

## Original Research Article

### “ACCESSING DENTAL HYGIENE SERVICES IN PRICE COUNTY, WI: AN ONGOING INVESTIGATION OF QUALITY OF LIFE AND QUALITY OF CARE”

#### Abstract:

**PROBLEM STATEMENT:** Little research exists documenting Quality of Care (CoC) and Quality of Life (QoL) for individuals accessing dental services through public health departments when dental hygienists are using a consultative/referral model. Using a consultative/referral model is one way of addressing the issues of declining funding, access to care and workforce development for improving oral health of families with economic disparities and cultural differences.

**PURPOSE:** The purpose of this research was documenting quality of life and quality of care measures for families receiving care from dental hygienists within public health departments and considering if oral health for families with economic disparities and cultural differences improved.

**METHODS:** A descriptive retrospective and longitudinal cohort group study was conducted. Data analyzed was from the Secure Public Health Record Environment (SPHERE) database.

**RESULTS:** From 2005~2011, thirty-six hundred thirty-three (3633) oral health education sessions were provided. Twenty-two hundred and sixteen (2216) fluoride assessments were conducted; and 1786 (61%) children received systemic fluoride supplements. Sixteen hundred sixty-seven (1667) children were eligible for a weekly topical mouth rinse program, with 1258 (75%) participating. Three thousand twenty-eight (83%) children received fluoride varnish. 59 minorities received care. 30~35% of clients served were either Medicaid or Badger Care recipients. Data documenting Quality of Care (QoC) and Quality of Life (QoL) was analyzed for described communities. Initial QoL data was ranked in the bottom half of state, while 70% of original determinant data was also ranked in the bottom half of reported metrics. Improvement in Quality-of-Life measures were noted through improved health outcomes and determinant metrics. Quality of Life (QoL) measures are annually re-normed statewide, requiring further study.

**CONCLUSIONS:** Data describes how Quality of Care and Quality of Life measures for individuals with economic disparities & cultural differences are affected in the service communities studied. This analysis describes positive impacts made, and efficacy of using a consultative/referral model when care required is outside the scope of dental hygiene practice.

## Accessing Dental Hygiene Services in Price County, WI: An Ongoing Investigation of Quality of Life and Quality of Care

### INTRODUCTION:

Public health programs have the unequivocal opportunity for making significant impacts on community populations served throughout a lifespan: whether children, adults, or senior citizens<sup>1-8</sup>. Sharing outcomes achieved by various public health programs allows practitioners to both conceptualize and consider application within their own communities some simple measures that have the capacity for impacting and improving the Quality of Care (QoC) and ultimately, Quality of Life (QoL) for the individuals living there<sup>9-16</sup>. A dental hygiene public health program housed within and as part of a county public health program in a rural, northern Wisconsin community has documented successes in providing care for populations that are both rurally located, socioeconomically disadvantaged, and have low numbers of allied health care workers in the surrounding community to serve them<sup>17-25</sup>. The care model used allows for a unique blend of holistic care meeting the public county health departments' mission of 'providing care, promoting health, preventing disease, while protecting the environment'<sup>26</sup>. Clinical care services provided included education, prevention, consultation, and referral\* for additional dental and/or medical services<sup>27</sup>. Outcomes from sealant programs<sup>28</sup> and sealant retention<sup>29-30</sup> have already been published. Survey results identifying patient perception of the quality of care received, and their families' quality of life is forthcoming. The programs studied, and resultant outcomes, can be achieved across the United States (US) and other countries while using interprofessional and public health domain settings for accomplishing them. The purpose of these interrelated studies included documenting care as guided by the National Dental Hygiene Research Agenda (NDHRA) area of Health Services: Investigation of how alternative models of dental hygiene care delivery can reduce health care inequities<sup>31</sup>. A primary, descriptive review of the preventive programs offered through the Price County public health department including the various fluoride programs for children are examined here.

Where the fact access to care is a complex, multifactorial issue, the findings in this study continues describing care provision for a population located in a rural, diverse, and socioeconomically disadvantaged community in northern Wisconsin<sup>17-25, 28, 30</sup>. Each population, whether rural, socioeconomically disadvantaged, or with other unique population characteristics faces their own challenges for accessing care. Even though this study described the impacts made upon the oral health of children in a community accessing care through a public health department as an alternative model of dental hygiene care delivery for reducing health care inequities, interventions that have worked in other communities also need to be described and results documented in the scientific literature. Sharing "best practices" from public health practice can aid allied care providers in identifying and using protocols and practices assuring high quality provision of care for individuals and communities<sup>17, 32</sup>. The extent to which hygienists working collaboratively in alternative practice settings with other allied health professionals or organizations for improving health care outcomes should be documented and reported. Alternative care models for changing practice paradigms need to be documented in scientific literature. Public and community health departments are one avenue allowing for oral health care provision and could be overseen as part of a medical, rather than dental care model, allowing for improving access to care for individuals within communities<sup>5-16</sup>.

Public health dental hygienists, federally qualified health centers (FQHC'S), community health centers (CHC'S) and private practice dentists are leveraging systems for improving access for those without dental care, including those under 200% of the United States federal poverty level. Little research exists documenting public healthcare outcomes while using consultation and referral models\* for providing care, and how the impact of these models affects both Quality of Care (QoC) and Quality of Life (QoL) for patients served<sup>28-30</sup>. A seven-year retrospective descriptive analysis considered impacts made through preventive dental hygiene care delivered through local health departments. The purpose of this research included describing impacts made by

dental hygienists working within public health departments. The consultation and referral model is not mandated by statute but is recognized standard of care when clients present with conditions outside practitioner's scope of practice<sup>33</sup>.

\* A dental referral site may include but is not limited to a private dental practice, a federally qualified health center (FQHC) with a dental expansion, a rural dental clinic, or colleges or universities providing dental diagnostic, and clinical services. A medical referral site may include but is not limited to a family physician, nurse practitioner, a federally qualified health center, or university or medical colleges providing diagnostic and clinical services<sup>33</sup>.

#### PURPOSE:

The purpose of this research was documenting quality of life and quality of care measures for families receiving care from dental hygienists within public health departments and considering if oral health for families with economic disparities and cultural differences improved.

#### METHODS:

A longitudinal, retrospective descriptive cohort study was conducted. Institutional Review Board (IRB) was requested, and exemption status granted, because data analyzed used existing data sets. Evidence based practices and descriptive, statistical evidence gathered allowed for conducting a descriptive, longitudinal analysis of these programs. Data was retrieved from the Secure Public Health Record Environment (SPHERE) database. Population included all individuals served in the SPHERE data base, and sample was specifically drawn from the Wisconsin county served. Sample size included fifty-one hundred sixty-two (5162) patient records. Data analyzed was for the education and preventive programs associated with fluoride use in the service community between 2005-2011. Data continues being collected and reported to SPHERE. Descriptive statistics, including percentages and ranges, were used for data analysis of the sample within this care population. Researchers determined using inferential statistics for further analysis unnecessary, as the point of the study was describing the target population in the rural, socioeconomically disadvantaged community. Researchers did not want to be inferring study results to larger potentially different population groups than the one studied as to do so may be misleading.

#### RESULTS:

From 2005~2011, fifty-one hundred sixty-two (5162) total children had some sort of oral health activity within the population studied. Of those, thirty-six hundred thirty-three (3633) oral health education sessions were provided within the rural service community. Prior to receipt of any preventive care services, families provided informed consent for their children to participate in the various oral care programs. All children whose families elected for them to receive services had to first participate in an oral health educational session. Once children engaged in the oral health educational sessions, data collected and reported in this primary, descriptive research was related to either systemic or topical, intraoral use of fluoride mouth rinses or varnishes. Twenty-two hundred and sixteen (2216) fluoride assessments were conducted, resulting in 1786 (80%) children receiving systemic fluoride supplements. Families of children eligible for topical fluoride use resulted in sixteen hundred sixty-seven (1667) children participating in a weekly topical mouth rinse program, with 1258 children (75%) actively participating. Three thousand twenty-eight (83%) children also received fluoride varnish. Summary data can be noted in Table 1.

**Table 1: Summary: SPHERE Screenings & Services**

Year	Total Clients w/Oral Health Activity	# of Oral Health Education Sessions	# of Fluoride Assessments	# of Children w/Fluoride Supplements	Total # Eligible Fluoride Rinse Program	# of Children receiving weekly Fluoride Mouth rinse	# of Children receiving Fluoride Varnishes
2005	531	261	282	406	250	182	169
2006	667	448	288	374	244	170	393
2007	784	517	231	213	197	147	459
2008	657	428	310	274	194	139	334
2009	681	424	398	259	259	198	389
2010	992	896	461	149	257	215	679
2011	850	659	246	108	266	207	605
<b>Totals:</b>	<b>5162</b>	<b>3633</b>	<b>2216</b>	<b>1783</b>	<b>1667</b>	<b>1258</b>	<b>3028</b>

As the families of many individuals in the service area are also socioeconomically disadvantaged, it was also determined 30~35% of clients served were either Medicaid or Badger Care recipients. See Table 2.

**Table 2: Summary: Minority & Socioeconomic Status in Service Area**

Year	Minorities Served	# of Participating Districts	# served with Medicare or Badgercare
2005	19	9	26.5%
2006	4	8	34.45%
2007	6	6	31.08%
2008	13	6	34.81%
2009	9	7	45.24%
2010	4	9	36.8%
2011	4	9	30.7%
<b>Average Totals:</b>	<b>59</b>	<b>7.7</b>	<b>30-34%</b>

Fifty-nine (59) minorities received care. Data can be noted in Table3.

Native American	25
Black	10
Hispanic	10
Pacific Islander	8
Other	4
Asian	0
Non-reporting	2
<b>TOTAL:</b>	<b>59</b>

Outcomes related to sealant programs<sup>28, 30</sup> and sealant retention<sup>28-30</sup> as measures associated with quality of care, in this community have previously been published. If program participants required advanced care, including restorative services, a consultative-referral model was used as a funnel to Federally Qualified Health Clinics (FQHCs), Community Health Centers (CHCs) or private practices for these services<sup>33</sup>. Similarly, the program dental hygienist worked in an interprofessional alliance to assure patients needing services were able to access them<sup>17,33</sup>.

#### DISCUSSION:

Access to care is a complex, multifactorial issue. This study described care provision for one population group located in a rural, socioeconomically disadvantaged community. Any population, whether rural, socioeconomically disadvantaged, or with other unique population characteristics either across the United States (US) or in other countries faces their own unique set of challenges with accessing care. Even though this study described the impacts made upon the oral health of children in a community accessing care through a public health department as an alternative model of dental hygiene care delivery for reducing health care inequities, interventions that have worked in other communities also need to be described and documented in the scientific literature. Sharing “best practices” from public health practice can aid care providers in identifying and using protocols and practices assuring high quality care provision for individuals and communities. Evidence based practices and descriptive, statistical evidence gathered allowed for conducting a descriptive, longitudinal analysis of other programs applying a conceptual model such as this one<sup>32-33</sup>.

The extent to which hygienists working collaboratively in alternative practice settings with other health professionals or organizations through interprofessional collaborations for improving health care outcomes should be documented. Alternative care models can be used for changing clinical practice paradigms and these approaches need to be shared in the scientific literature. Public health departments are one avenue where oral care provision could be provided and overseen as part of a medical, rather than dental care model, allowing for improving access to care for individuals across a lifespan<sup>9-16</sup>.

The descriptive results documented in Table 1 identify how over time, a community of families recognized the importance of oral health care, including educational and basic preventive services. Families returning for ongoing care including systemic fluoride supplements, fluoride mouth rinses and varnishes was documented. Numbers of participants increased yearly as community members became aware of the various programs being offered through the public health program. A significant point to note in the success of these programs included they were either at no or reduced cost<sup>27</sup>, provided ease of access for children and families, and the ability to access additional care, if necessary, through a consultative-referral model<sup>33</sup>. High percentages of participation in a variety of programs have yielded results that could be replicatable in communities with similar population characteristics<sup>28,30</sup>.

Another consideration for the future includes the declining number of allied health care providers located in rural population centers<sup>1,7,9,15</sup>. The northern one third of the state studied is sparsely populated, with small towns located significant distances from each other. This type of geographic representation exists not only across the US, but in various other countries as well<sup>9, 13-16,20</sup>. Health care providers are not necessarily willing to

relocate to smaller isolated, rural communities far from a variety of services and activities. This lack of mobility creates an access problem as older clinicians are retiring and closing their practices and there are not enough new care providers to replace them<sup>9, 13-16</sup>. A provider deficit in the service community already existed. Using an interprofessional model with medical supervision for a variety of services using a consultative-referral model within a public health department may be one of the solutions for accessing care in the future<sup>12-15, 17, 24, 33</sup>. Adaptation of these models can be applied globally in communities.

Quality care services can impact the quality of life within a community. Services discussed here document how preventive services can be offered through an alternative service model allowing for acceptable epidemiological population results<sup>18-23</sup>. Quality of life is another consideration. The state used to gather and report quality of life measures, and these were then incorporated into state reported epidemiologic rankings. Data documenting Quality of Life (QoL) was analyzed for described communities. Quality of Life (QoL) measures were being re-normed annually statewide, and the research team believed this required further study in the service community. When this cohort analysis began, the initial QoL data results were always ranked in the bottom half of the state, while 70% of original determinant data was also ranked in the bottom half of reported metrics<sup>28-30</sup>. The research team subsequently identified the need to conduct a satisfaction survey specifically drawn from the service area, asking what the perceptions of care children and families received impacted their quality of life. The last paper within the series of this research addresses those findings.

#### CONCLUSION:

Data provided describes how Quality of Care and Quality of Life measures for individuals with economic disparities & cultural differences are affected in the service communities studied. This analysis describes positive impacts made, and efficacy of using a consultative/referral model when care required is outside the scope of dental hygiene practice.

#### COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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