including the American Dental Association (ADA) and the Academy of General Dentistry (AGD), published papers that categorized the emergent variation in group practice configurations.

The ADA advanced a “classification” of large group dental practices in the US.⁶ Group dental practice was described as the affiliation of 2 or more dentists in practice. Six categorical types of group practices were defined, as follows⁶:

- Dentist–Owned and Operated Group Practices
- DMO–Affiliated Group Practices
- Insurer–Provider Group Practices
- Not-for-Profit Group Practices
- Government Agency Group Practices
- Hybrid Group Practices

Table 1. Categorical Types of Large Group Dental Practices

Type	Description
Dentist-Owned and Operated Group Practices	Consists of variable numbers and types of dentists who participate in ownership and operate at single or multiple practice sites. May be legally organized as a partnership or corporation under dental ownership.
DMO-Affiliated Group Practices	Generally applies to a group practice that has contracted with a management organization to conduct the business and administrative activities of the dental practice(s). The arrangements may include ownership of the physical assets of the practice by the DMO. Although these arrangements may vary widely, no activity of the DMO affects the clinical practice of dentistry as defined in the laws or regulations of the state in which services are delivered.
Insurer-Provider Group Practices	Provides both insurance benefits to enrolled lives and direct dental services. Examples might include a dental health maintenance or management organization or a dental accountable care organization.
Not-for-Profit Group Practices	Generally nongovernmental or charitable organizations structured to provide services to the underserved. These practices may provide training for clinical professionals. Dentists are generally employed in these models, although it is possible that a dentist or several dental professionals are the principal organizers or founders of these group practices. Dentists working in a federally qualified health center may work within this model.
Government Agency Group Practices	Operated by a government agency, and dentists are government employees or contracted to the government to operate under the rules of the agency. Examples include the Department of Veterans Affairs or the US military.
Hybrid Group Practices	Includes group practices organized in ways that incorporate some characteristics of any or several of the categories.

Source: American Dental Association.

The ADA brief provided further detail on each of the categories but particularly on the diverse and complex characteristics of dental management or service organizations. The array of possible organizational attributes suggests considerable variation even among practices uniformly classified as DSOs/DMOs. Some of the possible variants are⁶:

- **Practice type.** Dentists may affiliate with a DMO as franchisees, as management affiliate practices, or in a mixed model.
- **Ownership structure of a professional organization.** Ownership is restricted to dentists. Ownership may reside with an “entrepreneur” dentist or with a group of dentists, and the organization may employ dentists. Some organizations may have a path for non-owner dentists to become owners.

- **Ownership structure of a management organization.** In this model, ownership of the management organization is not restricted to dentists, although it may be owned by one or more dentists, by a corporation, by an investment fund, or by a private equity firm. Employed dentists may or may not be provided with a pathway to ownership. The involvement of private equity in the organization may involve passive investment or active management, depending on the organization.
- **Varying status for dentists and different numbers of professionals.** Based on the ownership or management structure of the organization, dentists may be owners or partners, employed or contracted to the large group practice. These group practices may vary in size from a few dentists to 100 or more.

The AGD also recognized the importance of providing guidance to dentists and others around the evolving business, legal, and management models for dental practice. In 2012, the AGD created a Corporate Dentistry Taskforce comprising dentists in academics and clinical practice and tasked the group with formulating descriptions of the organizational attributes of large dental groups.² The task force's study included a literature review and interviews with large dental corporations.

The term "corporate dentistry" is used in the report as the umbrella term inclusive of DSOs, DMOs, MSOs, and DMSOs. The authors indicated that a dental practice might fit into a single categorical type or assume overlapping practice configurations. For example, a dental service organization (DSO), described as a structure created to deliver patient services, may or may not contract with a DMO, an entity that provides management services, to effect a hybrid organization, a DMSO. The report remarked on how these varying configurations have led to confusion in the larger environment about the myriad organizational arrangements in large group practices in dentistry at the present time.²

In addition, the report acknowledged that "universality in terminology" for group practice configurations had "not yet been achieved."² Terminology describing the trend toward consolidation of practices is frequently used interchangeably (and sometimes incorrectly), even though the characteristics of consolidated practices may vary substantially. The term "corporate dentistry" was described as inclusive of a variety of practice models in which practice management functions and other services were provided in a manner "organizationally distinct" from the scope of dental activities performed by a dentist in practice.²

The white paper described several models of "corporate" ownership²:

- In one type of group practice, shareholder dentists may develop, implement, and manage both the clinical and business functions of the organization.

- Another model might engage one or more multiple professional corporations (PCs) operating in one or more states to provide oversight and administration of business services and manage outside business owners through service contracts.
- Some models do not use outside owners, some use outside owners who are not investors or equity firms, and others are owned by investors or equity firms or are financed by investors or equity firms.

The concept of ownership of a DSO by a dentist often means ownership only of patient records, not of the real property of the practice (eg, the office or the equipment used to treat patients). Employment arrangements also vary by organization²:

- In some arrangements, dental directors are employees of the DSO; in others, the dental director is the director of a large group practice that contracts with a DMO only for management services.
- DMOs may effect agreements with one or more dental PCs, each constituted by a single or multiple dentists, to provide management services. Thus, each PC has a direct relationship with the DMO but perhaps not with the other PCs that are similarly affiliated.
- Each PC may operate one or more offices within a state, and multiple PCs may associate with the same DMO.

One of the differences between “corporate dentistry” and private dental practice identified in the report was that management services in a DSO were provided in a way that was organizationally different and distinct from the activities performed in a small, privately owned dental practice.²

The AGD listed attributes of management entities to demonstrate and describe the wide variation in structures across the spectrum of organizations. These attributes included the following²:

- DSOs that were managed internally (no external management contract)
 - Dentists were practice owners
 - Partners shared a common mission and protocols were set by the board of directors
 - Business management occurred through an internal team that centralized business, management, and administrative functions

- DMSOs that contracted with a management company but had no outside equity owners
 - Each PC (dental practice) owned the patient records and was responsible for the clinical functions of the practice
 - Each PC had a business services agreement with the management company for administering the business of all associated PCs
 - This differs from an internally managed DSO, as the business functions are separately and externally administered while the clinical functions are internally directed
- DMSOs that contracted with a management company and had outside equity owners
 - This model was distinguished from the others by management company ownership of the practices and the interest of an equity firm in maximizing the enterprise value of the consolidated business entity
 - This model was described as the most at risk of all models, because an interest in maximizing the enterprise value of business might inherently be at odds with the provision of quality services
- Multispecialty group practices owned by dentists were not considered a corporate model

The white paper provides further detail on business valuation methodologies for for-profit dental organizations that are specific to particular models; these are not discussed within this report simply because this level of organizational complexity is beyond the focus of this work.

Regulatory Barriers

The main mechanisms that prevent DSOs from operating in states are legal in nature. Statutes and regulations governing dentistry and medicine specifically prohibit corporate practice of either profession. Concerns about the impact of corporations on the physician–patient relationship—and, by extension, the dentist–patient relationship—are documented in court findings that span many decades. In 1940, a US federal appeals court ruled in *United States v American Medical Association* that when a corporation operated a clinic and employed a clinician to treat patients and the corporation received the fee for the service, the corporation was unlawfully engaged in the practice of medicine.² This ruling essentially prohibited a nonmedical (or nondental) corporation from receiving fees for services provided by and within the scope of practice for physicians or dentists.

Case law in both federal and state courts over intervening years has further elucidated and clarified this early opinion. State laws prohibiting “corporate practice” are intended to protect the decision-making

independence of the clinician and enable treatment determinations based not on the economic interests of an employer corporation but on the health interests of the patient. Regulators and legislators express legitimate concern that determinations related to patient treatment services must be at the discretion of licensed health care professionals; prohibitions on corporate practice are, therefore, designed to preserve this essential clinical autonomy. However, prohibitions differ by state, and DSOs structure ownership and management agreements variously to operate within state laws. Thus, a DSO may function differently in each of the multiple states in which it is located.

States inhibit or prohibit dental practice by corporations (corporate practice of dentistry) in several ways. The first and most predominant is a pervasive and express prohibition on corporate practice in statute or regulation. Another, more indirect statutory or regulatory mechanism is a prohibition on nondentists employing dentists. Additionally, many states prohibit fee sharing with unlicensed parties. Still other states regulate through specificity in their definitions of the practice of dentistry, including that ownership and operation of a dental practice constitutes professional practice; therefore, DSOs not owned by dentists would be in violation of state law. States may further prohibit corporate practice through a variety of other regulatory mechanisms⁹

No state allows for the clinical practice of dentistry by other than a licensed dentist. One predominant legal method used to enable group management services in states is business service agreements or contracts that separate management, business, administrative, purchasing, and human resource functions from the clinical decision-making process within a dental practice. In these arrangements, dentists who affiliate with the DSO generally maintain a separate PC that “owns” the patients and their records and preserves clinical autonomy.

Most states exempt health care entities such as hospitals, federally qualified health centers, licensed dentists, and sometimes union-operated or workplace/occupational health clinics sponsored by employers for their employees from the prohibitions related to the corporate practice of medicine and dentistry.⁹

Six states permit business corporations to own a dental practice or employ dentists: Arizona, Mississippi, New Mexico, North Dakota, Ohio, and Utah.⁹ Michigan and Nebraska do not directly address the ownership issue in statute, and Kentucky and Wisconsin are unclear on corporate ownership. Iowa forbids corporate practice but permits corporations to employ dentists as long as they do not interfere with the dentists’ performance and clinical judgment. All other states and the District of Columbia clearly forbid the corporate practice of dentistry.⁹ However, this does not preclude DSOs from operating in those states and supplying management services to dental practices. Ownership exclusions do not necessarily prevent dental practices from contracting with DSOs for nonclinical services. For example⁹:

- Florida's statutes provide that dentists may contract with nondentists for practice management services including administration, human resources, marketing, and consultations about increasing productivity, but these contractual arrangements must not interfere with the dentists' clinical judgment or represent, in effect, employment of a dentist.
- Hawaii, while also clearly barring corporate dental practice, allows that corporations may provide information or clerical services to dentists as long as there is no interference with the dentists' clinical judgment, direction of practice, or selection of treatment.
- Nebraska inhibits corporate practice by requiring the dentist to practice and advertise under his or her own name.
- New Hampshire defines the practice of dentistry as owning, maintaining, operating, or managing a dental business, thus excluding corporate management entities.
- New Mexico allows but limits ownership of dental practices by nondentist owners by requiring registration of ownership with the state and by limiting the operation of these entities to 2 or fewer facilities where dental services are provided.
- North Dakota allows nondentists (defined as any person without a dental license, which, by extension, is interpreted to include a corporation) to own up to 49% of a dental practice. However, nondentist interference with clinical decision-making is considered to constitute the unlicensed practice of dentistry.
- Ohio permits dentists to be employed by business corporations, but those entities cannot be engaged in the practice of dentistry.
- While Oregon restricts ownership, operation, conduct, and maintenance of dental practices to licensed professionals, the state provides exceptions for nonprofit, educational, and other entities exclusive of business corporations. However, ownership exclusions do not cover ownership of real property, equipment, or inventory or employment of personnel other than licensed dentists, or management of dental office functions exclusive of the practice of dentistry. Therefore, an independent practice association of dentists might collaborate with a business entity that owns a facility in delivering dental services to the public.

Other states have similar legal mechanisms that impact business arrangements between dentists and nondental corporations. States have also made clear distinctions between PCs owned by licensed dentists and those owned by other business entities. States generally allow dentists to hire other dentists and to

profit from a dentist-owned PC enterprise. The regulatory complexities and differing legal requirements in states may result in a company that operates in several states using different or alternative management and ownership structures in each in order to be in compliance. Recent litigation in Texas, South Carolina, Pennsylvania, Alabama, Colorado, Illinois, and other states has resulted in the courts voiding contracts between dentists and DMOs because the courts found that the management companies exercised control over dentists that effectively resulted in the DMOs practicing dentistry.²

The Growth in Consolidated Practices in Dentistry

In a 2014 policy paper published by the ADA about structural shifts in dental practices, the authors noted that in 1991, 91.0% of dentists owned a dental practice, while in 2012, 84.8% of dentists owned a practice. Over the same period, the proportion of dentists who were solo practitioners decreased from 67.0% to 57.5%, suggesting a move to larger practices that included one or more partners, associates, or employees.⁶ The ADA has subsequently published several other research briefs discussing the growth in consolidated practices in dentistry.

A 2016 ADA report provides data suggesting an increase in the proportion of dentists engaged with or employed by large group practices over recent years. The authors remark that the extent and recent expediency of consolidation of dental practices differs markedly from either the earlier consolidations of medical practices in health care or the current consolidations in medicine occurring through vertical integration efforts of hospitals, including acquisition of physician practices.¹⁰ According to the authors, the different characteristics of dentistry and its relatively minor position within the hierarchy of health care costs and expenditures make comparisons to medicine improper. They remark on the absence of an incumbent necessity or opportunity for vertical integration in dentistry. The still-predominant small business paradigm in dentistry situates dental practices conveniently for patients, making it generally useful and practical as a model for care delivery. They maintain that the recent trend toward unused capacity in dentistry caused by reduced dental service utilization and a general reduction in the prevalence of dental disease in the US population suggests little need for massive consolidation or scaling to larger dental practices. The authors therefore conclude that the current small business model in dentistry is likely to prevail in the near future.¹⁰

However, for various reasons, consolidations will likely continue to occur, albeit more slowly than in medicine. Consolidated practices are sometimes an attractive option for new dentists because of the opportunity to gain clinical experience and to repay student loan debt.¹⁰ In a 2010 survey of dentists conducted by the ADA, 6% of responding dentists indicated some past or present affiliation with a dental practice management entity.¹¹ In that survey, 15% of dentists practicing less than 10 years indicated that they currently worked for a DSO, and 4.5% of dentists with more than 10 years of practice experience were thus employed. In 2012, it was estimated that approximately 4,000 dental practices in the US were

managed by a DSO, either through outright ownership or through a contractual arrangement.¹¹ A 2017 ADA analysis using ADA masterfile data (which include practice location information for approximately 97% of dentists in the US and information about the locations of DSOs) found that 7.4% of clinically active dentists practiced in a DSO.¹² Female dentists and younger dentists (21 to 34 years of age) were identified as more often practicing in a DSO than other dentists. In a webinar discussing these data, the authors of the study suggested that the proportion of dentists practicing in DSOs may be understated, as DSO affiliation is not fully identified in the ADA masterfile.¹²

The ADA observes that a growing proportion of dentists are working in multi-site practices.⁴ These practices appear to be an increasingly common method of entry into the system for young dentists and also an attractive option for older dentists, those 65 years of age and over, who may be considering at least partial retirement or may wish to divest from private practice. Some economists predict that the growth in large group practices in the US will continue on an upward trend, while others suggest that the market share for these practices has plateaued or will plateau when market penetration reaches 20% to 25% of all dental practices.²

In a presentation to the Dental Group Practice Association (now the Association of Dental Support Organizations [ADSO]),¹³ representatives of Henry Schein, one of the largest suppliers of equipment and technology to the dental industry, commented on their perception of the reasons for worldwide growth in DSOs. The presenters observed that DSOs were growing exponentially, providing increasingly more dental services to patients, and expanding their market share through both dental practice acquisitions and marketing to patients. They noted a perception among some consumers that DSOs' services are standardized and cost effective and an assumption among patients that the size of DSOs and the multiple locations in which they provide services mean a higher level of training for professionals working in those practices and, as a result, superior quality of care. The presentation mentioned drivers of growth in dentists' interest in collaborating with DSOs, focusing on¹³:

- High levels of student debt among new dentists
- The flexibility of employment in a DSO, including options for part-time (PT) or full-time (FT) employment
- The corporations' assumption of both risk and operational costs of practice
- The increased purchasing power obtained from economies of scale
- The opportunity to use technological tools not generally available in small dental practices to allow for quality control and outcomes analyses

The presenters also commented on the ongoing challenge to DSOs of maintaining and incenting high-quality care while also maintaining a profitable enterprise.¹³

Secondary Data Describing DSOs

The Economic Census of the US Census Bureau¹⁴ provides some important information about changes in the configuration of dental practices over the decade beginning in 2002 and ending in 2012. This survey of business firms occurs every 5 years, and the data are reported by North American Industry Classification System (NAICS) codes. The Health Care and Social Assistance Sector of the NAICS (Sector 62) includes the offices of dentists (NAIC Codes 6212, 62121, 621210). The census collects information on several characteristics of businesses, including the number of employees by type, specialty of practice, annual revenues, number of individual establishments operated by the firm, and annual payroll. Because of the consistent data elements in the survey over time, it is possible to track the size of dental practices over the 10-year period. Tables 1 and 2 provide data that illustrate the growth in large dental practices.

In the period between 2002 and 2012, the number of firms (offices of dentists) with 50 to more than 1,000 employees increased from 284 to 438. The number of establishments (locations) operated by larger firms increased from 2,691 in 2002 to 5,485 in 2012. While the number of very large firms remains small, there was growth in the number of establishments/sites at which these firms operate. In 2002, 3 firms operated with more than 1,000 employees in 788 establishments. By 2012, 11 firms reported more than 1,000 employees working in 3,005 establishments.¹⁴

A similar magnitude of growth was observed in the number of firms (offices of dentists) reporting 10 or more establishments/sites for providing dental services. In 2002, 41 firms reported operations in more than 10 establishments, totaling 2,131 locations in the US. In 2012, 67 firms reported operations in more than 10 establishments, totaling 4,480 locations, an increase of 110% in the number of establishments reported by firms in this category.¹⁴

Table 2. Offices of Dentists by Number of Employees in Firms and the Establishment of Firms in the US: 2002, 2007, and 2012

Offices of Dentists	2012		2007		2002		Percent Change, 2002 to 2012	
	No. of Firms	No. of Establishments	No. of Firms	No. of Establishments	No. of Firms	No. of Establishments	No. of Firms	No. of Establishments
No. of firms operated entire year	115,268	123,188	111,013	117,003	103,741	108,737	11.1%	13.3%
<5 employees	41,584	41,662	40,817	40,867	39,694	39,789	4.8%	4.7%
5 to 9 employees	50,091	50,282	47,703	47,921	44,066	44,354	13.7%	13.4%
10 to 19 employees	19,445	20,493	18,889	19,827	16,836	17,831	15.5%	14.9%
20 to 49 employees	3,710	5,266	3,241	4,584	2,861	4,072	29.7%	29.3%
50 to 99 employees	307	939	258	704	202	513	52.0%	83.0%
100 to 249 employees	89	561	79	514	61	545	45.9%	2.9%
250 to 499 employees	24	387	11	382	13	322	84.6%	20.2%
500 to 999 employees	7	593	5	284	5	523	40.0%	13.4%
1,000 or more employees	11	3,005	10	1,920	3	788	267.0%	281.3%

Source: US Census Bureau, Economic Census 2002, 2007, 2012.

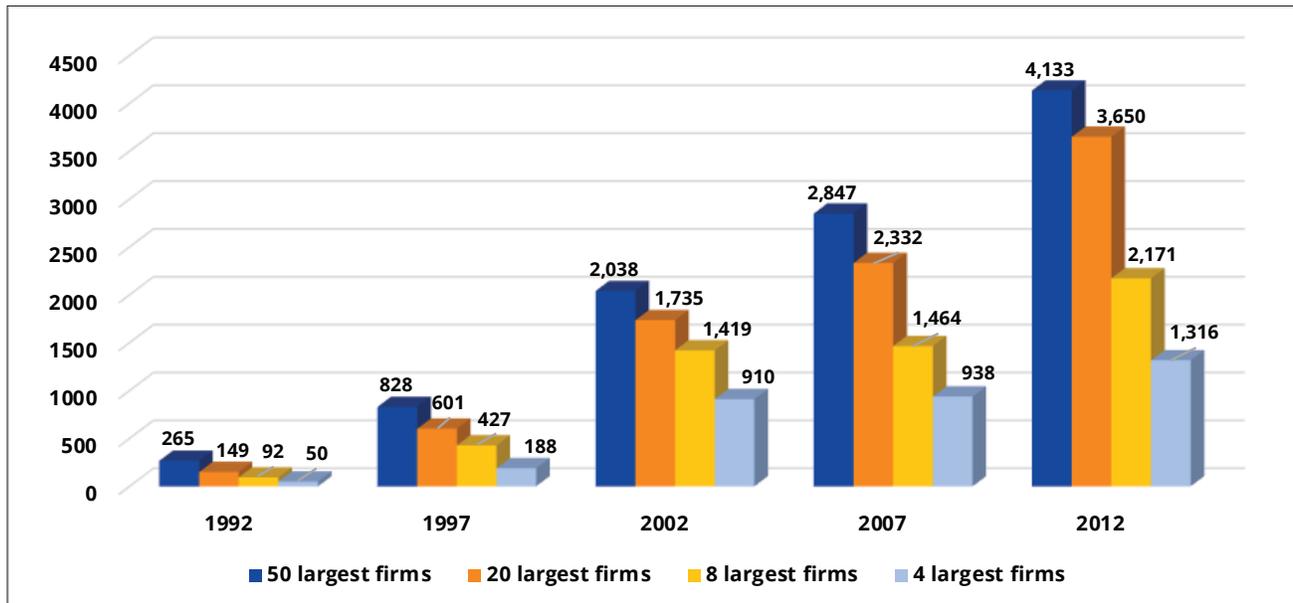
Table 3. Office of Dentists (Firms) by Number of Establishments per Firm in the US: 2002, 2007, and 2012

	2012		2007		2002		Percent Change, 2002 to 2012	
	No. of Firms	No. of Establishments	No. of Firms	No. of Establishments	No. of Firms	No. of Establishments	No. of Firms	No. of Establishments
All Firms (Offices of Dentists)	125,275	133,221	121,048	127,057	113,302	118,305	10.6%	12.6%
Single-unit firms	122,664	122,664	118,615	118,615	110,841	110,841	10.7%	10.7%
Multiunit firms	2,611	10,557	2,433	8,442	2,461	7,464	6.1%	41.4%
Firms with 1 establishment	295	295	342	342	380	380	-22.4%	-22.4%
Firms with 2 establishments	1,557	3,114	1,483	2,966	1,542	3,084	1.0%	1.0%
Firms with 3 or 4 establishments	547	1,772	440	1,431	402	1,297	36.1%	36.6%
Firms with 5 to 9 establishments	145	896	115	694	96	572	51.1%	56.6%
Firms with 10 or more establishments	67	4,480	53	3,009	41	2,131	63.4%	110.0%

Source: US Census Bureau, Economic Census 2002, 2007, 2012.

Figure 1 illustrates the growth in the number of establishments operated by large firms classified as “offices of dentists” over the 20-year period between 1992 and 2012. In 1992, the 50 largest firms each operated, on average, 5.3 establishments; in 2012, the 50 largest firms each operated, on average, approximately 83 establishments offering dental services.¹⁴

Figure 1. Number of Establishments Operated by the Largest Firms (Offices of Dentists) in the US: 1992, 1997, 2002, 2007, and 2012



Source: US Census Bureau, Economic Census 1992, 1997, 2002, 2007, 2012.

In 2012, 133,221 establishments (offices of dentists) reported revenues approximating \$104.9 billion and paid 882,708 PT and FT employees. These figures included establishments operating during any part of 2012. In 2007, there were 127,057 dental establishments operating for all or part of the year, with revenues totaling about \$93.9 billion and employing 825,447 people. In 2002, there were 118,305 dental establishments operating during at least part of the year, with revenues approximating \$71.1 billion and employing 743,628 people.¹⁴

Contributions to Care for the Underserved

In discussing reasons for the growing percentages of Medicaid- and CHIP-insured children in the US receiving any dental service between 1993 and 2010, the Children’s Dental Health Project (CDHP) identified several factors contributing to improved access to services.¹⁵ These increases in the percentage of children receiving dental services occurred over the same time frame that the number of children with public insurance increased from 17 million in 1991 to 33 million in 2010.¹⁵

The factors cited by the authors as contributing to higher utilization of dental services included¹⁵:

- Pronounced advocacy surrounding oral health access, resulting in a growing awareness in the population of the importance of oral health
- Political actions, including the enactment of CHIP and the inclusion of a dental benefit
- An increase in the national supply of dentists due to expansion in dental education programs
- A growing safety net for dental services supported by increased federal funding for oral health services and workforce expansions
- The advent and proliferation of DMOs in the US, especially those that predominantly served publicly insured children

The brief from the CDHP apportioned the source of dental services provided to publicly insured children in 2009 by provider type. Approximately 34% of providers were general practice community dentists; 21% were dental service or management organizations; 19% were pediatric dentists; 10% were safety net providers; 4% were dental trainees (students, residents, and fellows); and the remaining 12% were unattributed. Of the 13 million publicly insured children who received any dental services in 2009, it was “conservatively estimated” that 2.9 million children received care in a DMO.¹⁵

Reasons for the Growth of Large Group Practices

The brief from the CDHP discussed the apparent advantages to a dental practice of contracting for external management and human resource services or of purchase by a dental management organization.¹⁵ DSOs facilitate cost reductions through group purchasing and collective hiring practices. Centralized management allows some DSO clinics to locate in rural or underserved areas and to negotiate better rental rates. These purchasing advantages concomitantly reduce the costs of delivering services, allowing them to be available to a broader population. DSOs are designed to remove the burdens of practice management, equipment purchasing and leasing, property maintenance, and staffing from clinical dental professionals and to allow them to focus exclusively on patient care.

At a meeting convened by the ADA to discuss the challenges and opportunities presented by “corporate dentistry,” dentists reported that high levels of student indebtedness among new dental school graduates were prohibitive for many and were a major barrier for new dentists to purchasing ownership in a traditional dental practice upon graduation from dental school.¹¹ In addition, lower levels of dental

services utilization over recent years has reduced the need for traditional dental practices to hire associate dentists. The characteristics of practice in a DSO were identified by meeting participants as appealing to new dentists, including opportunities for practice mobility (not available in a fixed private practice), flexible work hours, a known salary, and better work–life balance with employment than with ownership.¹¹

In another study, the McGill & Hill Group identified environmental factors favoring growth in the number of DSOs. Some of these factors are listed below.^{11,16}

- Venture capital was more available in recent years to help with establishing these organizations.
- The supply of both dentists and dental hygienists increased during the post-recession period, when opportunities for employment in traditional dental practices remained limited. Dental practices experienced a slower post-recession recovery than did businesses in the general economy.
- DSOs were able to maximize revenues with flexible scheduling of clinical staff at dental clinics, making services available to the public 6 days a week during extended clinic hours while traditional practices worked an average of four 8-hour days each week, lacking the flexibility that comes with a large staff.
- DSOs were able to control the cost of providing services partly due to economies of scale from a large group practice. This purchasing power permits DSOs to negotiate rental costs, dental supply costs, benefit packages, and so on more favorably than smaller traditional practices.
- The larger scale among DSOs provided more resources to mount external marketing campaigns to increase the public’s awareness of the availability of dental services at DSO facilities.
- Conversions of many state Medicaid programs and private dental plans to managed care administrators allowed large DSOs to negotiate more favorable reimbursement rates for services.
- Many private-practice dentists were reaching retirement age and wished to sell their practices, while DSOs had purchasing power.

- The size of many DSOs also allowed these entities to incorporate specialty services, enabling a broad continuum of oral health services within the organizational structure that could help patients establish a comprehensive dental home.

In addition, DSOs were seen as providing an additional training ground for dentists, especially for the newly graduated. Larger practices offered new dentists clinical mentors that were not generally available in smaller private practices. DSOs also had robust electronic dental record and practice management systems that offered clinical protocols and opportunities for research to track quality of care and patient outcomes.¹¹

The contributions of DSOs to increased access to services differ by state and by DSO. DSOs have a limited presence in some states due to regulatory barriers related to the business model; thus, the percentage of children and adults receiving services from a DSO varies by state. It also varies by type of DSO, as not all accept public insurance.

Laffer Associates conducted a review of Texas Medicaid claims to describe billing patterns of both DSO and non-DSO dental providers in the state during 2011.¹⁷ The authors acknowledged that one of the motivations for the study was that DSOs were receiving negative press related to their provision of services to populations, particularly children, with Medicaid benefits. Because many of the largest DSOs in the US were providing services in Texas at the time, it was pertinent to examine the billing practices of these organizations relative to others. The reviewers examined claims for almost 26 million dental procedures for Medicaid-insured patients. Among the findings¹⁷:

- DSO dentists performed fewer procedures per patient (mean of 10.15) than dentists not affiliated with a DSO (mean of 12.4) during the 2011 Medicaid fiscal year in Texas.
- The mean cost per patient per year per DSO dentist was \$483.89. The mean cost per patient per year per non-DSO dentist was \$711.54 and per non-DSO general dentist was \$611.18
- The average procedure cost per DSO dentist was \$47.69. The average procedure cost was \$57.41 for non-DSO dentists and \$53.72 for non-DSO general dentists.
- Mean numbers of higher-revenue procedures (eg, crowns) were lower per patient among DSO dentists (0.32) than among non-DSO dentists (0.38).

The authors disclosed that the study was sponsored by a DSO, Kool Smiles, whose claims data were included in the data analyses. The authors also asserted that the large amount of data that was analyzed provided objectivity to the findings.¹⁷

A similar analysis was conducted by Dobson DaVanzo & Associates using Medicaid data obtained by Benevis Practice Services, which is the DSO providing nonclinical support services to Kool Smiles dental clinics.¹⁸ This analysis of Medicaid dental claims data included data from 7 of the 15 states in which Kool Smiles operated. The claims data included services provided by more than 8,200 providers for 2.5 million unique patients. The data were acquired through freedom-of-information requests to each state.

The objective of the study was to compare patient services provided by Kool Smiles providers with the services provided by other dental providers in the same geographic area (described as, on average, a 7-mile radius surrounding a Kool Smiles practice). Thus, other DSOs were grouped within the “other dental provider” category.

The analyses found that Kool Smiles providers performed 15% fewer total dental services per Medicaid-eligible patient than all other providers, resulting in a 33% lower monthly Medicaid expenditure per Kool Smiles patient. Utilization and expenditures for x-ray services were 6% higher for Kool Smiles providers, but costs were lower for simple extractions, removal of coronal remnants, fillings, pulpotomies, and stainless steel crowns for Kool Smiles providers than for other providers.¹⁸

Primary Data Describing DSOs

The Survey of DSOs

In the spring and early summer of 2017, the OHWRC conducted a short survey of a convenience sample of 47 DSOs in the US. The online survey included questions about the structure and location of DSOs and the patients served by affiliates. The survey contained 15 questions and used a skip-logic design to encourage survey completion. This method prompts a “yes” respondent to an elaborating question while a “no” respondent moves to a subsequent question. The survey took between 10 and 15 minutes to complete. Some questions had predefined response options, while others were open-ended to allow for a narrative response. The survey instrument is included in Appendix C of the technical report. Narrative responses to the survey are included in Appendix D.

The Web-based survey was mounted on the Qualtrics platform; responses were directed to and resided on a dedicated server at the OHWRC at CHWS. This project was reviewed by the New York State Department of Health Institutional Review Board (IRB) (Study #1035761-1).

Potential respondents were members of ADSO. Executive staff at ADSO identified 2 executives at each of its 47 member organizations headquartered in the US to receive an email request to participate in the survey; thus, 94 individuals were solicited to respond. Contacting 2 leaders at each DSO was considered

an important strategy to encourage a robust response rate, as it was difficult to precisely identify who might best supply the requested information about the DSO. It was decided that only the first or most complete response from each DSO would be included in the analysis; thus, the sample size remained at 47.

ADSO created identification codes for each potential respondent that blinded the name of the organization and the executive to OHWRC project staff. Each organization had the same numeric code, but each potential respondent was coded separately with an alphabetic designator (eg, 42a and 42b). OHWRC project staff then attached individualized links to the Web-based survey to each identifying code.

Executive staff at ADSO sent a personalized email to potential respondents on May 23, 2017 requesting participation in the online survey. The email explained the purposes of the research and the confidentiality of responses, and provided respondents with contact information for study personnel at the OHWRC as well as for IRB staff. Two reminder emails were sent to nonrespondents at 10 day to 2 week intervals. Reminder emails were sent only when there had been no response from either individual in the organization.

The survey closed to accruals on Monday, June 19, 2017. Ultimately, only one organization had 2 responses to the survey instrument. As planned, only one of those responses was included in the aggregated data. The number of responding organizations was 32 of the 47 solicited to participate; the response rate was 68.1%.

Due to the limitations of the sample design and the inability to determine representativeness of the responding organizations, these results may not be broadly generalizable. However, they are of interest especially because they explain the diversity of DSOs in the US. The following frequencies and cross-tabulations provide a summary description of the DSOs that responded to the survey.

Findings from the survey included the following:

- DSOs defined their organizations in various ways, suggesting functional differences among similar organizations within the broad class known as “dental support organizations” (87.5%). Many additionally defined themselves as a “dental service organization” (46.8%), a “dental management organization” (34.4%), or a “dental management service organization” (28.1%).
- DSOs were mainly for-profit organizations (96.8%), and a majority were privately held (62.5%).
- DSOs were operating in 48 states and in the District of Columbia. There was no DSO presence among respondent groups in Alaska and Montana.

- All DSOs (100.0%) provided similar business and management services. However, fewer than three-quarters (71.9%) had a common electronic dental record, and fewer than half (46.9%) provided clinical care protocols to affiliates.
- DSOs varied in the number of patients served by practice affiliates in 2016. The range was 6,000 to 1,600,000 patients.
- The number of patients served by a DSO was not necessarily an indicator of the number of states in which that DSO operated. Some DSOs with large numbers of patients operated in only one state, while other DSOs with smaller numbers of patients operated in multiple states.
- Dentists affiliated with DSOs in various ways, including as associates (66.7%), owners (66.7%), and employees (53.7%).
- The mean number of FT dentists affiliated with a DSO was 213; the number of FT dentists in DSOs ranged from a minimum of 6 to a maximum of 1500. The median number of FT dentists was 60.
- Eighteen (56.3%) of the 32 DSOs indicated that they had some PT dentists. The mean number of PT dentists in those DSOs was 36. The median number was 28, and the mode was 100; the range was from 3 to 100 PT dentists.
- DSOs' affiliate practices were mainly staffed by general dentists. Approximately 90% of survey respondents indicated that between 61% and 100% of dentists in the organization were general dentists.
- DSOs indicated that they experienced more-than-average difficulty (mean of 3.6 on a 5-point scale) recruiting dentists to their organizations. However, DSOs also indicated below-average difficulty (mean of 2.7 on a 5-point scale) retaining dentists once hired to the organization.
- DSOs recruited some new dental school graduates annually, but the main source of new recruits to many of the organizations was experienced dentists. Sixty percent of survey respondents indicated that between 51% and 100% of new recruits annually were experienced dentists.
- DSOs observed that dentists are attracted to work with a DSO by the salary/compensation packages, by the location of DSO practices, and by the career opportunities afforded within the organization.

- While DSO affiliate practice staff included dental hygienists (DHs) and dental assistants (DAs), the use of auxiliaries varied substantially across organizations. Most DSOs had between 1 and 2 DAs, on average, per dentist. Most had less than 1 DH per dentist on average.
- The number of FT and PT DHs varied widely among DSOs. The range in number of FT DHs was 0 to 800. The range in number of PT DHs was 0 to 100.
- The number of FT and PT DAs also varied widely among DSOs. The range in number of FT DAs was 0 to 2,900. The range in number of PT DAs was 0 to 200.
- Thirty of the DSOs that participated in the survey research responded to a question asking if any of the dentists affiliated with the organization treated patients insured by Medicaid or CHIP. Eighty percent indicated that at least some dentists affiliated with the DSO treated publicly insured people.
- Sixty-one percent of DSOs that served Medicaid-insured patients indicated that 50% or more of the dentists affiliated with the organization treated some patients insured by Medicaid or CHIP, with 43.5% of DSOs indicating that between 91% and 100% of affiliated dentists served some patients who were publicly insured.
- Twenty-two DSOs answered a question about the percentage of the patient population that was Medicaid or CHIP insured. More than one-third of these DSOs (36.4%) indicated that 50% to 95% of the patient population served by the organization was publicly insured.
- Most of the Medicaid or CHIP population served by DSO affiliate practices were children. Nearly two-thirds (63.6%) of respondents indicated that more than 60% of the Medicaid-insured population served in affiliate practices were children.
- Twenty-three of the 32 survey respondents (71.9%) indicated that they served Medicaid- or CHIP-insured patients in at least one state in which they had dental practice affiliates.

We will now review the results in detail.

Nomenclature and Description of DSOs

- **Finding:** DSOs defined their organizations in various ways, suggesting functional differences among similar organizations within the broad class known as “dental support organizations” (87.5%). Many additionally defined themselves as a “dental service organization” (46.8%), a “dental management organization” (34.4%), or a “dental management service organization” (28.1%).

DSO respondents were prompted to describe their organization by selecting an appropriate term from a list of commonly used names for large group dental practices. These names were identified during the literature review for the project. Respondents were told to mark all that apply, and many selected more than one classification. This suggests that current terminology does not precisely describe the discrete differences in existing business configurations or, alternatively, that these organizations identify in multiple ways because of the varying models of affiliation with different dentists within each.

Almost all of the organizations identified as a dental support organization (87.5%) (see Table 4), but many also identified as a dental service organization (46.8%), a dental management organization (34.4%), or a combination of both, a dental management service organization (28.1%). One possible explanation is that the classification “dental support organization” is an umbrella term that nominally describes a class of organizations with small functional differences; the other terms may better demarcate these discrete differences.

Table 4. Respondent Organizations’ Designations of Type of Organization (N=32)

Classification	N	%
Dental management organization	11	34.4%
Dental service organization	15	46.8%
Dental support organization	28	87.5%
Dental management service organization	9	28.1%
Large group practice	7	21.9%
Dental accountable care organization	0	0.0%
Dental health maintenance organization	0	0.0%
Other organization (specify)	0	0.0%

- **Finding:** DSOs were mainly for-profit organizations (96.8%), and a majority were privately held (62.5%).

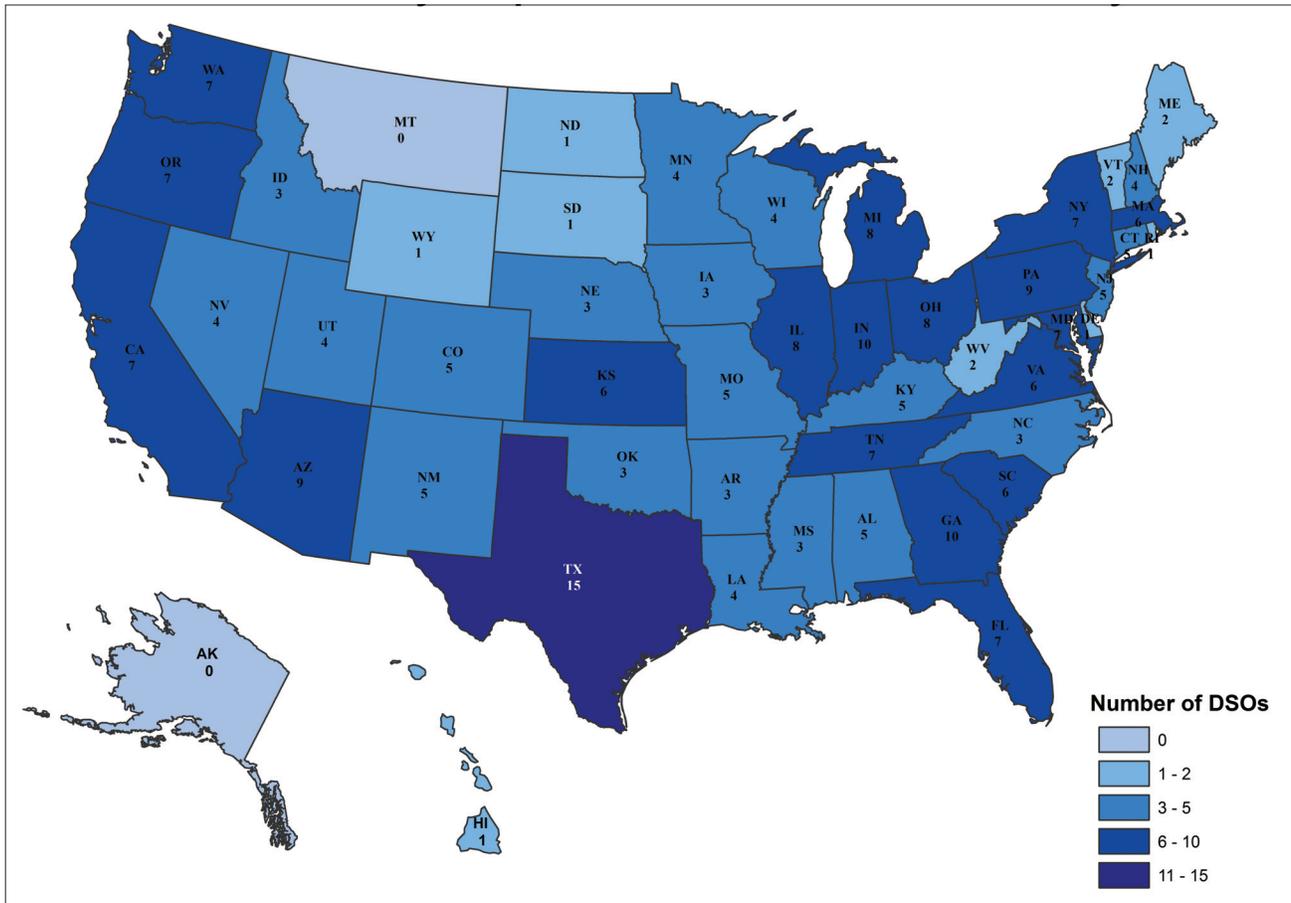
Respondents were asked to describe the ownership of their organization. All but one (96.8%) indicated that the DSO was a “for-profit” organization. None of the responding organizations was publicly held, while nearly two-thirds (62.5%) were privately held.

Almost three-quarters of survey respondents (71.0%) indicated that their DSO had outside investors, including an equity firm or a public company; one entity had a private investor (3.2%), and the remaining 25.8% involved no outside equity investors. These organizations are often collectively labeled “corporate dentistry.” The term may be appropriate from the perspective of the group sharing communal management resources with external financing mechanisms, but the connotation of public ownership does not appear to be entirely applicable.

- **Finding:** DSOs were operating in 48 states and in the District of Columbia. There was no DSO presence among respondent groups in Alaska and Montana.

Nearly half of the survey respondents indicated that their group had a presence in Texas (46.8%), and approximately one-third (32.2%) had locations in Georgia, Indiana, or both (Figure 2). Smaller, less populous states did not have as many DSO-affiliated practices. Respondents indicated only one DSO affiliate in Delaware, Hawaii, North Dakota, Rhode Island, and/or Wyoming, and only 2 DSOs had a presence in the District of Columbia, Maine, and/or Vermont.

Figure 2. Number of DSO Survey Respondents With Affiliate Practices by State



The range of states in which DSOs operated was 1 to 42. The mean number of states was 7.6, the median was 3, and the mode was 1. The standard deviation was 10.14.

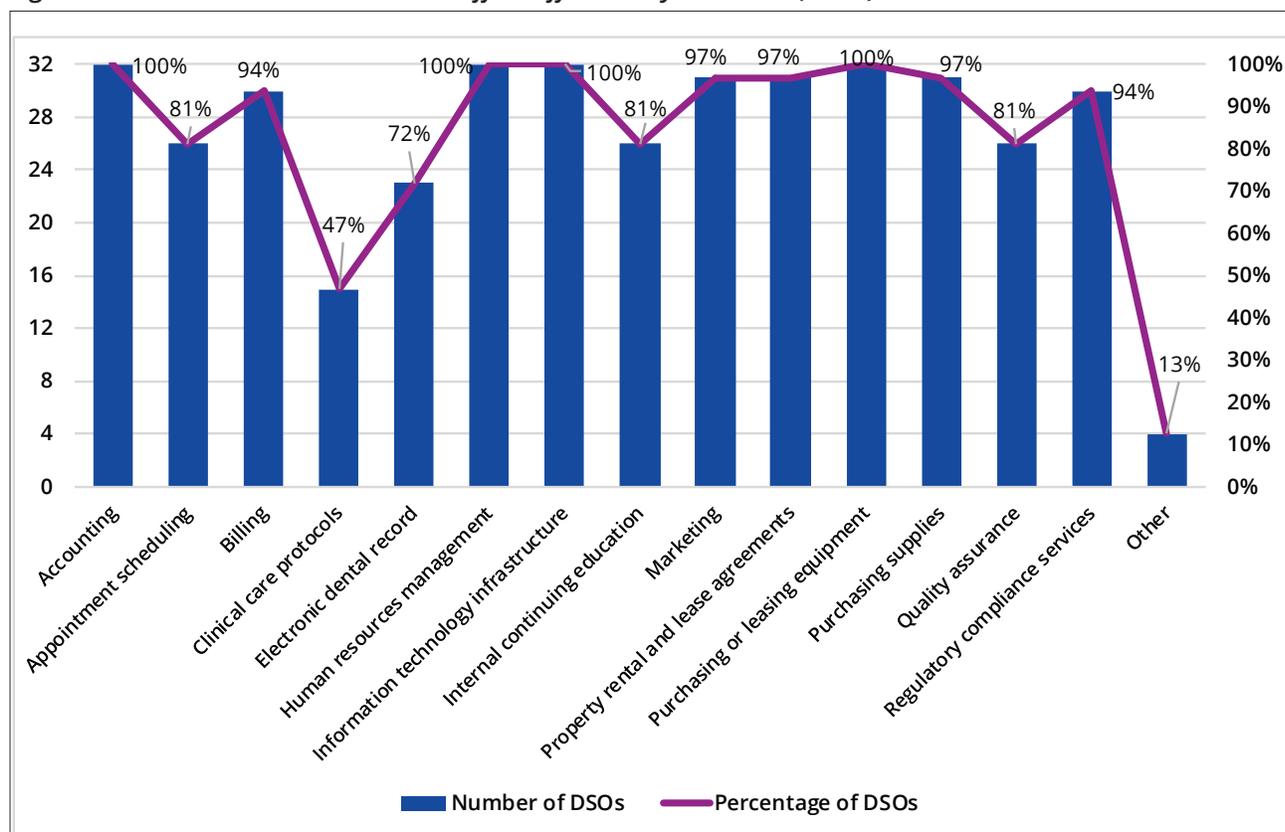
- **Finding:** All DSOs (100.0%) provided similar business and management services. However, fewer than three-quarters (71.9%) had a common electronic dental record, and fewer than half (46.9%) provided clinical care protocols to affiliates.

Universally offered services (100%) included accounting services, human resources management, information technology infrastructure, and purchasing or leasing of equipment. Most DSOs also provided marketing services (96.9%), property rental and lease agreement services (96.9%), purchasing of supplies (96.9%), billing services (93.8%), and regulatory compliance services (93.8%). Fewer, but still the majority (81.3%), provided appointment scheduling services, internal continuing education, and quality assurance services (Figure 3).

Nearly three-quarters of DSOs (71.9%) offered a common electronic dental record, and fewer than half (46.9%) provided clinical care protocols to affiliates. This corroborates findings from the case studies

suggesting that many DSOs remain distant from the clinical functions of affiliated dentists. Even those DSOs in the case studies that provided any clinical protocols tended to rely on industry standards, such as those of the ADA or the American Academy of Pediatric Dentists (AAPD). This finding appears to further support the separation of business and clinical functions within these conglomerated groups.

Figure 3. Services Provided to Dental Office Affiliates by the DSOs (N=31)



- **Finding:** DSOs varied in the number of patients served by practice affiliates in 2016. The range was 6,000 to 1,600,000 patients.

Twenty-six of the DSOs responded to a question about the total number of patients treated by the DSO's dental affiliates in 2016. The range among DSO respondents was 6,000 patients to 1,600,000 patients (Table 5), suggesting notable differences in scale within this class of dental service provider. The standard deviation in the number of patients treated annually by the DSOs in the sample demonstrates the considerable differences between these organizations.

Table 5. Descriptive Statistics of Number of Patients Serviced in DSOs in 2016

No. of Respondents	No. of Patients					
	Minimum	Maximum	Mean	Median	Mode	Standard Deviation
26	6,000	1,600,000	359,774	169,500	500,000	453,039

- **Finding:** The number of patients served by a DSO was not necessarily an indicator of the number of states in which that DSO operated. Some DSOs with large numbers of patients operated in only one state, while other DSOs with smaller numbers of patients operated in multiple states.

DSOs operate variously in states. Some serve a substantial number of patients in a single state, while others serve smaller or larger numbers of patients in multiple states. Eight of the DSOs responding to the survey were located in a single state; these DSOs served between 44,000 and 189,000 patients in their respective states in 2016. Their business strategies included multiple practice affiliations within a single-state market. Some appear to be concentrating on penetration in a particular market (eg, children on Medicaid or a specialty service like orthodonture or dentures).

Five of the DSOs operated in 2 states; the number of patients served in 2016 by those DSOs varied widely from 6,000 to 350,000, once again suggesting variation in penetration in those states. Nine of the DSOs were conducting business in between 3 and 7 states; the number of patients served in 2016 by these organizations varied between 20,000 and 300,000.

The remaining 4 DSOs that provided patient counts for 2016 were operating in between 10 and 17 states and serving between 1,000,000 and 1,600,000 patients. These organizations are likely equipped to address the broad range of regulatory compliance requirements across multiple states and the various business needs of a broad range of affiliate practices. The largest DSOs that responded to the survey operated in 28 states, 37 states, and 42 states, respectively, but these DSOs did not supply the number of patients served in 2016, likely due to the scale of their enterprises.

Clinical Workforce Within DSOs

- **Finding:** Dentists affiliated with DSOs in various ways, including as associates (66.7%), owners (66.7%), and employees (53.7%).

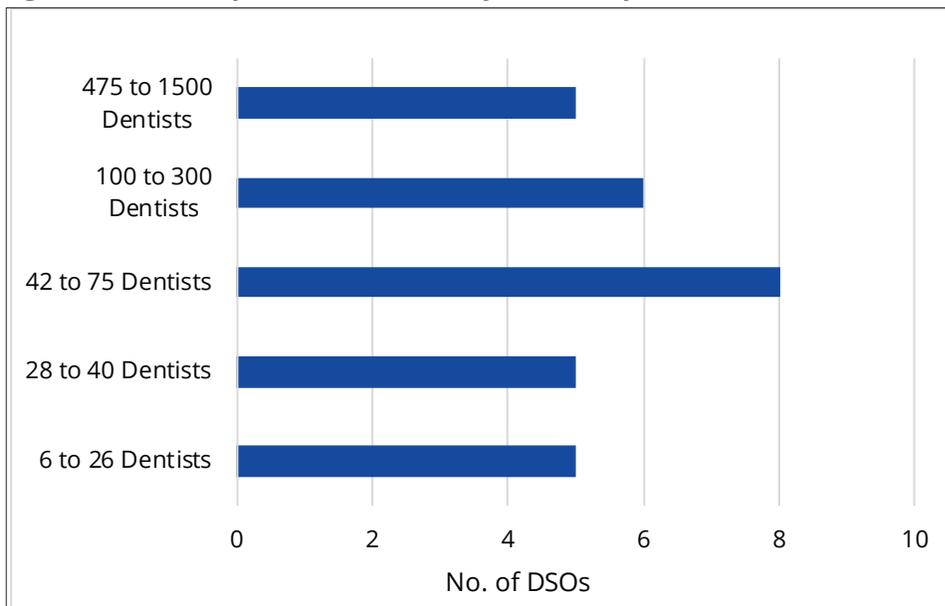
Survey respondents described the relationship of dentists to the organization. The majority of DSOs had multiple and differing relationships with affiliated dentists within the organization. Four of the 30 DSOs that responded to the question indicated that dentists were exclusively employees of the organization. Likewise, 3 DSOs indicated that all dentists were associates. However, the remainder of the organizations indicated a mixture of affiliation types, including associate, employee, owner, and shareholder. Two-thirds (66.7%) of the DSOs had at least one dentist owner, and 43.3% had dentist shareholders (Table 6). Two DSOs indicated other relationships with dentists, including as clinical leaders or contracted dentists. None of the DSOs hosted dental residents.

Table 6. Types of DSO Affiliations With Dentists Within the Organization (N=30)

Type of Dentist Affiliation with the DSO	% of DSOs
Associate(s)	66.7%
Employee(s)	53.3%
Dental Resident(s)	0.0%
Owner(s)	66.7%
Chief Executive Officer	13.3%
Shareholder(s)	43.3%
Other	6.7%

- **Finding:** The mean number of FT dentists affiliated with a DSO was 213; the number of FT dentists in DSOs ranged from a minimum of 6 to a maximum of 1500. The median number of FT dentists was 60 (Figure 4).

Figure 4. Number of Full-time Dentists by Number of DSOs (N=29)



- **Finding:** Eighteen (56.3%) of the 32 DSOs indicated that they had some PT dentists. The mean number of PT dentists in those DSOs was 36. The median number was 28, and the mode was 100; the range was from 3 to 100 PT dentists (Table 7).

PT dentists represented a smaller share of the total number of dentists in each DSO compared with FT professionals. However, one DSO had an equal number of FT and PT dentists. The percentage of PT dentists in an organization varied widely, with some DSOs indicating that PT dentists comprised a relatively small share of the total dentist population and others noting that PT dentists made up as much as one-third to one-half of affiliated dentists.

Table 7. Number of Full-time (FT) and Part-time (PT) Dentists in the DSOs

FT Dentists in the DSO	PT Dentists in the DSO	Total # of Dentists in the DSO	% PT Dentists in the DSO
25	3	28	10.7%
28	8	36	22.2%
32	18	50	36.0%
35	15	50	30.0%
40	40	80	50.0%
42	8	50	16.0%
42	7	49	14.3%
52	25	77	32.5%
60	35	95	36.8%
68	6	74	8.1%
75	35	110	31.8%
100	25	125	20.0%
120	30	150	20.0%
150	50	200	25.0%
220	40	260	15.4%
300	100	400	25.0%
550	100	650	15.4%
1500	100	1600	6.3%

- **Finding:** DSOs’ affiliate practices were mainly staffed by general dentists. Approximately 90% of survey respondents indicated that between 61% and 100% of dentists in the organization were general dentists.

Most respondents indicated that only a small percentage of staff dentists were pediatric or specialty dentists. Approximately 90% of survey respondents indicated that between 61% and 100% of dentists in the organization were general dentists. Eight percent of respondents indicated that between 91% and 100% of staff dentists were specialty dentists. One organization noted that approximately 60% of the dentists in the DSO were pediatric dentists (Table 8).

The organizations with high percentages of specialty dentists (91% to 100%) were among the organizations that had 30 or fewer FT dentists, suggesting a focus on specialty services. The DSO that indicated the largest number of FT dentists (1,500) indicated that 23% of dentists in the organization were dental specialists, suggesting that some organizational affiliates might offer both general and specialty dental services.

Table 8. Percentage of DSOs Responding to the Survey Question by the Percentage of General, Pediatric, and Specialty Dentists on Their Clinical Staff

% of All Dentists in the DSO	% of DSO Survey Respondents		
	General Dentists (N=28)	Pediatric Dentists (N=20)	Other Specialties (N=25)
0 to 10%	7.0%	80.0%	56.0%
11% to 20%	0.0%	10.0%	24.0%
21% to 30%	3.6%	5.0%	8.0%
31% to 40%	0.0%	0.0%	4.0%
41% to 50%	0.0%	0.0%	0.0%
51% to 60%	0.0%	5.0%	0.0%
61% to 70%	10.7%	0.0%	0.0%
71% to 80%	21.5%	0.0%	0.0%
81% to 90%	21.5%	0.0%	0.0%
91% to 100%	35.7%	0.0%	8.0%
Total	100.0%	100.0%	100.0%

- **Finding:** DSOs indicated that they experienced more-than-average difficulty (mean of 3.6 on a 5-point scale) recruiting dentists to their organizations. However, DSOs also indicated below-average difficulty (mean of 2.67 on a 5-point scale) retaining dentists once hired to the organization.

DSO executives were asked to indicate their approximate level of difficulty recruiting dentists to the organization. Survey respondents rated the difficulty of recruiting new dentist hires on a scale of 1 to 5, with 5 being the most difficult, 3 being neither easy nor difficult, and 1 being the least difficult. The mean difficulty score among respondents was 3.6, suggesting that, on average, DSOs are finding it somewhat difficult to recruit dentists to their organizations.

DSOs were also asked to rate (on the same Likert scale) their difficulty retaining dentists once they had been hired to the organization. The mean difficulty score was 2.67, indicating below-average difficulty retaining dentists in the organization.

DSOs rated their difficulty in hiring DHs to the organization at 2.77, on average, and their difficulty in hiring DAs at 2.35, on average—both indicating below-average difficulty. The average difficulty of retaining DHs was 2.4, with somewhat more difficulty experienced in retaining DAs (2.9); nevertheless, retention difficulty was below average for both groups.

- **Finding:** DSOs recruited some new dental school graduates annually, but the main source of new recruits to many of the organizations was experienced dentists. Sixty percent of survey respondents indicated that between 51% and 100% of new recruits annually were experienced dentists.

More than half of survey respondents (51.9%) indicated that fewer than 20% of new recruits to the organization annually were new dental school graduates, and 78.3% of respondents indicated that fewer than 20% of new recruits were new graduates of dental residency programs. Conversely, 60.7% of DSO survey respondents indicated that between 51% and 100% of new recruits annually were experienced dentists.

These data suggest that recruitment strategies are particular to each organization and are generally unrelated to the size of the dental staff. Several of the largest organizations indicated that more than 60% of new hires were new dental school graduates, while others of similar size indicated that between 70% and 75% of newly hired dentists were experienced dentists. DSOs of smaller size showed similar variation in preferences for recruitment of new staff.

The case studies that were also part of the current research found that DSOs organize differently. Some are constituted largely of small private dental practices that affiliate with the DSO for management services. This model would obviously result in experienced dentists affiliating with the management organization—thus the data suggesting that new affiliates are mainly experienced dentists. Other organizational models relied heavily on building “de novo” or new locations, which might be jointly staffed by both experienced dentists and new graduates. Thus, recruitment strategies would vary by the type of organization and the particular practice needs.

Table 9. Percentage of New Dentist Recruits Who Are New Dental School Graduates, New Graduates of Dental Residency Program, or Experienced Dentists by the Percentage of DSO Survey Respondents

% of New Dentist Recruits to the DSO, Annually	% of DSO Survey Respondents		
	New Dental School Graduates (N=27)	New Graduates of Dental Residency Programs (N=23)	Experienced Dentists (N=23)
0 to 10%	44.4%	52.2%	0.0%
11% to 20%	7.5%	26.1%	10.7%
21% to 30%	18.5%	8.7%	10.7%
31% to 40%	7.4%	4.3%	3.6%
41% to 50%	3.7%	4.4%	14.3%
51% to 60%	11.1%	0.0%	17.9%
61% to 70%	7.4%	0.0%	7.1%
71% to 80%	0.0%	4.3%	17.8%
81% to 90%	0.0%	0.0%	14.3%
91% to 100%	0.0%	0.0%	3.6%
Total	100.0%	100.0%	100.0%

- **Finding:** DSOs observed that dentists are attracted to work with a DSO by the salary/compensation packages, by the location of DSO practices, and by the career opportunities afforded within the organization.

Survey respondents were asked to indicate, by narrative comment, the benefits offered to dentists during the recruitment process that were most appealing to new recruits. While each respondent indicated a different assortment of benefits, most included salary/pay/compensation and location of practices among the benefits considered attractive. Some mentioned opportunities for eventual ownership or equity in the DSO. The narrative comments are included in Appendix D of this report (see Question 13).

- **Finding:** While DSO affiliate practice staff included DHs and DAs, the use of auxiliaries varied substantially across organizations. Most DSOs had between 1 and 2 DAs, on average, per dentist. Most had less than 1 DH per dentist on average.

Most, but not all, survey respondents supplied data on the number of DHs and DAs in their affiliated practices. DSOs varied in their staffing patterns. Some employed no or very few DHs but many DAs, while others indicated large numbers of both.

The ratios of DHs to dentists and DAs to dentists in DSOs varied widely. One specialty DSO employed 7.5 DAs to every dentist in the organization. In some states, qualified DAs are permitted to perform expanded functions in several areas of dentistry, including orthodonture and restorative services—thus their use in specialty care. Most DSOs had between 1 and 2 DAs per dentist and less than 1 DH per dentist (Table 10).

Table 10. Range of the Ratios of Dental Hygienists (DHs) to Dentists and Dental Assistants (DAs) to Dentists in DSO Affiliate Practices^a

Range	% of DSOs	
	DHs per Dentist	DAs per Dentist
None	25.0%	4.2%
0.1 to 0.3	16.7%	0.0%
0.4 to 0.6	16.7%	0.0%
0.7 to 1.0	25.0%	4.2%
1.1 to 2.0	12.5%	58.3%
2.1 to 3.0	4.2%	25.0%
3.1 to 4.0	0.0%	0.0%
4.1 to 5.0	0.0%	4.2%
5.1 to 6.0	0.0%	0.0%
6.1 to 7.0	0.0%	0.0%
7.1 to 8.0	0.0%	4.2%

^a These ratios do not account for variation in full-time and part-time work status; available data did not permit precise calculation of professional effort.

- **Finding:** The number of FT and PT DHs varied widely among DSOs. The range in number of FT DHs was 0 to 800. The range in number of PT DHs was 0 to 100.

The mean number of FT DHs in DSOs that employed them was 176.6, and the median number was 45. The standard deviation was 248.45 (Table 11).

Table 11. Range in the Number of Full-time (FT) and Part-time (PT) Dental Hygienists (DHs) by Percentage of DSOs

Range	% of DSOs With DHs (N=24)	
	FT DHs	PT DHs
None	25.0%	41.7%
1 to 10 DHs	8.3%	29.2%
11 to 20 DHs	8.3%	16.7%
21 to 30 DHs	12.5%	0.0%
31 to 40 DHs	8.3%	0.0%
41 to 50 DHs	4.2%	0.0%
51 to 60 DHs	4.2%	4.2%
61 to 70 DHs	4.2%	0.0%
71 to 80 DHs	0.0%	4.2%
81 to 90 DHs	0.0%	0.0%
91 to 100 DHs	0.0%	4.2%
101 to 200 DHs	4.2%	0.0%
201 to 300 DHs	4.2%	0.0%
301 to 400 DHs	0.0%	0.0%
401 to 500 DHs	8.3%	0.0%
501 to 600 DHs	0.0%	0.0%
601 to 700 DHs	4.2%	0.0%
701 to 800 DHs	4.2%	0.0%

- **Finding:** The number of FT and PT DAs also varied widely among DSOs. The range in number of FT DAs was 0 to 2,900. The range in number of PT DAs was 0 to 200.

The mean number of FT DAs in DSOs that employed them was 400.1, and the median number was 158. The mode was 60; the standard deviation was 632.84 (Table 12).

Table 12. Range in the Number of Full-time (FT) and Part-time (PT) Dental Assistants (DAs) by Percentage of DSOs

Range	% of DSOs With DAs (N=24)	
	FT DAs	PT DAs
None	4.2%	41.7%
1 to 10 DAs	4.2%	12.5%
11 to 20 DAs	0.0%	4.2%
21 to 30 DAs	0.0%	16.7%
31 to 40 DAs	4.2%	4.2%
41 to 50 DAs	4.2%	4.2%
51 to 60 DAs	8.3%	0.0%
61 to 70 DAs	4.2%	0.0%
71 to 80 DAs	0.0%	0.0%
81 to 90 DAs	4.2%	4.2%
91 to 100 DAs	12.5%	4.2%
101 to 200 DAs	29.2%	4.2%
201 to 300 DAs	4.2%	4.2%
301 to 400 DAs	0.0%	0.0%
401 to 500 DAs	8.3%	0.0%
501 to 600 DAs	0.0%	0.0%
601 to 700 DAs	0.0%	0.0%
701 to 800 DAs	0.0%	0.0%
801 to 900 DAs	0.0%	0.0%
901 to 1,000 DAs	8.3%	0.0%
1,001 to 2,000 DAs	4.2%	0.0%
2,001 to 3,000 DAs	4.2%	0.0%

Patients Served by the DSOs

Survey respondents were asked about participation with state Medicaid and CHIP programs to understand their contributions to care for underserved populations.

- **Finding:** Thirty of the DSOs that participated in the survey research responded to a question asking if any of the dentists affiliated with the organization treated patients insured by Medicaid or CHIP. Eighty percent indicated that at least some dentists affiliated with the DSO treated publicly insured people.

The DSOs that had no dentists in the organization who served publicly insured patients were asked to describe their reasons for not participating with Medicaid. These respondents indicated that regulations and regulatory compliance was too difficult and/or that reimbursement rates were too low for the business model. These narrative responses may be found in Appendix D of this report (see Question 14.1).

- **Finding:** Sixty-one percent of DSOs that served Medicaid-insured patients indicated that 50% or more of the dentists affiliated with the organization treated some patients insured by Medicaid or CHIP, with 43.5% of DSOs indicating that between 91% and 100% of affiliated dentists served some patients who were publicly insured (Table 13).

Table 13. Percentage of DSO-Affiliated Dentists Serving Some Patients Insured by Medicaid or CHIP by Percentage of DSO Respondents

Percentage of Affiliated Dentists Treating Medicaid-or CHIP-Insured Patients	% of DSO Respondents (N=23)
1% to 10%	13.0%
11% to 20%	13.1%
21% to 30%	13.0%
31% to 40%	0.0%
41% to 50%	4.4%
51% to 60%	0.0%
61% to 70%	4.3%
71% to 80%	8.7%
81% to 90%	0.0%
91% to 100%	43.5%
Total	100.0%

- **Finding:** Twenty-two DSOs answered a question about the percentage of the patient population that was Medicaid or CHIP insured. More than one-third of these DSOs (36.4%) indicated that 50% to 95% of the patient population served by the organization was publicly insured (Table 14).

The foregoing findings support one of the key hypotheses of this study: that DSOs are contributing to increased access to oral health services for underserved populations in various catchment areas across the US. DSOs served varying numbers of publicly insured patients, but more than one-third of survey respondents appeared to be Medicaid “predominant,” defined as having a high percentage of publicly insured patients.

Table 14. Percentage of the Total Patient Population That Is Publicly Insured by the Percentage of DSO Survey Respondents

Percentage of Total Patient Population Insured by Medicaid or CHIP	% of DSO Respondents (N=22)
1% to 10%	31.8%
11% to 20%	13.7%
21% to 30%	4.5%
31% to 40%	9.1%
41% to 50%	9.1%
51% to 60%	13.6%
61% to 70%	9.1%
71% to 80%	4.6%
81% to 90%	0.0%
91% to 100%	4.5%
Total	100.0%

- **Finding:** Most of the Medicaid or CHIP population served by DSO affiliate practices were children. Nearly two-thirds (63.6%) of respondents indicated that more than 60% of the Medicaid-insured population served in affiliate practices were children.

Among the survey respondents who answered a question asking what percentage of Medicaid-eligible people served by DSO affiliates were children, nearly two-thirds (63.6%) indicated that more than 60% of the Medicaid-insured population served in affiliate practices were youth (Table 15).

The case studies of DSOs performed for this project and discussed in a subsequent section of this report found that DSOs were concerned about the instability of adult dental benefits in Medicaid programs in multiple states. As a result, DSOs in the case studies either chose not to participate with a particular state Medicaid program or chose to treat only Medicaid-insured children in a state. The Medicaid dental benefit for children is part of the essential Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefit, which is also extended to CHIP-insured children. The consistency of the benefit enables a DSO to establish a practice serving a predominantly publicly insured panel of young patients. DSOs were clear that relying on Medicaid funding for adult dental benefits is not in the best interest of practice sustainability because the benefit is subject to removal during state budget negotiations, putting a practice with a large adult Medicaid population at financial risk.

Table 15. Percentage of the Total Medicaid- or CHIP-Insured Patient Population That Are Children by the Percentage of DSO Survey Respondents

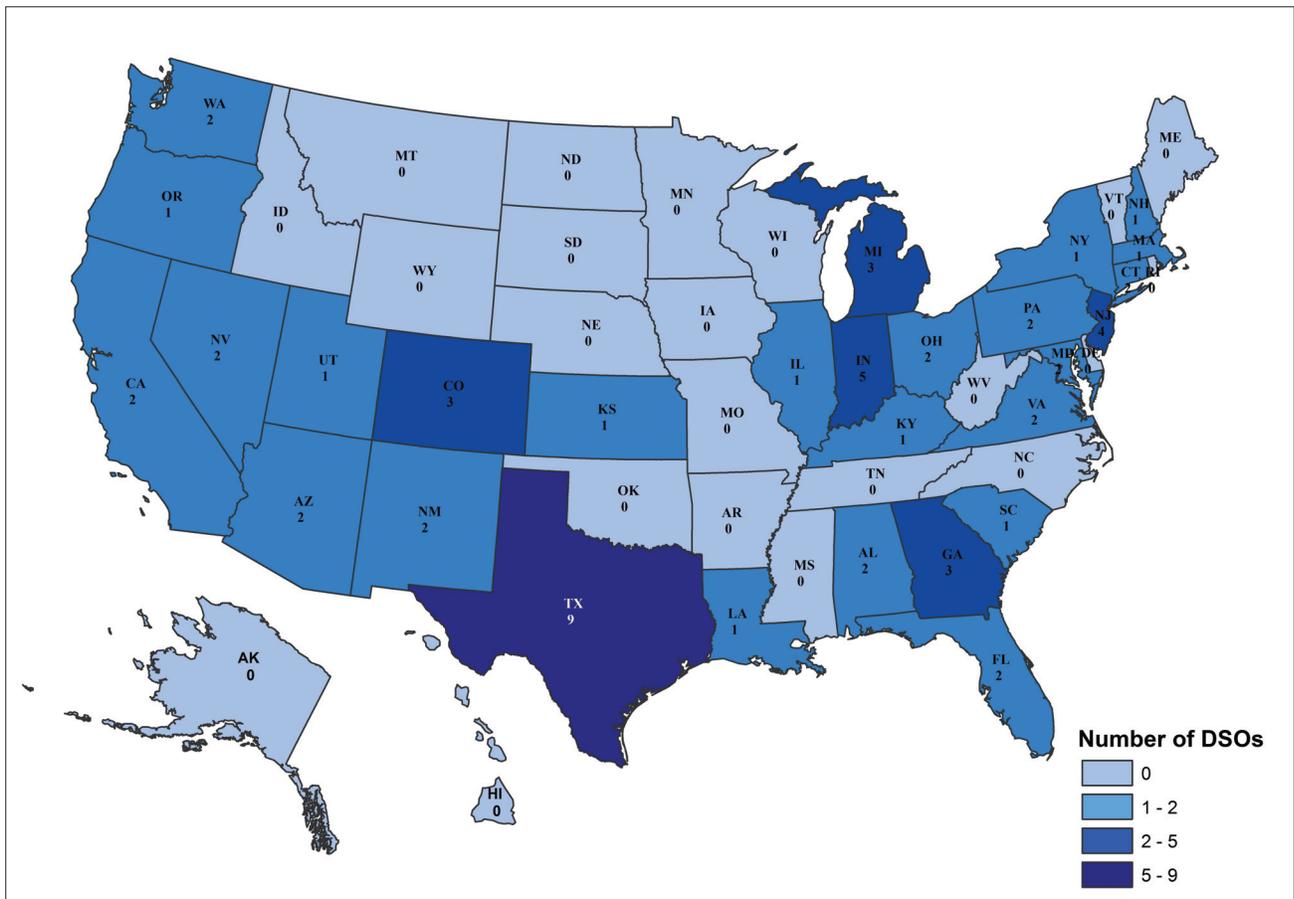
Percentage of the Medicaid- or CHIP-Insured Population that are Children	% of DSO Respondents (N=22)
1% to 10%	13.6%
11% to 20%	0.0%
21% to 30%	9.1%
31% to 40%	9.1%
41% to 50%	4.6%
51% to 60%	0.0%
61% to 70%	9.1%
71% to 80%	13.6%
81% to 90%	18.2%
91% to 100%	22.7%
Total	100.0%

- **Finding:** Twenty-three of the 32 survey respondents (71.9%) indicated that they served Medicaid- or CHIP-insured patients in at least one state in which they had dental practice affiliates (Figure 5).

DSOs did not serve Medicaid patients in all of the states in which they were located. The number of states in which affiliates served publicly insured patients ranged from 1 to 7. The mean number of states served by DSOs that treated Medicaid patients in any location was 2.7 states; the median number was 2 states, and the mode was 1. The standard deviation was 2.05.

The states in which DSOs most prominently served Medicaid- or CHIP-insured patients were Texas (9 DSOs), Indiana (5), New Jersey (4), Georgia (3), and Colorado (3). DSOs serving publicly insured patients were noticeably absent in the north-central states of the US and in some southern states.

Figure 5. Number of Survey Respondents With Affiliated Practices Serving Publicly Insured Patients by State



Summary of Survey Findings

This survey of DSOs was conducted to further the literature describing business support organizations in the dental service delivery market in the US. While the convenience sample of DSOs limits the generalizability of these findings, they are nonetheless of interest. The accumulated data describe a diverse group of management organizations that provide a common core of business and information services but otherwise vary substantially in size and focus. DSOs appear to be diverse in locations of practice, in types of offered services, and in patients served.

The DSOs that responded to this survey described a focus on management services with only limited involvement in any aspect of clinical dentistry. Some DSO affiliates focused on specialty services, while most provided general dentistry services or a mixture of general and specialty care. Some DSOs were located in only a single state while others showed significant penetration in multiple states.

DSO were actively recruiting workforce, including dentists, DHs, and DAs. DSOs appeared to have some difficulty in recruiting dentists to their organization. This may be due to an increasing variety of options

available to dentists—for example, private practice, working in a DSO, the military and public health service, and employment with not-for-profit provider organizations such as federally qualified health centers.

DSOs affiliated with dentists through a variety of mechanisms, including direct employment, association with a PC or practice association, and even contractual arrangements. One interesting finding was that most dentists recruited to DSOs each year were experienced dentists. This finding is likely coincidental to DSOs' strategy of affiliating with private-practice dentists who already have established practices.

As anticipated, DSOs were largely supported by investments of private equity, but none of the respondent organizations was a publicly held corporation. The involvement of private equity was an expected finding because the scale of management services offered by these organizations would generally require substantial capital investment beyond the capability of many individual dentists. However, it is not currently possible to anticipate further moves to public holding, as DSOs are gaining in size and may eventually evolve to public entities.

One of the most important findings from this survey is that DSOs are serving Medicaid- and CHIP-eligible patients to an appreciable degree. Reimbursement from public dental benefits is below usual and customary fees, making it difficult for small-scale providers to absorb costs related to dental service provision to the publicly insured. DSOs leverage size and market penetration to the advantage of both their organizational affiliates and the public, making dental services more affordable and readily accessible.

While the survey data are mainly descriptive, they are helpful in understanding the wide variation within the classification of DSOs. Further research is needed to better understand the universe of DSOs in the US.

Case Studies of 6 DSOs in the US

In April and May of 2017, project staff conducted telephone interviews with key personnel at 6 DSOs in the US. These organizations generally fell within the American Dental Association’s classification of “dental management organization affiliated group practices.” The more commonly used “DSO” is the collective term employed throughout this report to describe these large group dental practices under common business management.

Although guided by a protocol of questions, the interviews for these case studies were largely unstructured to allow informants to provide general information about the composition and structure of their organizations and the patients served. Representatives of the 6 DSOs that provided interviews self-selected to participate in the case studies after hearing about the project during a presentation by project staff to the Medicaid Compliance Committee at the annual meeting of ADSO in March 2017. Most of the DSOs in the case studies were serving patients insured by Medicaid in the states in which these DSOs operated—hence the presence of their executive staff at the Medicaid compliance meeting. The targeting of Medicaid-predominant DSOs for the interviews was purposeful and was among the criteria in the original proposal for this project. Descriptive summaries of these DSOs may be found in Appendix A of this report. The interview protocol may be found in Appendix B.

The 6 DSOs participating in the case study interviews were:

- ***Affordable Care LLC*** headquartered in Raleigh and Kinston, North Carolina
- ***Benevis*** headquartered in Marietta, Georgia
- ***Community Dental Partners*** headquartered in Denton, Texas
- ***Dental Care Alliance*** headquartered in Sarasota, Florida
- ***Perfect Dental Management*** headquartered in Needham, Massachusetts
- ***STX Healthcare Management Services, Inc.*** headquartered in Bellaire, Texas

The purpose of the case studies was to identify common themes and differences among a selection of DSOs in the US. Although the DSOs in the case studies had differing target populations and catchment areas, there were common characteristics and objectives, which are summarized under the following themes. As the number of interviews was small, these findings may not be broadly generalizable.

Common Themes From the Interviews

The following common themes emerged from the interviews.

- Economic and regulatory influences, including costs associated with delivering oral health services, drive the growth in the number of DSOs across the US and their organizational structures.
- Affiliations between dental practices and DSOs may be more common than current data suggest.
- DSOs clearly delineate between the management functions of the organization and any clinical functions of dentistry.
- DSOs locate and configure as variously as the practices that comprise them.
- DSOs contribute to increased availability of oral health services for underserved populations.
- Providing dental services to people insured by Medicaid has unique challenges in each of the states in which DSOs operate.
- Recruitment and retention strategies for dentists and other clinical providers varied by DSO and by individual practice need within each DSO.
- A common electronic dental record, including administrative modules, is essential to managing practices in multiple locations and to enabling compliance, cost containment, human resources, and other management services.

The following paragraphs provide further detail around these findings.

- Economic and regulatory influences, including costs associated with delivering oral health services, drive the growth in the number of DSOs across the US and their organizational structures.

The current focus in the policy environment and among provider communities and patients on the ever-increasing costs of health and oral health services and on their disproportionate distribution and availability is forcing change in the structure of dental practices. Informants to the case studies were clear

that the small business model in which dentists have historically operated is less able to perform optimally in the current business and regulatory environments than in the past.

According to informants, practice consolidations that enable sharing of administrative resources with expertise in business management and regulatory compliance reduce practice management burdens for dentists. Association with a support organization allows clinical providers to spend less time on management functions and to focus instead on clinical quality and service provision.

While there was certainly agreement among informants that the local private dental practice is an ideal model for some patients to conveniently access services and is therefore unlikely to disappear, the ways in which those practices are managed will likely evolve away from the historical pattern. In addition, the current model is not efficient for delivering services to all populations or in all geographic areas. Informants surmised that the market would continue to accommodate various management models for both small private and large group dental practices.

DSO executives were clear that the purpose of management organizations is not to disrupt small local practices but to support them as local businesses. DSOs also expect to supplement and increase the availability of dental services by locating dental practices in areas in which either they are not currently available or there is an insufficient supply of dentists to meet the need for services. DSO informants exhibited an understanding of both unmet need for dental services in certain population groups and geographic areas and increasing demand for affordable and convenient options for obtaining services.

Most of the DSOs used a mixed management model in their associations with dental practices, ranging from only providing management services under contract with a practice to ownership of the business portion of the practice and direct employment of dentists.

“The marketplace in dentistry has become more competitive because patient utilization is not at desired levels. Private practices are concerned about decreased demand.

While some attribute changes in local markets to consolidations in dentistry and large group dental practices, much of the reason is related to societal attitudes towards dentistry and a prevailing view that dentistry is a dispensable commodity during difficult economic cycles. Dentistry needs to find a way to become more relevant to people.”

—A case study participant

- **Affiliations between dental practices and DSOs may be more common than current data suggest.**

In some DSOs that participated in the case studies, a portion or all of the affiliated practices were branded under one or more names in a “franchise” model, although this designation is not entirely appropriate when applied to branded dental practices. Clinical service provision remains differentiated across practices, even among those with the same name, since clinical treatment decisions reside with individual affiliated dentists.

However, other aspects of branded practice, such as office design and décor, marketing, training, and so forth, are generally standardized across locations; thus, these models have some characteristics typical of a business franchise. The larger community often recognizes such practices as DSOs because of successful branding; ownership by a DSO is, therefore, relatively transparent. Aspen Dental, Kool Smiles, and Great Expressions are examples of dental providers that are widely known to be nationally or regionally owned and operated. Informants to the case studies also commented that not all branded dental practices are DSO affiliates. Large group practices owned and operated by dentists that do not meet the definition of a DSO also may be branded, confounding the ability of the public to identify DSO affiliation.

Some DSOs have more than one branded “line,” depending on the target population or the state in which the practices operate. For instance, Perfect Dental Management, which is a DSO, has offices branded as Perfect Dental that offer general dentistry services for patients across the age spectrum in numerous practice sites throughout Massachusetts and in New Hampshire and Texas. Perfect Dental also has pediatric dentistry and orthodontic practices in Massachusetts that carry different names. In other DSOs, the brand varies by state. STX Healthcare Management Services has 37 practices commonly named South Texas Dental in locations surrounding Dallas, Fort Worth, and Houston and 6 practices in Alabama branded as Vital Smiles.

According to informants, DSOs take various approaches to affiliating with dental practices, including acquiring existing practices and originating new dental practice locations. Some DSOs acquire existing dental practices and rebrand them by name change, office design renovation, and conversion to a common electronic dental and administrative record system. Other DSOs preferred to create branded dental practices “de novo” (as new practices) using a staff model of employed clinicians and associates. Under certain circumstances, these DSOs may convert an existing practice to brand specifications; however, in general, branded practices were new dental practices located in markets found to be in need of increased capacity for oral health service delivery.

Still other DSOs affiliated with existing dental practices and structured these affiliations in various ways, including contracting with and/or purchasing the business entity. Dental Care Alliance is a DSO with 255

locations in 13 states; these affiliates operate under 80 different names, some of which are common. Affiliated practices in Pennsylvania are named Dental Solutions of [place name], in Georgia as Dental One Associates, in Michigan as Gentle Dental, in New York as Family Dental Group of [place name], and so on. Dental Care Alliance also has many small dental practice affiliates that remain under their original names, including that of the founding dentist.

Heartland Dental, thought to be one of the largest DSOs in the nation, has more than 750 affiliated practices in 34 states; some locations are branded as My Dentist, while others operate under various dentists' names. Decisions about naming may be limited by state regulatory requirements (eg, a legal stipulation that a dental practice name contain the name of the owner dentist). Nevertheless, the association of unbranded dental practices with a DSO is opaque to the public. Thus, the ongoing multi-model reconfigurations occurring in dentistry are confounding efforts to identify, count, and describe the penetration of DSOs in the oral health service delivery market. Current data may underestimate the overall penetration of DSOs in the US.

Several informants addressed the negative press surrounding DSOs due to a few “bad actors” in the marketplace. Informants commented that consolidations in dentistry simply mimic what has already happened in the practice of medicine, ophthalmology, dermatology, physical therapy, and other areas of health care. In the opinion of case study informants, management aggregations are part of a necessary evolution in the industry to expand the availability of dental services and increase the affordability of dentistry.

“It should not matter how a practice administers its business functions; rather, it is more important that the clinical service components of a dental practice are high quality and value based regardless of ownership and management.”

—A case study participant

- **DSOs clearly delineate between the management functions of the organization and any clinical functions of dentistry.**

Case study participants were definite that DSOs provide only business, management, and marketing support to dentists and that clinical functions related to the practice of dentistry—including hiring and training of clinical staff, supervision and delegation of clinical tasks to that staff, and dental treatment and planning—remain under the exclusive auspices of dentists. While the DSOs' business staff generally provided compliance and billing audits to ensure that services to patients are consistent with regulatory requirements, informants were clear that these functionaries do not interfere with the practice of clinical dentistry at any level. All case study participants were well informed regarding the various legal requirements in states regarding the practice of dentistry and ownership of dental practices. In some states, a DSO may only provide management services under contract to dentists; in others, they may own the nonclinical assets of the practice.

This differentiation between clinical and practice management functions was notable in the organizational structures discussed during the interviews. Each DSO had from one to many clinical directors who were dentists, often one or more in each state in which the DSO had a presence. Clinical directors were responsible for all clinical aspects of dental practice. The clinical director(s) and/or clinical services divisions of the DSOs interfaced with affiliated dentists when any aspect of clinical decision-making was in question. Clinical directors and clinical affiliates were involved in hiring new dentists and DHs, in establishing and managing evidenced-based clinical protocols, and in managing the training and precepting of new dentists to the organization. In some cases, these functions remained within the individual dental practice affiliates that contracted with the DSO.

The DSOs were differently incorporated in the states in which they operated. All were private corporations, and some had private equity investors. The DSO model in dentistry in many ways mimics that of physician management/practice organizations that are currently relatively common in medicine. In some cases, affiliated dentists were among the owners of the DSO; in others, they were members of a separate PC. These PCs were generally divested of the physical/real property assets of the practices, but they retained ownership of the patients, their dental records, and the goodwill created by the practices in local communities.

- DSOs locate and configure as variously as the practices that comprise them.

The 6 DSOs varied in size, scope, and history. While the number of DSOs participating in the case studies was small, it was notable that each organization varied from the others in focus and configuration. Although there were common business functions performed by all the DSOs, each was differently positioned in its respective market depending on the geography of the practice, the dental specialties and services offered, and the characteristics of the targeted population(s) in the communities for which each was providing services.

All of the organizations provided a consistent range of business and human resource services, such as leasing or purchasing of equipment, supplies, and real estate; human resource and benefit management; billing; accounts payable and receivable; legal services; compliance activities and audits; marketing and public relations; patient call centers; information technology, including electronic dental records; treasury services; and facility management and maintenance.

Despite these commonalities, there were broad differences in the focus areas of DSOs and their affiliated dental practices. One DSO exclusively provided specialty dental services (prosthetics and implants). Some focused on particular populations, such as children. Still others were configured as large vertically integrated organizations providing a full spectrum of general and specialty dental services with both small and large dental practice affiliates, which were sometimes branded and sometimes not.

Affordable Care LLC operating as Affordable Dentures & Implants is an example of a specialized DSO with market efficiencies that make it a competitive provider of dentures and implant services. While affiliated practices generally provide services on a cash or credit basis only, they will provide patients with the necessary documents to recover costs from any dental insurance company. Some affiliates participate with state Medicaid programs, although denture benefits in most Medicaid programs are not robust. Some state Medicaid programs have no denture benefit; others will provide one set of full dentures during the lifetime; still others allow full denture replacements every 5, 6, or 7 years. Many have strict guidelines about partial dentures. Thus, patients who are eligible for Medicaid may still need to self-pay for dentures that are outside the permissible parameters.

“DSOs founded by dentists are sometimes better at managing costs because dentists understand the practice environment and the services provided to patients. Dentists are also often better at creating a positive patient experience because they understand the dental culture and how best to engage families.”

—A case study participant

Due to the ability of Affordable Care LLC, (operating as Affordable Dentures & Implants offices), to buy materials at greatly reduced per-unit cost because of volume discounting, the dental practice affiliates are able to provide patients with dentures and implants more economically than private dental practices and at more affordable prices. The appealing cost point has spurred considerable growth in the number and location of Affordable Dentures & Implants practices.

Affordable Care LLC is one of the oldest DSOs in the country. Two dentists in North Carolina recognized a need among their patients for affordable dentures as well as same-day service. Many of their rural patients traveled considerable distances to their practice, and return visits were problematic. Affordable Dentures & Implants-affiliated practices each have onsite denture labs to fabricate either total or partial prosthetic devices on the same day as the impressions. The DSO has more than 220 locations in 39 states and has served more than 6 million patients since its founding in 1975.

- **DSOs contribute to increased availability of oral health services for underserved populations.**

As informants discussed the mission and focus of each organization, many commented that the originator of the DSO was a founding dentist with a desire to increase access to services for a particular population by making services either more available or more affordable (or both). All reported that this remained an objective of their DSO.

Several case study participants discussed the need for providing high-quality dental services to underserved populations and the market opportunities that exist in areas where dental services are either not available or in short supply. Many also discussed the agility of a DSO to reduce the overhead and supply costs related to dental practice, as the DSO is able to leverage service volume to purchasing and contracting advantage. This permits DSOs to operate with improved margins between cost and revenue and participate with state Medicaid programs that generally pay less than the prevailing usual and customary fees for dental services. Cost efficiencies permit DSOs to operate more easily in the Medicaid market than many small private dental practices, although informants commented that operating in these markets can still be quite difficult.

“The presence of DSOs in the dental service delivery market has both direct and indirect impacts on services to underserved patients. One side effect of the presence of DSOs in the marketplace is healthy competition that encourages provision of affordable services in previously underserved areas.”

—A case study participant

Informants elaborated on the reverberating benefit of DSOs to patient access. When DSOs are building a new dental practice, they often locate in geographic areas where populations are identified through marketing studies as having an unmet need for dental services. These geographic locations are often in mid-size or smaller markets, including rural areas.

Informants commented on interesting downstream effects from DSOs' choice of practice locations. In many cases, other service providers, including private dental practices and other DSOs, subsequently move to the same areas in which DSOs originate practices, recognizing a new market with community need for dental services. Thus, patients in those areas are not only afforded services but also a choice of providers, an option that had been unavailable prior to the location of the DSO to the community.

Given that populations without access may also reside in urban areas, several of the DSOs were active in large cities as well as in small towns and more remote locations. Informants discussed the state of Texas, which has many dentists surrounding the several large metropolitan areas of the state. One DSO operated in those urban markets treating underserved populations, but it also identified several small towns and rural areas in the state where there were no proximate dental services and opened practices in those locations.

- **Providing dental services to people insured by Medicaid has unique challenges in each of the states in which DSOs operate.**

The variation in dental benefits among state Medicaid programs and the different service approval criteria make participation with public insurance programs difficult for any dental provider. Because of their size and centralized management, DSOs have more resources to participate with state Medicaid plans than smaller practices, though they still encounter these challenges. DSOs struggle to provide services in some Medicaid markets because reimbursement rates are low and limitations on allowable services are prohibitive.

In some states, it is difficult to operate in the Medicaid marketplace because benefits for adults are volatile. Some states have now eliminated an established adult dental benefit, making dental services essentially unavailable to adults with Medicaid unless the patient chooses to self-pay. Some states use the adult dental benefit to negotiate challenging budget processes, either supporting or eliminating it during changing budget cycles. For DSO practices that have a patient base that is largely Medicaid insured, these benefit changes make the market very unstable. DSOs discussed feeling forced to make a strategic decision to leave the adult Medicaid market because of uncertainties surrounding the continuation of the benefit. Informants to the case study described this as especially unfortunate, as they are willing providers who would be available to the population if the benefit were more secure. The dental benefit for children is an essential benefit for all eligible children; thus, that market is more sustainable.

Informants commented that when administrative conversions from fee-for-service to managed care began to occur among state Medicaid programs, DSOs had difficulty ensuring that all providers in a state were credentialed with each insurer. There were problems with the provision of services to patients of record when a provider was not yet participating with the new plan administrator. Some states have contracts with only a few dental plan administrators, while others have many, increasing the administrative paperwork. One DSO talked about the exponential impact of having more than 50 providers in a state with 8 or 10 Medicaid plan administrators. Each plan required that a provider be credentialed before services by the provider were reimbursable.

This also increased the difficulty of placing a new provider in a Medicaid-predominant practice, as that provider would be limited to treating only patients not insured by Medicaid until participation agreements were effective. Sometimes relatively long waits were required to achieve full credentialing.

Case study informants discussed the cultural and oral health literacy issues among patients in some locations that resulted in high no-show rates for appointments, particularly in practices with a high percentage of Medicaid-insured or uninsured patients. In some practices, no-show rates approximated 30% to 50% of scheduled appointments, making it necessary to double- or triple-book slots to ensure that clinical staff were busy. DSOs were clear that, although their goal is to support the communities in which they are located, no business, small or large, can continue to operate if the practice experiences persistent financial deficits because patients fail to arrive for scheduled care.

DSOs were also clear that clinical providers were encouraged to be “insurance agnostic” when determining treatment plans and to provide high-quality clinical services regardless of payment type.

However, in some practices with high percentages of noncompliant patients, dentists sometimes found a need to accomplish as much treatment as clinically advisable for a patient at each appointment, as there was no assurance that a patient would return to complete a treatment plan.

One state-specific example illustrating the difficulties of working in state Medicaid programs was the Texas Dental Home Initiative, in which the Medicaid program required patients to designate a primary dentist for their child at initial qualification and at re-enrollment each year. If a patient failed to designate a dentist, the

“Our founding dentists recognized the need for dental services among the Medicaid-insured population and wished to increase the availability of dental services for these patients. The DSO continues to be guided by this stewardship to underserved communities and to participate with public insurance programs where possible, although that is more difficult in some places than in others.”

—A case study participant

patient was defaulted to any dentist that participated in the Medicaid program. Only about 55% of the population actually complied with the requirement, while the other 45% were randomly assigned to a dentist. As a result, a patient might arrive at the office to see his or her dentist, but the service would either not be approved or not be paid because the dentist providing the services was not listed as “primary.” While the patient or parent was able to elect a change in the designated dentist, it created another layer of administrative work that was cumbersome and time consuming for office staff at DSO locations.

One DSO provided data on the organization’s penetration in the Medicaid market. The case study informant described the primary target market as families with children insured by Medicaid. In one year, DSO-affiliated dentists completed nearly 350,000 patient visits, an average of 1.7 visits per patient. Most of the patients—about three-quarters—were under 13 years of age.

Case study informants expressed an interest in accountable care. They discussed the expertise of DSOs in monitoring quality and providing value-based care, and several were willing to assume risk for their patient population. Because dentists develop treatment plans based on the best interests of the patient and not to fit the dental benefit, a portion of the services provided to patients are uncompensated; thus, it would be beneficial to be paid for oral health outcomes rather than for services provided. In addition, interview participants noted that certain provider organizations that predominantly treat low-income populations receive enhanced payment rates from Medicaid programs. Several discussed the large volume of Medicaid patients on their caseloads and suggested that it would be helpful if there were opportunities for DSOs to negotiate enhanced payment rates because of the size of the patient base with Medicaid benefits and the contributions of the DSO to caring for the underserved.

- **Recruitment and retention strategies for dentists and other clinical providers varied by DSO and by individual practice need within each DSO.**

According to interview participants, recruitment strategies generally depend on the type of practice in which the new hire will serve patients, on the size of the practice, and on the characteristics of the patients. All DSOs acknowledged hiring some new dental school graduates, but this was not necessarily a pervasive preference. The comments of informants suggested that recruiting new dental school graduates is only one part of a mixed approach to recruiting workforce. New dental school graduates sometimes require further clinical training and, thus, the physical presence of an experienced precepting dentist. Another perceived limitation of hiring newly graduated dentists was that patient flow in some practices required optimal efficiencies in treatment planning and service provision that were possible only with appreciable clinical experience.

The most appropriate placement for a new dentist was thought to be in a large dental practice, where mentors or preceptors were consistently available and where the service capacity could accommodate the learning curve required for new dental school graduates. Several informants commented that the demands of working in practices that predominantly treat patients insured by Medicaid require efficient workflows and experience, especially since a proportion of patients have complex dental treatment needs, so that even large practice environments are not always ideal for inexperienced dentists.

DSO informants differentiated between hiring recent dental school graduates and hiring recent graduates of specialty dental residency programs who have spent several years in clinical practice developing the required clinical capacity and efficiency. DSOs that provided specialty services for patients actively recruited from among residency graduates. One DSO was rotating dental specialists through the DSO's general dentistry practices to allow patients in need of specialty services to obtain them directly from their dental home. An oral surgeon or a periodontist might see patients in the general dentistry office one day a month or more often, depending on the patient population.

DSOs experience the same recruitment issues as other providers when they recruit for practice in certain locations. Dentists, like many other health professionals, often wish to locate where there is a potential market to build a practice, where schools are good and the standard of living is relatively high, and where there are other community amenities. In addition, many dentists must consider family needs when deciding on a practice location. Recently, the percentage of female dentists working in DSOs has increased, partly because there are more female dentists in the workforce and partly because the workplace flexibility in DSOs is appealing.

One informant commented that it was easy to recruit for a position in a location such as southeast Florida, but finding dentists willing to work in small towns and rural areas was much more challenging. Several of

“An ideal candidate for affiliation with the DSO would be a dentist with at least 5 years of practice experience in the military, in private practice, or in another DSO. This would provide them with the necessary experience to deliver quality dental services efficiently.”

—A case study participant

the informants commented on active recruitment of foreign-trained dentists who are completing the required education programs for licensure in the US. Many of these dentists have practiced dentistry in their countries of origin and are accustomed to providing dental care to a broad range of patients from a variety of cultural and economic backgrounds. In the experience of DSO informants, some of these dentists are more willing to consider practice in small towns and underserved areas.

In addition, when placing dentists in a community, the DSO considers the local population. DSOs make an effort to have a diverse workforce. One case study participant commented on the high number of Hispanic patients on caseloads in certain areas, making it especially important to recruit a multicultural workforce. Although the pool of diverse dentists is limited, DSOs may accommodate that limitation by hiring other staff, including DAs who are diverse and bilingual. In one DSO with 400 employees, about 58% of the employees are bilingual.

Another source of recruitment is dentists from other DSOs or from within the organization itself. Multistate DSOs provide opportunities for mobility for dentists. DSO informants provided the example of younger dentists, many of whom have professional spouses and partners who are subject to job transfers. Employment by a DSO permits these dentists to move with their spouse or partner when job changes occur. In addition, because DSOs are better able to accommodate part-time work due to the size of the organization, some dentists affiliate with the organization because they want a work-life balance that permits time for family needs. This flexibility is difficult to find in smaller practice settings. The DSOs also provided attractive employment benefits, including health and dental benefits, malpractice insurance, 401(k) plans, and even payment of dental association membership dues.

The pool of more experienced dentists was also a source of dentist recruitment for DSOs. Some older dentists are seeking acquisition of their practices by a DSO as an exit strategy or as a means to reduce clinical practice hours as they age. DSO affiliation eliminates concerns about selling the equipment and physical assets of the practice. It may also allow the dentist to work part time or to make the choice to practice longer owing to reduced stress with the removal of responsibility for practice management functions.

The employment relationship with clinical staff varied within each DSO, and several had a variety of options for affiliation. In some, dentists were salaried, with arrangements for an incentive payment based on recovered revenue from services. Several of the DSOs also provided opportunities for a dentist to establish a private practice. In one, the DSO would finance the office and equipment; the dentist would pay the DSO a portion of the proceeds from services until the initial investment was paid. In other DSOs, some clinical affiliates were salaried professionals, while other dentists only contracted for the DSO's management services.

One informant commented that it has recently become more challenging to recruit dentists than in the past simply because there are more practice consolidations and they are occurring more often than in the past. Thus, numerous employment options are available to dentists. Employment of dentists for practice in some states, such as Alabama, is particularly challenging because reimbursement rates for

dental services are lower than in other places, leading many new dental graduates to leave the state to practice.

Case study informants suggested that turnover in their organizations was reasonable and manageable. Salaries among the DSOs tended to be very competitive, and the benefits they offer give the organizations an edge on smaller practices. One DSO cited an attrition rate of about 18% annually and indicated that about 5% of the turnover was involuntary—a result of nonrenewal of dentists' contracts for various reasons usually related to quality issues.

One case study participant described the typical staffing model in a practice location as 1 or 2 DHs and 2 DAs per dentist, with 2 or more front-office staff. Another interview participant commented on moving all solo dental practices under DSO management to at least 2 dentists. This configuration was described not only as more efficient but also as a strategy to increase the DSO's ability to accommodate vacations and absences without interrupting patient care.

- **A common electronic dental record, including administrative modules, is essential to managing practices in multiple locations and to enabling compliance, cost containment, human resources, and other management services.**

Each of the DSOs had an electronic dental record which was either currently used by all affiliated practices or to which all practices were in the process of converting. Case study informants discussed ongoing challenges related to converting and/or integrating legacy dental record systems from small dental practices as they affiliate with the DSO. “De novo” practices were equipped from the beginning with the DSO's electronic dental record, so immediate management of those practices was described as seamless.

One DSO had created a hybrid information system using patches and bridges to allow each practice access to the larger administrative record system; another DSO was in the process of building a new system on an incremental basis to ensure that each of the modules within the system fully met the needs of all DSO dentists and management.

Each DSO used different software, but all discussed the importance of central data management to audit compliance, leverage purchase contracts, and maximize service capacity. Some used widely available systems such as Planet DDS/Denticon, Open Dental, and Dentrix, while others were building organic systems within the DSO using national vendors to customize and tailor a software product to the specific needs of the DSO. Some DSOs operated in a paperless environment, while others worked in a hybrid environment that included both paper and electronic records. Common information systems were also used to provide clinical support tools for dentists, including caries risk assessment tools and clinical protocols such as the preventive service guidelines from the AAPD.

All DSOs considered information essential to monitor the quality of care for patients, to manage the financial and human resources aspects of the business, and to identify best practices and areas where improvement was needed within the organization.

Summary of the Case Studies

The case studies provided information about both the common and the distinct characteristics of DSOs. While DSOs are often collectively cast as “corporate dentistry” practices in discussions of dental practice management, it was apparent that each has differently evolved to meet the needs of its targeted populations and that each has done so organically, based on local need and conditions for practice. It was also evident that these organizations were required to be nimble to provide cost-effective services that meet the quality goals of the organization and the extensive clinical needs of patients. Many were operating in difficult insurance markets with populations that had been underserved until the arrival of the DSO.

Many of the DSOs that participated in the case studies were founded by dentists who had recognized the opportunities in consolidated practices, including economies of scale to allow for more affordable dental services. These dentists often teamed with business entrepreneurs to design and implement the amalgamated practice model. According to case study participants, DSOs founded by dentists are generally well-rounded organizations because they understand all aspects of clinical service delivery.

Consolidated practice management is currently a common business model in medicine and in allied health. Physician management organizations, independent practice associations, and hospital-owned physician practices are all examples of this business model. Consolidations in dentistry have accelerated recently, and many oral health stakeholders have concerns about the impact of the business model on the quality of services provided to patients. DSO informants acknowledged awareness of the current pervasive tension between profitability of practices and quality of patient services throughout health care; interview participants were confident of the possibility of providing high-quality oral health clinical services in resource-restrained environments if close attention is paid to cost management and to stewardship of professional resources. In fact, many spoke of organizational missions to serve the underserved and of a commitment to improved outcomes for their patients.

DSOs are well positioned to work with insurers on value-based care. Several spoke of a willingness to assume risk for their patient populations, explaining that the organization’s philosophy of care included enhancing the oral health literacy of patients, encouraging routine preventive services, and creating dental homes for patients. They also explained that monitoring of clinical quality was much easier in DSOs than in smaller practices simply because variation in quality of services across practices was easier to

identify and address. The importance of high-quality services that meet clinical guidelines established by a variety of professional organizations, including the AAPD and the ADA, was consistently acknowledged.

DSOs were actively recruiting new graduates, but this was not their sole recruitment strategy. Several exogenous factors appear to contribute to a new graduate's propensity for employment in a large organization and thus to the scarcity of new graduates available to private practices. Case study participants talked about the burden of student loan debt that made it difficult for new dentists to buy into a small practice. In some DSOs, a dentist can be financed to build a practice without a large initial personal investment. Another determinant of practice selection was described as a generational preference for work-life balance that was affecting decisions by younger dentists seeking flexibility in their clinical practice. This flexibility was more readily available through employment than through ownership of a dental practice. Work-life balance was also described as a consideration for older dentists who were divesting practices to DSOs to have more control over personal time and to provide an avenue for easier exit from practice.

DSOs are thought to occupy a relatively small share of the dental marketplace at the present time. However, it was apparent from the interviews that the actual market share of DSOs is difficult to enumerate because the scale of DSO association with small dental practices is currently impossible to ascertain. Public perception of DSOs is mainly of large branded dental practices located in a variety of regional or national markets. However, this is only one part of DSO involvement in the dental services market. Informants to the case studies were clear that, in their view, there is an overemphasis in the environment on the importance of how dental practices obtain management functions. Case study participants suggested that, instead, there should be a greater focus on the quality of care that these organizations provide and on their impact on increasing access to oral health services for populations that had few or no options for dental care in the past.

DISCUSSION

This project was exploratory in nature and used a mixed-methods approach to describe the structure and organization of DSOs in the current dental service delivery market. The report includes a literature review, an analysis of secondary data to describe growth in large dental practices in the US over time, an analysis of primary data obtained through survey research of a convenience sample of 47 DSOs in the US, and a summary of in-depth case study interviews with 6 DSOs serving Medicaid-insured populations in various states.

The dynamic policy and practice environment in health care generally is a primary motivator for the growth in large group dental practices across the US. One implied finding from the current study is that DSO involvement in dental practice management will continue to evolve in light of ongoing concerns around the availability of services, the need for accountability of providers, and the importance of generating efficiencies to reduce escalating costs. Patients, especially underserved populations, appear to benefit from an expanding delivery system that has made dental services more widely obtainable.

The findings from this study also suggest that further research is needed to fully understand the impact of the consolidations of dental practice management in states. Reconfiguration of practices is an important strategy to improve the affordability, accessibility, and quality of dental service delivery specifically and of health care service delivery generally. Thus, ongoing longitudinal and systematic review of the impact of emerging management structures and consolidated practice models in dentistry would be beneficial.

Appendix A

This appendix contains summary descriptions of each of the 6 DSOs that participated in the case study interviews. These organizations are:

- **Affordable Care LLC** headquartered in Raleigh and Kinston, North Carolina
- **Benevis** headquartered in Marietta, Georgia
- **Community Dental Partners** headquartered in Denton, Texas
- **Dental Care Alliance** headquartered in Sarasota, Florida
- **Perfect Dental Management** headquartered in Needham, Massachusetts
- **STX Healthcare Management Services, Inc.** headquartered in Bellaire, Texas



Affordable Dentures & Implants

Affordable Care LLC

Raleigh & Kinston, North Carolina

Background and History

Affordable Dentures & Implants was originally founded as Affordable Dentures in Kinston, North Carolina in 1975 by two dentists who were focused on providing affordable and convenient dentures for underserved populations. They offered low price points, in-office labs, and same day dentures to a primarily rural clientele. A few years after the first Affordable Dentures practice opened, the dentists realized that the nonclinical needs of their practices could be more efficiently provided by experts in those areas; they separated the non-clinical portion of their practices into a service company (also referred to as a Dental Support Organization, or DSO) known as Affordable Care, LLC. Since that occurred, affiliated dental offices, while practicing under the Affordable Dentures & Implants name, are still owned and operated by licensed dentists. Affordable Care LLC efficiently meets their non-clinical service needs. Today, the goal of Affordable Dentures & Implants practices is to be leaders in tooth replacement for terminal dentition. Practices provide custom dentures and implants with in-house labs at a high level of quality and a low cost. While Affordable Dentures & Implants practices are now found in urban locations, most practices serve a largely rural population. Berkshire Partners invested in Affordable Care in 2015 and is the current owner of the service company, but every Affordable Dentures and Implants dental practices continues to be 100% owned and operated by a licensed dentist.

Services Provided

Affordable Dentures & Implants practices provide a narrow set of services. These include dentures, implants, and related necessary services, such as extractions and bone grafts. Patients with dental needs other than extraction and tooth replacement are referred to dentists in the community for care. Dentures are provided in-house at a range of prices, but even the most basic options are high quality. Implants are a more recent addition to the suite of services provided; currently about half of the practices provide

implants. As each location that formerly provided only dentures begins to provide implants the location is rebranded from Affordable Dentures to Affordable Dentures & Implants. Affordable Dentures & Implants practices use cone beam 3D X-rays for implant placement.

Practice Locations

Currently, Affordable Dentures & Implants has over 235 locations across 39 states. They are primarily located in rural, underserved areas, but they now have some urban locations.

Patients Served

Many of the patients seeking services at Affordable Dentures & Implants practices are able to self-diagnose a need for dentures or implants as many come to the office with terminal dentition. They occasionally bring referrals from community dentists, but much of the business is with patients who are “done with dentistry” due to long-term decay or to failures in the care process. Although the practices skew to older patients, there are some patients who need implants or dentures earlier in life. Generally, Affordable Dentures & Implants practices do not accept or bill any insurance programs, although practices will provide an invoice for patients to submit claims to their own insurance provider. Patients can obtain financing through CareCredit, a healthcare financing credit card, or simply pay out of pocket for services.

Affordable Dentures & Implants practices provide denture and implant services to more than 400,000 patients each year. Since its founding in 1975, more than 6 million patients have received prosthetic services from these providers.

Structural Configuration

Each Affordable Dentures & Implants affiliated practice is dentist owned. That ownership is transferrable, meaning that the dentist owner can leave it, sell it, etc. Affordable Care often provides upwards of \$700,000 in capital necessary for a dentist to open his/her dental practice. The first few months after a practice opens are generally not profitable since the practice is new to the community. Once established, the practices are quickly profitable. The average annual income of an Affordable Dentures and Implants affiliated practice owner is \$365,000, with no evenings or weekend office hours.

Affordable Care offers Affordable Dentures & Implants practices various services including discounts on equipment, supplies, and the like. Combined, Affordable Dentures & Implants practices are the second largest users of implants and the largest user of denture supplies in the US. Affiliated offices benefit greatly from the economies of scale that Affordable Care, as their service company, is able to achieve.

High-quality supplies are available to dentists in Affordable Dentures & Implants practices at low, pre-negotiated prices.

Because of the efficiencies provided by Affordable Care, Affordable Dentures & Implants practices can provide dentures as low as \$325 per arch, which is less expensive than most nonprofits are able to provide. The most expensive dentures available are \$1,000 per arch. All of their dentures are fully customized and most are provided in same day service. The dentists are highly skilled and efficient at their work given the volume of their experience. There is regional variation in cost, and practice owners set their own prices.

Affordable Dentures & Implants practices use Dentrix Enterprise as their electronic dental record software. The data can be uploaded through the Web to a mainframe. Practice data is used for administrative purposes, to create site-specific and enterprise-wide reports for the dentist owners, for quality improvement, and for financial analysis. All reports are available for use in consulting with dentists owners, but these owners maintain control over the clinical aspects of their practice.

Implants are very expensive, which is a challenge for the industry. Many dentists are providing bridges rather than implants because of the cost to patients and the limited insurance coverage. Affordable Dentures & Implants practices are trying to provide an affordable market solution with accessible, high quality implants. Affordable Dentures & Implants practices do not view other dentists as their competition; rather, other consumer goods are their primary competition for patients' discretionary spending.

Professional Staffing

Affordable Dentures and Implants practices employ dentists, dental assistants, laboratory technicians, and receptionists. The typical office has 1 dentist, 3 laboratory technicians, 2 dental assistants, and a few front desk staff. Affordable Dentures & Implants practices currently employ over 300 dentists across their 235+ practices.

The headquarters' staff is relatively small, in part because the dentists are real owners. The headquarters provides business support in terms of marketing, supply chain, and payroll, and provides consulting to dentist owners who wish to improve their practice.

Recruitment and Retention of Clinical Staff

The "typical" owner of an Affordable Dentures & Implants practice is an experienced dentist who has been practicing for a number of years. Younger dentists who affiliate with Affordable Dentures & Implants

are likely to be general practice residents who have gained valuable experience through completion of implant-focused fellowships or general practice residencies. Affordable Care, on behalf of Affordable Dentures & Implants practices, is working to provide information and create more of a presence in dental schools to build brand awareness in the students who, after graduation and with some clinical experience, may consider practicing with, or becoming an owner of an Affordable Dentures & Implants practice.

Affordable Dentures & Implants' recruitment strategies encourage affiliation with mid- to late-career general practice dentists, many of whom are older and have owned a practice earlier in their career. Onboarding includes a lengthy interview process and due diligence on the part of Affordable Care. The dentist recruit is required to spend a week with an Affordable Dentures & Implants practice undergoing a clinical assessment and one-on-one training for two to three months with a mentor in an already successful practice location.

Some of the initial training of new affiliated dentists is done at an 11-acre facility in Arizona that serves a homeless population, about a third of whom are veterans. The facility has operatories and fabrication facilities on the property. The student to faculty ratio at the site is 2:1, providing new hires with professional attention and immediate precepting. This training location was chosen for several reasons, one of which is because in addition to providing clinical training, it provides free dental care to homeless veterans. The philosophy of Affordable Dentures & Implants is to do well by doing good, so this training model is in concert with the organization's mission.

Dentist training is heavily focused on prosthodontics. Four to six times each year, Affordable Dentures & Implants sends 12 dentists (existing and new providers) with faculty to the Arizona facility. At each of these annual sessions, dentists place approximately 230 implants and 60 overarches in each 3-day time span. All newly affiliated dentists are offered didactic and clinical training in Arizona, including cone beam imaging. Many of the dentists who trained in Arizona in the past continue to volunteer at the homeless facility in order to give back to those in need. Affordable Dentures & Implants practices pledged to provide \$3.2 million in free care in 2017 at the Arizona campus.

Dentist owners recruit, employ, train, and supervise clinical staff at their own practice (except for the laboratory technicians, who are employed by an Affordable Care subsidiary). Affordable Care has its own training program for laboratory technicians, who are trained to a very high standard. Affordable Care employs no denturists, although there are laboratory managers who are master laboratory technicians.

Dentist turnover is very low at about 3-5% annually. Affordable Care reports that dentists find better work/life balance being supported by a DSO than they did in a traditional practice. Since Affordable Care

manages the practice's non-clinical needs, it provides supported dentists with greater flexibility and work/life balance. In addition, many dentists in Affordable Dentures & Implants practices report being happy with a practice that genuinely changes lives every day. The interviewee commented that patients are happy and grateful to have their smile back and to regain previously lost function which is its own reward for many of the dentists. There is immediate satisfaction from the work.

Regulatory Context

DSOs are well equipped to manage compliance and the regulatory environment having administrative bandwidth that is mostly unavailable to solo practices. DSOs are closely monitored; they are “under a microscope” in many respects so they focus on “dotting their i’s and crossing their t’s.” Despite any image problem DSOs specifically encounter, case study participants commented that any organization is only as good as the people who run it, even a private practice.

Given Affordable Dentures & Implants practices’ support from Affordable Care, limited service scope and rural practice model, they tend to “bump heads” with regulators less frequently than might the more “traditional” dental practice. Affordable Care provides strict quality control of the dentures its laboratories produce for affiliated Affordable Dentures & Implants practices, which creates a consistent level of quality and patient satisfaction even in those states with little or no regulations on the fabrications of dentures.



benevis

Practice Services

Benevis
Marietta, Georgia

Background and History

Benevis is a dental service organization (DSO) founded in 2002 to provide nonclinical business support to affiliated dentists and practices, with Kool Smiles as its largest client. Kool Smiles was founded in 2002 by 2 dentists with an office in Decatur, Georgia, with the mission of treating underserved populations, especially low-income children and their families. The organizations worked together and expanded to a half dozen Kool Smiles locations. Eventually these dentists sought to increase access in other communities across the US. At that point a private equity firm seeking to make an investment approached Benevis and Kool Smiles. After performing the necessary due diligence to examine the services, clinical quality, and financial health of Kool Smiles, the private equity firm made its investment and the 2 organizations have rapidly expanded. Today, there are 125 Kool Smiles branded locations organized under various professional corporations (PCs), each owned, operated, and managed by licensed dentists. The original intent of Benevis was to support only the Kool Smiles branded locations, all of which were created “de novo,” but since 2014 Benevis has affiliated with more traditional dental practices in addition to Kool Smiles.



General Dentistry for Kids **and Parents!**

Services Provided

Kool Smiles locations provide full-scope dentistry, including general dentistry, endodontics, oral surgery, and, more recently, orthodontics. All offices have referral relationships with other providers within the community, but the necessity for external referrals has decreased over time as the organization strives to create comprehensive dental homes for its patients. Kool Smiles prefers to perform as much care

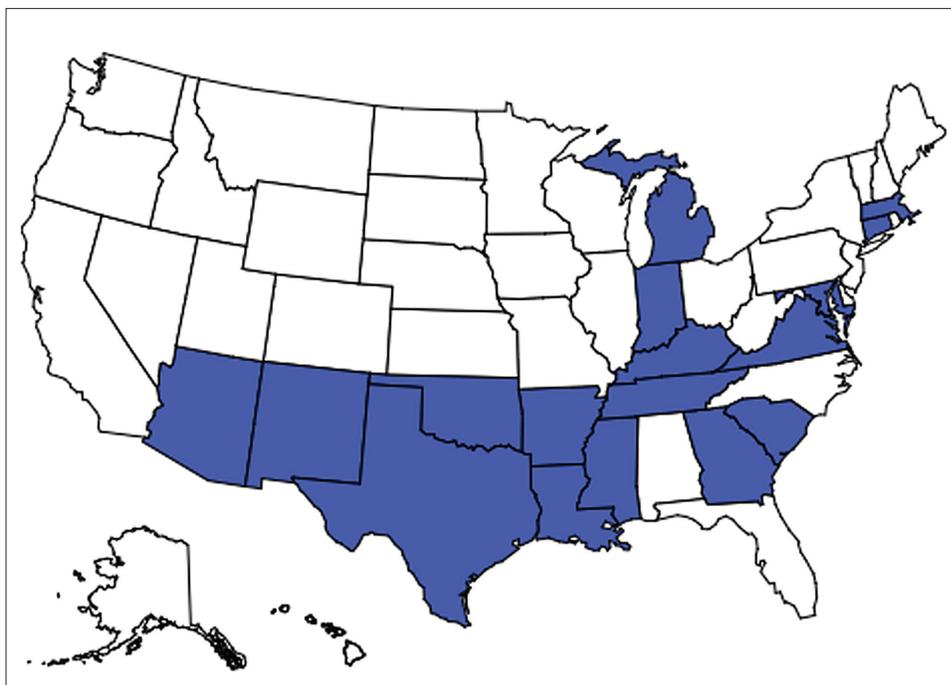
in-house as possible and often has in-office general anesthesia (performed by anesthesiologists), pediatric, endodontic, oral surgery, and orthodontic services available.

Reimbursements and regulations vary from state to state, and so does service provision. For example, general anesthesia is not allowed in dental offices in every state, but in many cases the dentists are able to instead provide hospital-based care. Other states limit the frequency of radiographs, sealants, and fluoride treatments allowed annually, which may not harmonize with national guidelines for best practices. As a result, Kool Smiles performs more uncompensated care in these markets, as the organization's philosophy is to treat to the child, not to the benefit.

While the Kool Smiles practices predominantly treat low-income children and their families, many of whom are publicly insured, many of the other Benevis-affiliated dental practices are traditional general dental offices with patients primarily covered by private insurance.

Practice Locations

Benevis provides nonclinical business support services to 150 dental practices, including 125 Kool Smiles locations in 15 states. The other 25 practices include more traditional dental practices in various states—Arizona, Georgia, Indiana, Louisiana, Michigan, New Mexico, Tennessee, Texas, and Virginia—that continue to operate under their original names. All except 1 of the 125 Kool Smiles offices were created “de novo” in a process that involved the identification of a community in need of dental services and subsequent building of the dental practice in that location according to brand specifications.



Kool Smiles locations are generally selected to address oral health needs in underserved communities with large Medicaid populations. The organization will look to rural and urban markets for new practice locations. Competition from other Medicaid providers often follows them to these locations; however, it is unclear whether these other offices are DSOs or large group branded practices. The major DSOs have not entered into major competition in this market as yet.

Patients Served

The Kool Smiles patient population is 90% children. Approximately 85% of patients are insured by Medicaid or the Children's Health Insurance Program (CHIP), while the remaining 15% are covered by TRICARE (military) or private/commercial payers or are uninsured and therefore self-pay. Because the Kool Smiles practices are mainly focused on services to children, the practice locations are geared toward making kids feel comfortable in the dental office. Kool Smiles providers complete approximately 2 million patient visits per year.

Patients in the nonbranded practices are generally covered by private/commercial payers or are self-pay. The patient population in these practices is more typical of a general dental office, with a range of patients across the age spectrum.

Structural Configuration

Benevis as a DSO provides services to each PC under service agreements. Kool Smiles has 5 managing dental directors who report to the Chief Dental Officer. All of the practices are dentist run and dentist focused, with clinical decisions made separately from the business decisions.

The services provided by Benevis include full-scope leasing or purchasing of real estate, equipment, and supplies; finance; marketing; compliance; billing; human resources; and any other general business needs of the practices. Each location uses an electronic dental record (EDR) called Boomerang, which is a Citrix-based proprietary system developed by Benevis in 2004. All locations have been using this EDR since 2007, and the organization is mostly paperless. Boomerang contains all of the progress notes and images related to patient care, which allows for extraction of data to manage compliance and monitor benchmarks.

The robust EDR has allowed Benevis to document a shift away from restorative services to more preventive care over time, with an overall drop in the number of restorative procedures performed. A recent study of state claims paid data by Dobson DaVanzo & Associates showed that Kool Smiles dental providers performed 17% fewer services overall than other providers treating a comparable patient population. The clinical data collected through the EDR has resulted in some additional published white

papers on clinical outcomes. These papers are among the only published reports describing the impact of DSOs on services for Medicaid patients. Boomerang is now being implemented in the individual affiliates that came to Benevis with legacy systems.

Clinical protocols are not part of the services provided by Benevis. Each dentist has autonomy, but all dentists are trained to the guidelines of the American Academy of Pediatric Dentists (AAPD) and the American Dental Association (ADA) as best practices.

Professional Staffing

Kool Smiles currently employs approximately 332 full-time dentists and 146 part-time dentists. Women comprise about half of the dentist workforce, and the workforce—including dentists—is diverse. Thirty-two of the dentists are pediatric dentists; each pediatric specialist covers 5 or 6 locations in a given geographic area. This is notable because the supply of pediatric dentists in the US is insufficient to cover the underserved population, and most prefer to work in suburban, non-Medicaid areas, making them difficult to recruit.

In addition, approximately 1,400 dental assistants and 500 dental hygienists are employed by Kool Smiles and its affiliate PCs. Each clinic location typically has 1 to 3 dentists, and these dentists hire and manage their own staff, although Benevis may provide human resources support.

Recruitment and Retention of Clinical Staff

Kool Smiles provides attractive compensation and benefits, including a good career path to leadership. Dentists receive health insurance, a 401(k) plan, membership in the ADA, and a salary with a bonus structure based on collections. Benevis conducts approximately 1,000 clinical audits each year, and dentists are not eligible for a bonus if a significant finding results from an audit.

Kool Smiles recruitment focuses on dentists who are “mission oriented” and have a desire to “do good” in addition to “doing well.” The company hires experienced dentists as well as new dental graduates, the latter of whom comprise less than 20% of annual hiring. According to the interview participant, younger dentists tend to be more open to working within the DSO model than older dentists. The average dentist stays about 3 years, making retention a challenge for the company. “Good turnover” happens when a general dentist leaves to attend a specialty residency program, as in pediatrics; however, poaching by other dental groups and DSOs is a growing problem (“bad turnover”). The economy currently offers full employment for dentists, so alternative employment offers are highly competitive. One advantage of the Kool Smiles model is that the many locations provide the opportunity for mobility across practices.

Additionally, Kool Smiles provides dentists with guidelines from the AAPD and ADA but allows dentists their clinical autonomy, which is viewed favorably by the dentists.

Regulatory Context

Reimbursement rates for Medicaid programs are a limitation; some rates are so low that Kool Smiles cannot operate in a state's Medicaid market. As such, the ease of entry into the Medicaid market can be a determinant of Kool Smiles' practice location decisions. For example, North Carolina is viewed as being inhospitable to DSOs in general, so Kool Smiles has avoided the state to date.

Conversely, some states have a real need for Medicaid providers, and that can be an incentive for Kool Smiles to operate there. Despite some difficulties, Kool Smiles has adapted to work in Medicaid managed care states; however, states that have contracted with a large number of managed care organizations can be problematic. Each dentist must be credentialed with each payer for Medicaid so the administrative demand to credential every provider with every payer can become extremely burdensome and make the onboarding process for new dentists extremely difficult, especially because the typical Kool Smiles office is 85% Medicaid and CHIP.

Kool Smiles has made significant efforts to educate lawmakers, Medicaid officials, and dental boards in states where reimbursement and Medicaid policy do not match the best practices for pediatric dental care. Regulatory burdens, such as the need for pre- or post-treatment authorization, can discourage providers and lower the standard of care available to children covered by Medicaid.

Kool Smiles is interested in seeing a payment model for Medicaid tied to risk-based benefits or to patient outcomes. They are working with the value-based purchasing support project of the Centers for Medicare and Medicaid Services, which would shift some risk for care to the provider. Payment would be tied to outcomes and meeting specific quality metrics. A full-risk capitation plan would be a challenge in the current dental delivery system, but a partial-risk plan would be acceptable. Kool Smiles is supportive of increased reimbursement for improved patient outcomes and penalties for providers who fail to meet metrics. Kool Smiles supports tying the success of the company to the success of the Medicaid program in the state.



Community Dental Partners Denton, Texas

Background and History

Community Dental Partners (CDP) was founded in 2010 in Denton, Texas. Two friends, one a dentist and the other an entrepreneur with an accounting background—both fathers with a combined 12 children between them—wished to create a dental experience for children that incorporated imagination and fun in dental service delivery. Both recognized that some patients perceived the dental experience to be less than enjoyable. In addition, the founders acknowledged that customer expectations were changing in many areas of consumer services, including dentistry.

CDP's Smile Magic brand was born from a desire to alter the dentistry experience by tying it to children's stories and imagination. Charlie the Chipmunk is the practice mascot. The waiting rooms in the various practice locations incorporate movie theaters, massive play gyms, video game stations, and other family-friendly elements. Each child is called "prince" or "princess," and each dental operator is decorated as a different page in a storybook. Children earn gold coins with each completed service during their dental visit. Once the appointment is finished, these coins are used to purchase something from the "treasure tower," a collection of small toys and trinkets. Children are crowned for their bravery, given a balloon and sticker, and applauded when the appointment is finished. Parents are also applauded and given an "Amazing Mom or Dad" sticker for doing their part in caring for their child. This positive reinforcement creates a better overall experience for the children in the practice. The dentists working in these practices are mainly general dentists; many are primarily seeing children insured by the Texas state Medicaid program.



The organization encourages dentists to interface with parents by providing positive educational feedback. The practice philosophy is to encourage parents to foster healthy nutrition and routine oral hygiene in their children. Dentists do not emphasize parental failures, and they avoid condemnation for what the parent has not done in the past. The concept was tested and found to be quite successful in an original practice; the model was then replicated. As a result of both practice design and dental philosophy, most children are happy to return to the dentist at the Smile Magic locations, with many stories of children begging their parents to come back to the dentist and inquiries by patients into using the dental office to host a birthday party.

Practice Locations

As the number of practices grew, it became clear that the only way to effectively manage them all was through a DSO. This resulted in the development of a DSO called Community Dental Partners, which handles the business functions of all of the individual practices. At present, there are 8 Smile Magic locations in Texas: Dallas, Denton, McAllen, San Antonio, Lewisville, Garland, Grand Prairie, and El Paso.

CDP gradually increased in scope from a single location to 3, then to 9, and finally to 20 sites. These 20 dental practices are located throughout Texas and serve both children and adults, although children remain predominant as patients. About half of the affiliated practices are located in urban/metropolitan areas; the remainder serve patients in small towns and rural locations.

Practices are located across a 1,200-mile geographic area, making centralization of administrative and management functions especially important. As noted above, only 8 of the practices are branded as Smile Magic; the other practices operate under various names, including that of the dentist owner. One of these additional practices specializes in dentistry for children; the remaining 11 practices provide family dentistry services.

An expansion into rural areas occurred when CDP affiliated with a rural dentist who had expanded her private dental practice to several rural locations but had found the lack of a central management structure challenging. She determined that affiliation with a DSO would provide the necessary infrastructure to attain efficiencies from the increased capacity to serve patients. These additional dental practices are located in Burleson, Palestine, Ennis, Mineral Wells, Plano, and Brownwood, among other Texas locations. Affiliation with rural practices was consistent with the mission of CDP, which included a goal of increasing access to dental services in geographical areas containing limited dental resources.

The interview participant described DSO affiliation with existing practices as instructive at many levels. It allows the DSO to learn what dentists are doing well and to replicate best practices where appropriate. It

also permits the dentist to learn from the DSO. These synergies were seen as beneficial to all parties to the management agreement. Some of the most significant results seen in the newly affiliated practices included:

- Accountability to the practicing dentist and quality of care being provided, which resulted in an immediate increase in quality of care provided to the patient
- Access to experienced dentist mentors and regular training, which led to increased quality of care and better-trained providers
- Access to and implementation of compliance programs and experts, resulting in increased safety for both patient and staff and correction of practices that had been out of compliance with dental board and Medicaid rules

Patients Served

The Smile Magic locations primarily serve children insured by Medicaid; the other practices serve adults and children who are either commercially or publicly insured. All practices also participate in a formalized Texas Discount Plan for the convenience of self-pay patients. Texas does not have an adult dental benefit in its Medicaid program, which is a self-limiter to utilization of dental services by low-income adults in the state. The percentage of adult patients on caseloads varies from about 20% to 50% depending on the practice and its location. Many of the rural practices are composed of patients who are self-pay or who have commercial insurance through a preferred provider organization (PPO) insurer. The Smile Magic locations serve between 10,000 and 12,000 children annually, 70% to 90% of whom are insured by Medicaid. The Medicaid program in Texas has shifted administration to dental managed care organizations such as MCNA and DentaQuest, although some beneficiaries remain on fee-for-service through the state.

A large proportion of immigrants with no insurance reside in several of the border towns in southern Texas in which Smile Magic practices are located, creating a difficult case mix and a challenging business model. Populations in these towns tend to be low income, with only limited access to transportation and less-than-optimal oral health literacy. Consequently, no-show rates for dental appointments are high, resulting in a need to overbook appointments to ensure that dental capacity in those areas is fully engaged. In several of the DSO's locations, no-show rates range as high as 30% to 40%, and overbooking is required to make those locations viable. The DSO has created a central call center to effect appointment reminders in the urban locations; however, rural practices do their own reminder calling to prompt patients to appear for care. While several practices used to provide limited transportation services, that is

no longer possible due to recent Texas Medicaid regulations that prohibit any service that might appear to be coercive to the patient.

Structural Consolidations

Statutes and regulations governing dental practice in Texas are clear that only a dentist may own a dental practice. The founding dentist owns the majority of the practice locations managed by CDP; another dentist, who is also licensed in Texas, owns the remainder. The dental practices are affiliated with the DSO through management contracts. The DSO provides a full spectrum of management functions, including patient quality-of-care monitoring; credentialing and licensure; dental provider training; marketing surveys to describe community need; leasing of real estate; budgeting; purchasing or leasing of equipment, supplies, and technology; practice management; human resources management; information technology support; a common EDR; regulatory compliance; payroll; and billing. The DSO is able to provide rigorous presubmission and postrecovery audits of claims to ensure that all billing, and especially Medicaid billing, is compliant with state regulations.

A clinical committee made up of affiliated dentists determines clinical protocols. All clinical decisions, including referrals and laboratory choices, are made by the individual dentists, while the DSO handles the separate and discrete management functions. The referral networks for specialty services are determined at the local level by individual dentists. Rural practices have particular challenges in developing referral networks, as the supply of providers, especially specialty dentists, is frequently low in rural areas.

Informants commented that DSOs founded by dentists were often better at managing costs because dentists have a foundational understanding of the actual patient experience, the clinical process, and the culture in dentistry and are thus better able to engage patients. Dentistry is more than a business model or a customer service business, and dentists understand the importance of patient care.

The DSO has created a hybrid EDR that is a modification of the Enterprise version of Open Dental. Although all practices use this EDR, there is no interoperability across practices. Linking practices is difficult due to the challenges of practice locations, particularly in rural areas without sufficient bandwidth for connectivity or in places where power outages are more frequent. Instead, individual practices upload data through the Internet to the cloud for subsequent downloading at the central administrative offices.

Professional Staffing

CDP has approximately 400 employees, 80% of whom are Hispanic and 58% of whom are bilingual. There are 52 dentists affiliated with the DSO, some of whom are part time. A few of the dentists are bilingual.

The DSO employs only 1 or 2 dental hygienists. Because Texas does not allow for expanded roles for these professionals, they are not essential to the clinical model, especially for children. The predominantly pediatric caseload with high decay rates makes it more efficient for dentists to also provide preventive services. Dental assistants can qualify by training and certification to do coronal polishing, which is useful in the pediatric practices.

CDP does recruit some newly graduated dentists, but only for group practices at which other dentists are available to mentor. New graduates are not usually as efficient with treatment procedures as more experienced professionals and require time and repetition before they are fully prepared to work without guidance. Affiliation with a DSO provides new graduates with a network of experienced dentists to precept some of the more complex initial clinical experiences.

The case study informant commented that some experienced dentists were affiliating with CDP as an exit strategy in anticipation of retirement or of reducing work hours, or because they had wearied of dealing with the business and regulatory aspects of maintaining a practice and wished to focus purely on providing dental care. As a result, many of the dentists affiliated with the DSO have many years of clinical experience.

Recruitment and Retention of Clinical Staff

Dentists are attracted to the organization for several reasons. The mission and motivation of CDP, particularly as it regards children, is attractive to many. The amount of disease in certain populations of youth is well recognized, and the opportunity to have an impact on children is appealing. Dentists are also concerned about the costs of establishing dental practices, and the DSO provides a path to ownership that is attractive without requiring a large initial investment on the part of the dentist, coupled with a more predictable outcome. Newly graduated dentists are often burdened with significant student loan debt, so employment by a DSO provides a desirable alternative to purchasing a practice post graduation. In addition, dentists like that risk is shared by other dentists and by the management entity.

Dentists are salaried by the DSO, with some compensation incentives based on a percentage calculation against an adjusted production number. Salaries align the financial incentives from dental services away from production only and encourage freedom in clinical decision-making. Dentists are paid whether or not the services are reimbursed. More than 90% of dentists in the DSO—even those practicing in rural areas—are making very competitive salaries. This makes the affiliation attractive and generally eliminates any problems with long-term retention. Ninety-seven percent of the dentists in the DSO make annual salaries at or exceeding \$250,000.

The organization has done some recruiting through the H-1B visa programs in states that permit a foreign dentist to eventually obtain a green card as a US resident. Recruitment strategies for new hires are determined after thoughtful consideration of the culture and demographics of the community and the practice where the services are to be provided. Once recruited, the clinical development of the dentist (if needed) is guided by the dentists with whom the new dentist works.

Generally, dentists live near their practices, even in rural areas. In many of the rural locations, the dentists have some access to more populated towns or cities for shopping and cultural activities. However, there are some practice locations with little access to such amenities. Dentists especially enjoy certain professional services provided by the DSO, including management of credentialing with insurers, discounts on the cost of malpractice insurance, and higher coverage limits due to group purchasing.

Dental Care Alliance

Sarasota, Florida

Background and History

Dental Care Alliance has evolved over the 3 decades since its founding by a dentist to now include 255 dental practice affiliates in 13 states (Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Maryland, Massachusetts, Michigan, New Jersey, New York, Pennsylvania, and Virginia). The practices are not branded, although several use the same name as other practices in their respective states. The DSO's affiliates operate under 80 different names, making their management by a DSO essentially opaque to the public. The practices are variously configured to provide a range of general and specialty dentistry services, including endodontics, oral and maxillofacial surgery, orthodontics, periodontics, pediatric dentistry, and prosthodontics. General dentistry services constitute about 45% to 50% of the clinical services provided to patients; specialty services constitute about 35%, and dental hygiene services represent 20% of total services provided in affiliated practices.

Practice Locations

Practice affiliates are located in inner cities, where underserved populations are treated, as well as in more prosperous suburban settings and smaller towns. Ownership configurations vary by practice and by state in order to comply with state-specific statutes and regulations governing the practice of dentistry. As an example, Arizona and Wisconsin do not require that a dentist own the dental practice; however, other states have definitive standards that limit ownership of a clinical practice to a dentist. In some states, a DSO can employ the nonclinical staff in a practice and own and operate the physical plant and equipment while dentists retain ownership of patient charts, clinical treatment decisions, and the practice's goodwill in the community.

Patients Served

About 15% of the population served by Dental Care Alliance affiliates are children, some of whom are insured by Medicaid or CHIP programs. The choice to participate in state Medicaid programs is made by the affiliated dentists in each practice. Some states support only a limited adult dental benefit, while others provide no dental coverage. Participation of affiliated practices with Medicaid programs is greater in some states than in others.

Over the more than 30-year history of the DSO, participation with Medicaid has ebbed and flowed as legislatures have funded or defunded dental benefits in Medicaid programs. Participation with Medicaid is challenging because of the eclectic attitude toward dental coverage in many legislatures. As an example, several dental practice affiliates in Pennsylvania participated with the Medicaid program until the legislature dramatically reduced the adult dental benefit. Providers who were serving Medicaid-insured patients were affected as demand for services from that population dropped with their coverage. Eventually, the dental benefit was partially restored, but some dentists made a strategic decision not to participate with Medicaid given the instability in the program. As a result, most affiliates in Pennsylvania no longer serve the Medicaid population at any appreciable level. However, 3 affiliated practices in Philadelphia continue to serve children insured by Medicaid.

Some of the dental practices in Florida, Indiana, Maryland, Michigan, and Virginia serve children insured by Medicaid, including several pediatric and orthodontic practices in Florida. While the DSO and affiliated dentists would like to participate more robustly in the Medicaid market—affiliated dentists feel an obligation to serve their communities—current levels of reimbursement in some states are too low to make this feasible.

Because some affiliated practices have a diverse patient base requiring language skills other than English, the DSO ensures that translation services are available to their practices. In some practice locations serving predominately low-income populations, the no-show rate for appointments varies between 30% and 50%, requiring double- or triple-booking of appointment slots to ensure efficient use of dental capacity. In those practices, dentists may be required to complete as many treatment services as reasonable for a patient due to the uncertainty that the patient will appear for any follow-up appointments. The service model required in these practices is quite different from that required in more typical locations.

Structural Consolidation

Dental Care Alliance provides management services under a service agreement with affiliated dentists, who retain ownership of their clinical practice or PC. The size of each affiliate office ranges from solo dentists to large group practices with 60 or 70 staff. Affiliations also include smaller DSOs that chose to affiliate with Dental Care Alliance to participate in the economies of scale that accrue to the large consolidated business entity.

The DSO offers a full range of business and human resources management services, including accounting, payroll, treasury, marketing, vendor contracts, purchasing, information technology services, EDR, facility management, and training and education. One of the most important management functions

supported by the DSO is Medicaid compliance audits to ensure that services to the publicly insured meet regulatory requirements.

Professional Staffing

Approximately 625 dentists are currently affiliated with the DSO; not all work full time. Turnover is about 18% a year, with 4% to 5% being involuntary. Some contracts are not renewed for clinical reasons or quality issues, and some turnover is due to dentists' retirements. Some older dentists are electing to affiliate with a DSO as an exit strategy to eliminate concerns about selling the physical assets of their practices when they retire. Affiliation with a DSO allows a dentist the freedom to move to part-time work if desired, or to practice longer, having eliminated the stress of practice management.

About 30% of the dentists in the DSO are female, and many are younger dentists. The interview participant observed that, as a generation, millennials are seeking a better work-life balance and show less interest in undertaking the complexities of running a dental practice. Even doctors in their forties and fifties are deciding to affiliate with DSOs so that they can leave work at the end of the day without concerns about the business aspects of their practice.

There are clinical dental directors in each state to manage the recruitment and training of dentists and dental hygienists for practice affiliates in that state. The DSO supports about 700 dental hygienists (approximately a 1:1 ratio with dentists) and somewhere between 1,000 and 1,200 dental assistants (closer to a 2:1 ratio with dentists). Some offices have no dental hygienists and some have several. There is no fixed model to describe the composition of dental teams in practices; the selected composition depends on the type of practice and the patient base. A typical general dentistry practice might contain a dentist, 1 or 2 dental hygienists, and 2 dental assistants, in addition to 2 or more office staff. The DSO is hoping to grow all affiliate practices to at least 2 dentists to increase the availability of services for patients and to ensure service availability during vacation time or other absence of a solo dentist.

The DSO affiliates include specialty dentists, some of whom have fixed practice locations and others of whom rotate among DSO-affiliated general dentistry practices in a certain area or region to provide specialty services. An oral surgeon might provide services in a general dental office 1 or 2 days a month to address the needs of patients in that practice. Patients appreciate this model of specialty service delivery because they remain in their dental home and the complexity of effecting a referral to specialty dentists in the community is reduced. The need for a specialty referral and the selection of suggested specialists remains under the purview of each dentist. Sometimes selection is driven by whether a dentist will accept the patient's dental insurance or whether he or she provides services to Medicaid-insured patients.

Dentists receive a base salary computed as a daily draw against the percentage of potential collections.

There is some opportunity for production bonuses, but those are limited. Most affiliated dentists (90% to 95%) are paid based on month-end collections. The DSO is very efficient and timely in its collection processes. The collection rate is about 98%, which is due to careful and ongoing auditing of claims to ensure compliance and quality prior to submission.

Recruitment and Retention of Clinical Staff

Dental Care Alliance recruits from other DSOs, dental schools, the military, and private practice. Recruitment strategies vary because the affiliated practices differ. The DSO sometimes recruits dentists from existing affiliates or from other DSOs, while others are recruited from the larger dental job market. Much depends on the type of practice in which the new hire will serve patients. The need in a new location might be very different from that in an existing practice affiliate.

The organization does not recruit many newly graduated dentists simply because the demands of the market, especially the Medicaid market, require that the dentist be efficient in performing services. It generally takes time and clinical experience for a new graduate to gain the competence and efficiency needed in a demanding practice environment. In addition, it is felt that a newly graduated dentist should be placed in a multi-dentist office so that mentoring is available.

The DSO prefers to hire dentists with at least 5 years of experience. One noticeable trend in dentistry in recent years is that there is more movement among professionals now that both husbands and wives commonly have careers. Each partner needs flexibility to move with the other as job transfers occur. Employment with a DSO often affords dental professionals the option to move to another practice site either within or out of state.

It is more difficult to recruit dentists to a Medicaid-predominant practice than to a practice made up of predominantly commercially insured patients. Dentists prefer to work where there is the potential for patient flow, where school quality and the standard of living is high, and where there are other community amenities. According to the case study participant, it is easy to recruit for practice in a location such as southeast Florida, but finding dentists willing to work in small towns and rural areas is much more challenging.

One strategy used by the DSO to staff practices in rural geographies and even inner cities is to recruit from the market of foreign-trained dentists. These dentists often have extensive experience practicing in their country of origin, and many are accustomed to a broad range of patients from various cultural and economic backgrounds. They are often more willing to consider practices in less populated areas. The New York University College of Dentistry's program to train foreign dentists graduates between 40 and 50 dentists each year, providing a convenient pool for recruitment.



Perfect Dental Management Needham, Massachusetts

Background and History

A Massachusetts dentist and a healthcare entrepreneur founded Perfect Dental in 2011. They were interested in growing practices to meet the need for dental services in underserved cities within their home state. The practice grew to multiple sites; by 2017, Perfect Dental Management herein referred to as “PDM” had affiliations with 16 dental practices in three states. Most practices are in Massachusetts but the DSO has one affiliate each in New Hampshire and Texas. Affiliated practices are both branded as *Perfect Dental* and individual names. The practices are owned by 5 dentists, 1 of whom owns 12 practices in Massachusetts. One dentist owns the practice in New Hampshire and Texas, and the remaining 2 practices are Pediatric and Orthodontic Dental Practices owned by pediatric dentists.

Practice Locations

Three of the Perfect Dental practices are located in metropolitan Boston; the remaining practices in Massachusetts are located in communities north, west, and south of the city. One of the Boston practice locations is adjacent to a Section 8 housing community, but is located on the retail level of a brand new market rent building. Perfect Dental proudly offers what they call “community based dentistry,” offering dentistry to everyone in the diverse communities they proudly serve. The Boston practices have a mixed patient base although this is changing due to changing demographics in the city. Housing costs in Boston are rising which is affecting the socioeconomic characteristics of the population. As a result, more city residents are high-income, which is affecting the mix of patients in the city dental practices. The New Hampshire practice is located in Manchester, a city not far from the Massachusetts border. The affiliate practice in Texas is in Fort Worth.

The dental practices vary in size. The smallest office has 4 operatories but the average number is currently 6. Perfect Dental expects to expand some practice locations to 10 operatories as demand increases. The largest practice is the pediatric practice in Oxford, Massachusetts with 14 operatories. The DSO is hoping to hire a third pediatric dentist to staff that location where services are in high demand.

The dentists in the general dentistry practices refer to dental specialists as needed. Perfect Dental has a traveling periodontist and orthodontist on staff. Each office refers to specialists in their local area when a patient needs a service that cannot be provided in a Perfect Dental office. Perfect Dental practices are open every weekday for longer hours than most traditional dental practices and every other Saturday, which makes them a flexible option for dental services.

Patients Served

About 45% of Perfect Dental's patients are covered by a Medicaid dental benefit; 50% have commercial insurance; and the remainder are self-pay. Both adults and children enjoy a dental benefit in the Massachusetts Medicaid program but the New Hampshire and Texas Medicaid programs only cover children's dental services. New Hampshire has a very limited adult dental benefit; Texas has no coverage for adults. The DSO works with a third party to offer a discount insurance plan for uninsured patients in their practices that includes coverage for specific dental services. The DSO's philosophy is that patients should be provided with clinical treatment that is optimal regardless of insurance status.

In the opinion of the case study informant, DSOs increase access even in urban environments because they introduce competition to the marketplace. In addition, when a DSO opens a practice in an underserved area, two or three dentists often follow suit by opening private practices. DSOs demonstrate that it is possible for a dental practice to be profitable even in an underserved area.

According to the interview participant, DSOs bring efficiency to the practice of dentistry and provide consumers with choices. The DSO model allows dentists to focus on the practice of dentistry, exclusive of practice management concerns. While there are sometimes vocal complaints in the public media about DSO's, these are not always well founded and are not generalizable to the industry. This publicity is unfortunate because many DSOs are caring for patients who were previously unable to find a dentist to care for them. As a result, there are some quasi-punitive standards for DSOs that differ from those for other dental practices.

Structural Consolidation

The DSO has branded the majority of its practices. In the view of DSO leadership, patients generally see the value in a brand related to consistency. However, not everyone views DSOs in the same way so there

is value in both branded and unbranded affiliations. PDM originated each of the numerous dental practice sites. None was acquired; all were new builds. However, the DSO is considering affiliating with some traditional dental practices to diversify the organization. The interior design in each of the branded practices is consistent and uses the same color scheme throughout. However, there is some variation across sites; each location is customized in some way, based on the community in which it is located.

The interview participant compared Perfect Dental's brand concept to that of Whole Foods. Whole Foods is consistently designed across the brand but the company alters its stores and contents by customizing the real estate in some way in each of the communities in which it is located. This was contrasted to companies such as McDonald's which has little noticeable alteration across locations.

PDM is growing more slowly than some other DSOs in the industry. The stakeholders believe that organic growth will lead to sustainability. The pace of growth in the DSO market has accelerated in recent years and leadership at PDM is concerned about eventual market saturation. The DSO recognizes that the future for consolidation of dental practices is positive. Fees for dental services are not rising with inflation, making it increasingly difficult for solo practitioners to remain competitive. DSOs enjoy the economies of scale not available to smaller dental practices, making their business model more sustainable.

PDM is actively working to build an electronic dental record that is adequately equipped with the necessary tools to grow with the practices into the future. Constantly changing regulations related to patient privacy and Medicaid participation make compliance activities particularly important so good information is essential; data systems must be robust, designed to adequately support practices, and also have the flexibility to meet changing regulatory and administrative demands.

Professional Staffing

The DSO now has approximately 165 employees collectively. The organization employs 33 dentists and 70 dental assistants. Dentists who are husband and wife staff 6 of the affiliated practices. A high percentage of the dentists employed by the DSO were originally new dental graduates. New hires provide services in practices alongside experienced dentists until they gain enough clinical experience to work autonomously. Dentists are salaried and can earn bonuses based on different parameters.

Recruitment and Retention of Clinical Staff

Attrition of professional staff has been low because of the growth in the organization and its prevailing culture. The interview participant commented that one of the key attributes for success with retention is

assuring that the dentists who are recruited to the DSO have a personality that fits with the culture of the organization.

Headquarters staff include the chief executive and chief operating officers, business development, a comptroller, accounts payable, human resources, billing/accounts receivable team, credentialing specialist, project manager, and a facilities manager.

STX Healthcare Management Services, Inc.

Brooklyn, New York

Background and History

In 2009, 5 dentists in south Texas owned a large group dental practice, branded as South Texas Dental, which had 20 offices. These practices were family dental practices and predominately served Medicaid-insured people (approximately 75% to 80% of the patient population). The owners recognized the need to hire a CEO to assist in reorganization and for a financial partner to allow for further expansion. At the same time, a private equity firm, Harbert Management, recognized the emerging opportunities in the dental industry and was seeking a partnership to enter the dental market in Texas. The dentists and investors formed a management company, STX Healthcare, with the 5 dentists remaining as owners of the resulting dental support organization.

When STX Healthcare was formed, management identified an opportunity for organizational expansion by forming a partnership with another large group practice in Alabama called Vital Smiles. The target population in Alabama was similar to that in Texas; 80% of Vital Smiles' patients were Medicaid insured. Affiliation was effected through a business agreement. During the same time period, STX Healthcare also opened 4 more offices in Texas and purchased an orthodontic practice and a general dentistry practice in Alabama.

The Texas Medicaid program went through a period of change between 2011-2013. During this period, the Medicaid program was converting to a managed care administration at the same time payments to providers for orthodontic services were being investigated by federal auditors. The end result of these actions along with state budget challenges was a reduction in total Medicaid reimbursement for dental services of about 30%. Many dental providers in Texas were impacted by the fraud investigation. However, STX Healthcare supported practices did not provide any orthodontic services, so they were insulated from the impacts of the audit. The conversion to managed care was difficult in Texas causing further disarray and disruption in the market which some providers could not survive. In Texas, STX affiliated practices are able to provide services to the publicly-insured population at about 15% lower cost per visit on average than competitors. STX was thus able to further expand through the purchase of All Smiles, a 14-office dental practice in Texas that had declared bankruptcy.

Services Provided

STX Healthcare-affiliated offices generally provide a full range of dental services, although the scope of services has shifted over time with changes in Medicaid benefits. In the past, STX employed oral surgeons, but reimbursement rates from Medicaid are currently too low to offer surgeons competitive salaries. Practices now refer to the community for oral surgery and complex specialty care. The Medicaid benefits used to better promote preventive care through proactive removal of wisdom teeth, but now focus on provision of treatment for the affected tooth only. For example, a 17-year-old with pain from a wisdom tooth can only have the painful tooth extracted rather than having all four extracted at the same time. This is difficult for the patient and burdensome for the provider.

STX clinical staff provide screenings and oral health education in Head Start programs and schools as a public service. The screenings are only visual inspections that result in a note home to parents suggesting a need to see a dentist rather than more formal referrals or treatment recommendations.

Practice Locations

STX Healthcare currently manages 37 dental practices in Texas, all branded as South Texas Dental, and 6 practices in Alabama, each branded as Vital Smiles. Their primary markets are Dallas/Fort Worth, Houston, and San Antonio in Texas and Birmingham, Huntsville and Mobile in Alabama. In the Medicaid markets in these locations, they are one of the largest low-cost providers. They do not have any practices in rural locations because of difficulty with recruiting providers.

Patients Served

Each practice focuses its marketing primarily on the three-mile radius surrounding the office and targets families of children covered by Medicaid. The majority of patients are under age 13 with about a third of patients ages 14 years or older. These practices provide nearly 350,000 patient visits a year, which averages about 1.7 visits per patient. The proportion of patients covered by Medicaid in STX Healthcare's affiliated practices has dropped from 75-80% at the time the practices affiliated with STX to 60-65% as the practices diversified payer base and began offering orthodontics, a service not generally covered by Medicaid.

Adult patients usually have commercial insurance or are uninsured. Texas' Medicaid and Alabama's Medicaid programs do not generally offer adult dental services. STX offers an in-house discount plan for the uninsured, which can make dental care very affordable. Unfortunately, despite the efforts of the dental staff, extractions are often the only care for which uninsured adults will pay. Clinical staff

constantly encourages adults to get both preventive and restorative care but it is difficult given the population in their market.

Structural Configuration

STX operates under two brands, South Texas Dental and Vital Smiles. Dentists own each practice. Most business functions for these practices are performed by STX, including human resources, marketing, compliance, etc. When a new hire is required, STX dental recruiters help to identify candidates for the practices to consider, but each practice is responsible for the interviewing, hiring, training, and mentoring of new dentists. Dentists in each office are autonomous in making clinical decisions, although dentists are trained to understand important clinical guidelines, such as those provided by the American Academy of Pediatric Dentistry. The dental directors at STX mentor younger dentists but do not use standardized clinical treatment protocols.

STX uses Dentrix Enterprise software for its electronic dental records. STX staff perform approximately 2,700 chart review audits per year. The organization is compliance-oriented to avoid exposure to risk during third party audits. STX has maintained good relationships with Medicaid regulators and has demonstrated a lower cost in care provision than average in their primary Medicaid markets.

Professional Staffing

STX employs approximately 300 to 400 people. Of the approximately 130 supported dentists, fewer than 10 are pediatric dentists. STX offers flexible schedules to professionals and many dentists work 3- or 4-day work weeks. Some dentists work in their own private practices most of the time and only part-time for the STX affiliated practice; others are dentists with family obligations that prefer part-time work. Each office employs on average 2-4 front desk staff and an office manager. Dental assistants and dental hygienists are also employed by each practice along with the dentists.

Recruitment and Retention of Clinical Staff

STX has enjoyed significant growth in the number of dental offices it manages in Texas, requiring a commensurate increase in the number of dentists. Historically, STX affiliated practices had no difficulty hiring dentists given their reputation and longevity in Texas. STX affiliated practices have always viewed the organization as a training ground for new dentists, hiring many new dental school graduates. On average, these young dentists worked 3-5 years with STX affiliated practices before leaving to open their own practices, although some stay on with STX affiliated practices for a decade or more. To date, STX does not have formal relationships with any dental education programs, such as providing dental student externships or dental residency rotations, in order to recruit new graduates.

However, the DSO reports that recruitment of dentists has become incrementally more challenging over time. In Alabama, in particular, Medicaid reimbursement rates for dentistry are very low, and the dominant insurance carrier maintains a near monopoly in the market reimbursing for services at low rates. As a result, STX reports that new dentists are more likely to choose practice in other markets that offer higher pay and larger private practice markets including Atlanta, Nashville, and Miami.

Regulatory Context

Several regulatory issues negatively impact Medicaid providers and recipients in Texas and Alabama. STX reports that the Dental Home initiative under the Texas Medicaid program is not well understood by patients, which has been challenging for providers. The program now requires that during enrollment or requalification the patient select a primary general dentist. If the patient fails to designate a provider, the patient is assigned by default to a random Medicaid-participating dentist. This system is problematic because as individual patients cycle on and off Medicaid, they are reassigned at random to new dentists. Although patients have the right to select a dentist of their choice, few patients understand either the necessity to or how to navigate the bureaucracy to change an assigned dentist. Providers who don't contact the Medicaid office by phone or fax to change the patient's dental home in advance of treating a patient will not be reimbursed for the treatment. Practices spend a great deal of time and capital on patient education and office support to maintain their patient caseloads. Continuity of care suffers as well. As a result, it is extremely burdensome for smaller providers to function in the Medicaid market.

STX is proud of being a high quality, low-cost provider in the Medicaid market. They would like to be rewarded for performance and for their stewardship of Medicaid dollars. The Texas managed care Medicaid program offers a bonus program for the providers meeting quality metrics for preventive procedures. STX would like to see Alabama follow suit, and for both states to tie performance to pay. STX is supportive of payment models that reward those who provide high quality, low-cost care.



Trends in the Consolidation of Dental Services to Large Organizational Forms and Implications for the Oral Health Workforce and Access to Care

Case study interviews conducted by:
The Oral Health Workforce Research Center
The Center for Health Workforce Studies
University at Albany, School of Public Health
1 University Place, Suite 220
Rensselaer, New York 12144

Contact: Margaret Langelier (mlangelier@albany.edu)

Thank you for agreeing to participate in our study. Your organization has been selected for any of several reasons, including its unique organizational structure and/or its impact on services to the underserved. This case study will include a telephone interview with researchers from the national Oral Health Workforce Research Center. We ask that you choose individuals to participate on the call who can speak on behalf of your organization to the following issues:

- Overall organizational structure
- Financing structure and, if relevant, insurance functions
- Human resources, particularly clinical workforce
- Information technology infrastructure
- Patient base details
- State regulatory environment

The interview or interviews will be scheduled at the convenience of participants to accommodate individuals' schedules. The following questions will guide the interviews, and questions not relevant to your organization would be omitted.

Questions for Case Study Participants

This case study is being conducted to inform a review of changing organizational forms for dental care in the US. The research is conducted by a team of researchers at the national Oral Health Workforce Research Center at the Center for Health Workforce Studies at the University at Albany and the Healthforce Center at the University of California, San Francisco. The work is funded by the National Center for Health Workforce Analysis in the US Health Resources and Services Administration. This interview is voluntary and, with your consent, will take approximately one hour to complete. Please tell us at any point if you wish to or must discontinue this interview.

A report on the interviews will be compiled when all interviews are complete. The report will provide no information that could be specifically linked to you. Any personal information provided during the interview will be confidential. The report will comprise a summary chapter followed by a series of briefs specifically describing oral health service delivery in each dental service organization (DSO), including the locations and models of care. The summary chapter will describe common themes from the interviews and innovative service delivery models that have resulted in increased access to dental services. If you have any questions about this interview at any time, please contact me (Margaret Langelier) at mlangelier@albany.edu or by phone at (518) 402-0250. If you have questions about your participation as a research subject, you may contact Tony Watson, New York State Department of Health, Institutional Review Board, at (518) 474-8539 or via email at tony.watson@health.ny.gov.

Interview Questions

1. Please describe your role in the organization—this will not be reported but will help the interviewers describe, in general terms, the source of this information.
2. Please describe the overall structure of the organization.
 - a. What services are centralized? Why?
 - b. What services are outsourced? Why?
 - c. What services are provided by individual practices? Why?
 - d. What is the employee structure (staff model, contract, franchise)? Why?
3. In how many and in what states does this DSO operate?
4. Please describe the general financial structure of the organization, including the payer mix.
 - a. If relevant, how many dentists are associated with the organization for management services only?
 - b. Are dental professionals salaried? If so, are production bonuses part of the employment contract? Please describe how financial incentives to provide services are aligned with quality incentives in the organization.
5. What are the efficiencies of your organizational model, if any, compared with those of the traditional privately owned dental practice?
6. Please describe the patients served by the organization's dentists. Do all or some dentists provide care to Medicaid- or CHIP-insured populations? If so, are Medicaid-insured children or adults or both served by member dentists? How is the patient mix determined (centrally, or at the individual clinic level)?
7. Describe the professional clinical dental workforce in the organization. How do you recruit dentists (and, if relevant, dental hygienists and dental assistants)? Do you have any requirements for employment beyond licensure, or any internal certification processes?
8. What is the average duration of employment for clinical staff? What strategies are used to encourage retention of providers?
9. Does the organization have an electronic dental record (EDR)? Is the EDR interoperable from any member location? Are dental records or images shared across locations? Does the organization support clinical protocols that are used by employed or member dentists?

10. Does your organization operate in any geographic areas considered rural or remote? Why or why not?
11. Does this organization use or sponsor any mobile or portable dentistry programs? If so, please describe.
12. What types of specialty dental services are available through the organization or its member dentists?
 - a. How are referrals (in or out) handled by the organization? Are there general guidelines or protocols regarding referrals to external providers?
13. Are there regulatory barriers within any state in which the DSO operates that impact the operations of the DSO or the operations of member dentists?
14. Are there any unique characteristics of this organization that distinguish it from other large dental organizations?
15. What is your opinion on the potential for further growth in the number and size of DSOs in the US? Will the private dental practice model remain predominant, or will large group practices eventually become the model for oral health service delivery?
16. Are there any topics not covered in this interview that you feel are important to discuss?

Appendix C

SURVEY INSTRUMENT



Trends in the Consolidation of Dental Practices: Characteristics of Large Dental Organizations

This survey is part of a protocol for a research project sponsored by the US Health Services and Resources Administration to describe trends in the growth of large dental organizations. **This survey is confidential and voluntary** and will take approximately 10 minutes to complete. Completion of this survey implies consent to participate in this research. The data compiled from survey responses will be reported only in aggregates and averages in the report summarizing the survey results.

Individual responses will not be reported. Should you have any questions about your participation in this research at any time, please contact Margaret Langelier at mlangelier@albany.edu or by phone at (518) 402-0250. If you have questions about participation as a research subject, you may contact Tony Watson, New York State Department of Health, Institutional Review Board, at (518) 474-8593 or via email at tony.watson@health.ny.gov.

Thank you for your participation.

The Organization

1. Please describe your organization (mark all that apply):

- Dental management organization
- Dental service organization
- Dental support organization
- Dental management service organization
- Large group practice
- Dental accountable care organization
- Dental health maintenance organization

Other—describe: _____

2. Is this organization (mark all that apply)...

For profit

Not for profit

Publicly owned

Privately held

Other—describe: _____

3. In what states do dentists employed or affiliated with your organization provide dental services to patients (mark all that apply)?

Alabama

Kentucky

North Dakota

Alaska

Louisiana

Ohio

Arizona

Maine

Oklahoma

Arkansas

Maryland

Oregon

California

Massachusetts

Pennsylvania

Colorado

Michigan

Rhode Island

Connecticut

Minnesota

South Carolina

Delaware

Mississippi

South Dakota

District of Columbia

Missouri

Tennessee

Florida

Montana

Texas

Georgia

Nebraska

Utah

Hawaii

Nevada

Vermont

Idaho

New Hampshire

Virginia

Illinois

New Jersey

Washington

Indiana

New Mexico

West Virginia

Iowa

New York

Wisconsin

Kansas

North Carolina

Wyoming

4. Please describe the services your organization provides to affiliated dental practices (mark all that apply):

- | | |
|--|--|
| <input type="checkbox"/> Accounting | <input type="checkbox"/> Marketing |
| <input type="checkbox"/> Appointment scheduling | <input type="checkbox"/> Property rental, lease agreements |
| <input type="checkbox"/> Billing | <input type="checkbox"/> Purchasing or leasing equipment |
| <input type="checkbox"/> Clinical care protocols | <input type="checkbox"/> Purchasing supplies |
| <input type="checkbox"/> Electronic dental record | <input type="checkbox"/> Quality assurance |
| <input type="checkbox"/> Human resources management | <input type="checkbox"/> Regulatory compliance services |
| <input type="checkbox"/> Information technology infrastructure | <input type="checkbox"/> Other (1)—specify: _____ |
| <input type="checkbox"/> Internal continuing education | <input type="checkbox"/> Other (2)—specify: _____ |

5. Approximately how many patients in total were treated by your organization in 2016?

Total number of patients: _____

6. Does this entity have any outside investors, including an equity firm or a public company?

- Yes
 No
 Other—specify: _____

Dentists Affiliated With the Organization

7. Describe the dentists in your organization (mark all that apply):

- Associates
 Employees
 Dental residents
 Owner(s)
 Chief executive officer
 Shareholders
 Other—describe: _____

8. How many oral health professionals are affiliated with this organization?

	No. of full-time professionals	No. of part-time professionals
Dentists	<input type="text"/>	<input type="text"/>
Dental hygienists	<input type="text"/>	<input type="text"/>
Dental assistants	<input type="text"/>	<input type="text"/>

9. On a scale of 1 to 5, with 1 being the least difficult and 5 being the most difficult, describe the level of difficulty recruiting the following to your organization:

	Least difficult				Most difficult
	1	2	3	4	5
Dentists	<input type="radio"/>				
Dental hygienists	<input type="radio"/>				
Dental assistants	<input type="radio"/>				

10. On a scale of 1 to 5, with 1 being the least difficult and 5 being the most difficult, describe the level of difficulty retaining the following in your organization:

	Least difficult				Most difficult
	1	2	3	4	5
Dentists	<input type="radio"/>				
Dental hygienists	<input type="radio"/>				
Dental assistants	<input type="radio"/>				

11. Approximately what percentage of dentists affiliated with this organization are... (the total should equal 100%)

	%
General dentists	<input type="text"/>
Pediatric dentists	<input type="text"/>
Other dental specialists	<input type="text"/>

12. Approximately what percentage of dentists recruited annually are... (the total should equal 100%)

	%
New dental school graduates	<input type="text"/>
New graduates of dental residency programs	<input type="text"/>
Experienced dentists	<input type="text"/>

13. In your opinion, what are the benefits offered to dentists during the recruitment process that appeal most to those being recruited to the organization (eg, salary, location, etc)?

Patients With Public Dental Insurance

14. Do any dentists affiliated with this organization treat patients who are publicly insured by Medicaid or CHIP?

- Yes
- No

If yes only:

14.1. What percentage of affiliated dentists treat patients insured by Medicaid or CHIP?

Approximate percentage of dentists: _____%

14.2. What percentage of the total patient population are insured by Medicaid or CHIP?

Approximate percentage of total patient population: _____%

14.3. What percentage of the Medicaid or CHIP patients treated in affiliated practices are children?

Approximate percentage of all Medicaid or CHIP patients: _____%

14.4. In which of the states where your organization has a presence do dentists in your organization provide services to Medicaid- or CHIP-insured patients (mark all that apply)?

- | | | |
|---|---|---|
| <input type="checkbox"/> Alabama | <input type="checkbox"/> Kentucky | <input type="checkbox"/> North Dakota |
| <input type="checkbox"/> Alaska | <input type="checkbox"/> Louisiana | <input type="checkbox"/> Ohio |
| <input type="checkbox"/> Arizona | <input type="checkbox"/> Maine | <input type="checkbox"/> Oklahoma |
| <input type="checkbox"/> Arkansas | <input type="checkbox"/> Maryland | <input type="checkbox"/> Oregon |
| <input type="checkbox"/> California | <input type="checkbox"/> Massachusetts | <input type="checkbox"/> Pennsylvania |
| <input type="checkbox"/> Colorado | <input type="checkbox"/> Michigan | <input type="checkbox"/> Rhode Island |
| <input type="checkbox"/> Connecticut | <input type="checkbox"/> Minnesota | <input type="checkbox"/> South Carolina |
| <input type="checkbox"/> Delaware | <input type="checkbox"/> Mississippi | <input type="checkbox"/> South Dakota |
| <input type="checkbox"/> District of Columbia | <input type="checkbox"/> Missouri | <input type="checkbox"/> Tennessee |
| <input type="checkbox"/> Florida | <input type="checkbox"/> Montana | <input type="checkbox"/> Texas |
| <input type="checkbox"/> Georgia | <input type="checkbox"/> Nebraska | <input type="checkbox"/> Utah |
| <input type="checkbox"/> Hawaii | <input type="checkbox"/> Nevada | <input type="checkbox"/> Vermont |
| <input type="checkbox"/> Idaho | <input type="checkbox"/> New Hampshire | <input type="checkbox"/> Virginia |
| <input type="checkbox"/> Illinois | <input type="checkbox"/> New Jersey | <input type="checkbox"/> Washington |
| <input type="checkbox"/> Indiana | <input type="checkbox"/> New Mexico | <input type="checkbox"/> West Virginia |
| <input type="checkbox"/> Iowa | <input type="checkbox"/> New York | <input type="checkbox"/> Wisconsin |
| <input type="checkbox"/> Kansas | <input type="checkbox"/> North Carolina | <input type="checkbox"/> Wyoming |

If no only:

14.1. Please describe the reasons for not treating patients insured by Medicaid or CHIP:

Narrative

15. Please describe any barriers to growth for your organization (eg, difficulty recruiting workforce, state regulations governing dental practice, etc):

Thank you for your input!

Appendix D

NARRATIVE RESPONSES TO THE SURVEY

Question 4. *Please describe the services your organization provides to affiliated dental practices [Other—specify]*

- Human resources
- Leadership development
- Legal
- Recruiting assistance

Question 6. *Does this entity have any outside investors, including an equity firm or a public company? [Other—specify]*

- Private investor

Question 13. *In your opinion, what are the benefits offered to dentists during the recruitment process that appeal most to those being recruited to the organization (eg, salary, location, etc)?*

- Salary and bonus (18 respondents)
- Location (10 respondents)
- Benefits (4 respondents)
- Partnership/ownership opportunity (3 respondents)
- Mentoring and development (3 respondents)
- Malpractice insurance
- Modern office environment
- Sign-on bonus, retention bonus, technology
- Quality of life, career opportunity
- Patient population, company culture
- Paid time off, student loan repayment
- Stability, positive work environment, room to progress in organization
- Quality of support team, infrastructure, and practice reputation
- Clinical autonomy
- We allow dentists to their highest and best use as dentists and a lot less management and administrative duties
- Autonomy, camaraderie, support, fun

Question 14.1. *Please describe the reasons for not treating patients insured by Medicaid or CHIP*

- Regulations
- Too low reimbursement
- We are ortho, and very few patients qualify
- Business model decision
- Regulatory compliance is too difficult

Question 15. *Please describe any barriers to growth for your organization (eg, difficulty recruiting workforce, state regulations governing dental practice, etc)*

- DDS recruitment (8 respondents)
- Recruiting (6 respondents)
- State regulation (6 respondents)
- Retention (2 respondents)
- Competition for good staff members (2 respondents)
- Difficulty finding competent staffing
- Recruiting orthodontists to the Midwest
- Lack of dental hygienists
- Supply of pediatric dentist graduates
- Hiring the right people
- There appears to be a shortage of dental assistants that doesn't look to be changing in the near future
- RDA retention
- Quality office management staff
- Finding technicians
- Compliance
- Lack of clarity from government bodies
- Competition
- Dental board anticompetitive practices
- Insurance reimbursement plummeting
- Credentialing delays by insurance companies
- Reimbursement
- Medicaid reimbursements and plan changes
- Medicaid credentialing obstacles
- Making sure our culture is good
- Transient patient base
- Site selection, capital, infrastructure
- Texas Main Dental Home program shifts patients away from traditional Medicaid providers

- Price of practices for sale
- In certain states, there are overreaching dental boards filled with market participants who behave in anticompetitive ways, attempt to regulate nonclinicians, and inappropriately attempt to interfere with contracts between private parties—particularly aimed at DSOs
- Antiquated legislation in a few states doesn't reflect the current business realities and/or defines the practice of dentistry so broadly as to include the management/operation of dental practices, again aimed primarily at DSOs and/or nontraditional dental practice models
- None

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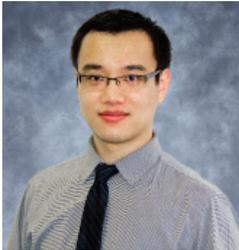
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As deputy director of OHWRC, Ms. Langelier assists the Director in preparation of all research projects and reports and in the OHWRC's dissemination activities. Ms. Langelier has served as a program research specialist at the Center for Health Workforce Studies (CHWS) for 13 years, where she has been responsible for supervising staff and coordinating of all aspects of project workflow. During her tenure, Ms. Langelier has been lead staff or the principal investigator on numerous research projects about the allied health and oral health workforce.



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