FEATURE ARTICLE

FEASIBILITY ASSESSMENT FOR USING TELEHEALTH TECHNOLOGY TO IMPROVE ACCESS TO DENTAL CARE FOR RURAL AND UNDERSERVED POPULATIONS

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ABSTRACT

Objective
South Carolina Dental Association members were surveyed on telehealth knowledge, need, and interest in using it for access to care improvements.

Methods
Dependent variables were Medicaid patient population size (less than or greater than 10%), career stage (early to middle and advanced), and National Health Service Corps participation (yes or no). Practice and provider characteristics were screener questions. Data were collected electronically and analyzed with SAS. Descriptive and bivariate analyses were conducted.

Results
Most (69.3%) reported some or no teledentistry knowledge. Distribution of needing consults was: endodontics (40.2%), oral-maxillofacial surgery (37.9%), orthodontia (30.7%), periodontics (28.4%), and pediatrics (12.5%). Consultations for diagnosis (72.9%), emergencies (56.7%), and continuing education (53.3%) were most frequently identified telehealth uses. Medicaid patient population size was the only dependent measure with statistical significance. Compared to <10% Medicaid, >10% was more likely to (1) frequently need consults for orthodontics (25.5% vs 43.4%, $P = .0043$) and pediatrics (5.9% vs 29.0%, $P < .0001$); (2) use telehealth for children with special health care needs (44.1% vs 65.8%, $P = .0017$), complex health conditions (54.3% vs 78.1%, $P = .0004$), conditions exacerbated by unmet dental needs (44.6% vs 65.8%, $P = .0022$); and (3) use telehealth for extending practice to underserved populations (14.6% vs 33.8%, $P = .0004$).

Conclusions
Despite need for telehealth knowledge improvement, sufficient interest exists. Further study will determine if demand for teledentistry is in balance with consultant availability. It has been suggested that access to care improvements require capacity expansions in private practices. States will need to engage dental communities determine if teledentistry is an effective solution.

INTRODUCTION

Telehealth encompasses the electronic exchange of patient information, usually clinical, from one geographic location to another for interpretation or consultation among authorized health care professionals.[1,2] Telehealth has been used in the past to provide unique technological health services that aid in improving health including diabetes and cardiovascular disease,[3] behavioral and mental health illnesses,[2,4] educational trainings for faculty and clinical staff, medical home-based care,[1] and a cadre of medical specialties consultations for critical care situations.[1] Increased discussions and applications of telehealth for oral health care have been explored within the last decade, given the attention brought by the 2000 Surgeon General's Report for Oral Health in America.[5]

The first recognized application of telehealth usage for oral care was by the US Army in 1994 where dental consultations and diagnoses were received by members of the service at a distance of 100 miles or more.[6] Since that time, telehealth has been used in a variety of oral health demonstration projects within the United States.[2] Teledentistry, through emerging applications for distance dental care, has become an acceptable use for telehealth that fulfills many otherwise unmet oral health needs.[7,8]

The Institute of Medicine's report, "Improving Access to Oral Health Care for Vulnerable and Underserved Populations,"[9] recommends teledentistry as a way of ameliorating traditional geographic access to care barriers for rural and underserved communities, although its application for definitive treatment remains elusive under most states' dental practice acts. As such, contemporary use of teledentistry appears to be limited to using dental auxiliaries and primary care providers in remote locations to conduct screenings, treatment planning, and limited diagnostic, preventive, and restorative services within their scopes of practice.[10] California may be the exception as evidenced by its Virtual Dental Home[11]; its replication, however, has encountered legal and practical challenges in states with more restrictive practice acts.[12]

Additional published barriers to the adoption of telehealth technologies by dentists include training deficiencies, insufficient networks to support the application, overall low use of technology, and reimbursement concerns.[13] Telehealth terminology can be confusing and distort dentists' understanding of the use and resource requirements of telehealth.[13] As such, gauging the readiness for and understanding of telehealth among the dental community is essential before developing a teledentistry network.

As an effort to advance potential clinical applications of teledentistry, we conducted a statewide feasibility assessment that included the identification of potential consulting specialists, pilot demonstration applications, and reimbursement and regulatory issues in South Carolina. Our goal was to understand the interest and need for the usage of telehealth technology by professional dental health providers in South Carolina (eg general dentist, pediatric dentist, oral surgeon, and so forth).

METHODS

Survey Development

Our survey was developed as a derivative of an instrument previously used by the principal investigator to assess the readiness of rural hospitals and primary care practices for care delivery through telehealth.[14] The survey design team represented members from the state dental association, the state's public health and dental academic programs, the South Carolina Area Health Education Consortium, and an established rural telemedicine program. The survey design team assisted with instrument content and modifications. The target audience was South Carolina Dental Association membership, which represents more than 80% of practicing dentists in the state.

Respondents were given a brief introduction to the purpose of the survey in an electronic format. A question was added about knowledge of telehealth applications in the practice of dentistry, however, the bulk of the survey questions focused on 2 domains: (1) need for telehealth technology and (2) interest in using telehealth technology for dental care delivery. We intended our independent variables to be practice and dentist characteristics, which included dental specialty type, primary practice type, career tenure, proportion of the patient population that was Medicaid enrolled, and having past or present participation in the National Health Service Corps. Our choice in independent variables stemmed from an assumption that dentists serving rural, underserved, and safety net populations would be more likely to use telehealth to bridge access gaps, as their primary care peers have done.[15]

With regard to the second domain, respondents were asked to identify the frequency of needing specialty consultants in the areas of endodontics, oral and maxillofacial pathology, radiology, and surgery, orthodontics, pediatric dentistry, periodontics, prosthodontics, and other specialties. Frequently needing consultations was defined as once a week or more.

To assess the potential capacity for consultation services usage and facilitation, respondents were asked about their interest in using consultants or their willingness to serve as consulting clinicians to help improve dental care delivery. Respondents were asked to consider their willingness to seek telehealth consults, or serve as consultants, in the