

The effect of community based externships on host sites:  
A survey of staff dentists at Washington State Community Clinics

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**Abstract**

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**Background:** This purpose of this study was to better understand the attitudes of community health center dentists towards community-based externships (CBEs) and determine if previous experience supervising dental students affected their opinions.

**Methods:** Ninety-nine dentists in Washington State were asked to complete either an internet or mail-based survey. Of the 69 dentists in Washington State who responded (response rate: 69 percent), 45 had experience supervising dental students participating in CBEs. The survey questioned the effects of CBEs on dental students, patients, the clinic and the dentists themselves. The survey also asked for dentists' opinions on why a clinic would host dental students, who should pay for the program expenses and what incentives should be given to supervising dentists.

**Results:** Nearly all respondents (97 percent) felt that a CBE had a positive impact on a student's education. Dentists with experience supervising dental students were more likely to report the programs' effects on patients and the students' delivered quality of care as neutral or negative

( $p=0.035$  and  $p=0.034$ , respectively). The most-preferred incentives for dentists' participation in CBEs were a financial bonus and free continuing education classes. Dentists did not report an increase in overall clinic productivity when a student was present. Ninety-one percent of the respondents did not feel that community-based clinics should pay dental schools when hosting dental students and 56% did not think the clinic should pay for a student's living expenses.

Conclusion: More efforts should be made to understand the components of quality of care and how best to maintain it in the CBE setting. Staff dentists should be considered key stakeholders in the design and implementation of CBE programs.

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## **DEDICATION**

To my biggest supporter,  
who is also the best mom  
a son could ever ask for

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## **Introduction**

A growing number of U.S. dental schools include a community-based clinical experience (CBE) as part of the curriculum. CBEs are designed to give dental students experience providing patient care in community-based clinics or private practices.<sup>1</sup> A survey of U.S. dental schools found that the largest change in dental school curriculum from 2003 to 2009 was the increased proportion of dental schools requiring a CBE (64% vs. 91% respectively).<sup>2</sup> The Pipeline, Profession, and Practice: Community-Based Dental Education program, begun in 2002, likely played a role in the increased use of CBEs. The goal of the program was to reduce disparities in access to dental care, and one of its three main objectives was to have senior students at participating dental schools spend an average of sixty days in patient-centered community clinics.<sup>3</sup> CBEs are believed to create advantages for dental schools, community health centers and dental students.<sup>4</sup> Each of these potential advantages is examined in turn below.

### *Advantages of CBEs for Dental Schools*

Much attention has been given to the role CBEs can play in helping alleviate the financial challenges faced by most U.S. dental schools.<sup>5-11</sup> High education costs, the economic recession, and reduced government support have negatively affected dental school budgets.<sup>8</sup> Evidence indicates that schools are moving to CBEs, partly because it allows them to generate more net revenue from increased class size and international student programs.<sup>8</sup> The use of CBEs can also save the dental schools money by freeing-up clinic resources and decreasing facility costs. Bailit and McGowan found that schools with extensive CBE programs save money through substantially lower per-senior-student clinic losses.<sup>12</sup> Using staff dentists as preceptors at

community-based clinics can also help address current and projected faculty shortages at U.S. dental schools.<sup>7, 13, 14</sup>

#### *Advantages of CBEs for Dental Students*

CBEs are thought to enhance a dental student's educational and clinical experience.<sup>15</sup> While practicing in a community-based clinic, dental students perform more dental procedures and see more patients than they do in a traditional dental school setting.<sup>4, 16</sup> The faster clinic pace experienced during the externship might help students transition from the dental school setting, where two or three patients are typically seen in a day, to a setting that is more representative of what they will experience following graduation. At community-based clinics, students typically treat a more diverse patient population in terms of ethnicity, age and method of payment.<sup>16</sup> Increasing dental students' exposure to varied patient populations may increase their willingness to treat similarly diverse patients following graduation.<sup>17</sup> Okwuje et al found that nearly 75% of surveyed dental school seniors rated their extramural clinic experience as "positive" or "very positive."<sup>18</sup> Almost half of them reported that a CBE improved their ability to care for racially, ethnically, and culturally diverse groups. One exception to their positive comments overall was that the students reported a decline in their quality of work and treatment of patients while at community-based clinics. More research is needed understand these perceptions and determine if other key stakeholders feel the same way.

#### *Advantages of CBEs for Community-Based Health Centers*

The 2000 U.S. Surgeon General's Report on Oral Health stated that 25 million individuals reside in areas lacking adequate dental care services, as defined by Health Professional Shortage Area

(HPSA) criteria.<sup>19</sup> It also stated that students and clinicians need to be prepared to adopt evidence-based health care and to support cost-effective community-based health programs. CBEs offer unique opportunities for mutually advantageous collaboration between community health centers and dental schools. The partnerships formed through CBEs provide an avenue through which evidence-based health care taught in dental school programs can be disseminated to rural and underserved areas. The community-based clinics provide access to an underserved patient population while the schools supply student dentists to help treat this population at-risk for dental disease. Although CBEs have been viewed as a possible recruitment tool encouraging graduating dentists to accept staff positions in community health centers following graduation<sup>20</sup>, the strength of the evidence supporting this theory is limited.<sup>18, 21, 22</sup>

#### *Responsibility for the Financial Costs of CBEs Differs Among Dental Schools*

If CBEs benefit dental schools, community health centers and students, then should the cost of these programs be shared? Considerations must be made with regards to travel and lodging expenses, dental school and host-site administrative costs, and the loss and gain of production at each clinic. Each dental school must design its CBE program in a way that is fiscally responsible. Schools have reported increased revenue even when covering the costs of the CBE program and not receiving student production income from clinics hosting students.<sup>22</sup> However, other schools hold students responsible for travel expenses and may require host sites to provide student housing.<sup>10, 23</sup> Some CBE programs require host clinics to share student-generated patient care revenues.<sup>24</sup> Regardless of the budget model used, a program that earns the support of community-based dentists would be more likely to succeed. For this reason, it's pertinent for dental schools to understand how these dentists think and feel about CBE funding.

### *Little is Known About the Impact of CBEs on Dentist Preceptors and Their Practice Income*

While their use in dental education is increasing, little is known about the effect of CBEs on the dentist preceptors who play a vital role in a program's success.<sup>2</sup> Published studies of medical school externships have identified areas for consideration and possible concern. Overall, physician-preceptors reported valuing the opportunity to teach medical students and residents, felt teaching enhanced their satisfaction with providing patient care, and helped keep their knowledge current.<sup>25-27</sup> These benefits are not without potential costs. Baldor, et al. found that 73% of physicians reported that the major consequence of teaching was decreased productivity. Similarly, Levy et al. found that 87% of preceptors reported they spent more time at work, 31% saw fewer patients and 25% said they lost practice income.<sup>28</sup> Among medical preceptors, the majority do not receive financial compensation for teaching and most say they don't desire it. They prefer other incentives and recognition including: access to continuing medical education credits for teaching, faculty development workshops and university library access.<sup>28</sup> While models for medical and dental education are not expected to be interchangeable, these findings suggest that understanding the perceptions of dental preceptors is pertinent to the design and promotion of CBE programs. Some dental schools already provide access to university libraries and continuing education.<sup>23, 24</sup> Other strategies to establish and maintain strong CBEs in dentistry must consider the equitable distribution of program benefits and costs while considering incentives for dentist participation.

### *Key Stakeholders: Community-Based Dentist Preceptors*

The success of CBE programs depends on community-based dentists' willingness to supervise the dental students and share their clinic, patients, and staff. Dentist preceptors are typically

recruited by dental schools as volunteer adjunct faculty and calibrated by the dental school to become a reliable judge of students' clinical work. There is a general sense that CBE programs are supported by dental school faculty and community faculty members<sup>29</sup>, but to date, there has been no systematic study of the perceived or actual effects of CBEs on the community-based dentists who are expected to serve the role of preceptor. The purpose of this study was to better understand the attitudes of community health center dentists toward CBEs and determine if previous experience as a CBE supervisor affected their opinions.

## **Methods**

The study method was a mixed mode (mail and internet-based) survey of community health center dentists currently practicing in Washington State. The survey consisted of forty-six questions. Demographic information included the respondents' gender, ethnicity/race, age, dental school graduation date, private practice experience, personal CBE experience, and years they had been practicing at their current community-based clinic. The demographic survey items also included the type of community-based clinic and the number of staff general dentists.

The format and content of the survey questions was shaped by the study authors' personal experiences with CBE programs and published surveys used to evaluate community-based dental and medical education.<sup>27, 28, 30, 31</sup> All participants completed Likert-style questions about their perceived effects of CBEs on dental students, patients and dentists. The survey items included questions about the reasons a clinic would choose to participate in CBEs or choose to not participate. In order to assess the long-term stability of CBE programs, dentists were asked who should fund CBEs and their preferred incentive for supervising dental students. Survey respondents who reported having served as a preceptor were asked to answer additional questions based on their personal experience.

The data collection procedures followed the recommendations of Dillman.<sup>32</sup> Prospective participants were contacted via an email pre-notice letter followed by an invitation to participate and a reminder email. The last two emails contained direct links to a Catalyst WebQ version of the survey. Finally, physical copies of the survey were mailed with a self-addressed, postage-

paid envelope to the dentists who hadn't declined participation or completed the internet version. These various methods of recruitment were spaced approximately two weeks apart.

The research protocol was reviewed by the University of Washington Human Subjects Division and determined to be of exempt status (HSD study #41732). Participation in the study was voluntary and the confidentiality of the respondent's participation and responses was assured.

### *Sample*

The study population was community health center dentists practicing in Washington State. Potential participants were identified by dental directors following a presentation of the study plan at a state-wide meeting of community and migrant dental health centers. Approximately 24 healthcare organizations and 120 dentists were represented at the meeting. All dentists employed at community health clinics in Washington State were eligible to participate. Dental directors who agreed to participate provided contact information for their clinic's staff dentists. The result was an eligible sample of 99 dentists from 10 healthcare organizations and 32 associated dental clinics; most of the organizations that did not provide dentist contact information employed fewer dentists and did not respond to multiple contact attempts.

### *Data Analysis*

Data were entered into a software database (Microsoft Excel 2007; Microsoft, Seattle, WA) and statistical analysis was completed using Stata 11 (StataCorp LP, College Station, TX).

Descriptive statistics, including means, frequencies, standard deviations and percentages, were used to describe the participants' demographic data. The Fisher's exact test and two-sample t-

test were used to examine the relationship between participants' responses and CBE supervisory experience. Several variables were recoded after initial analysis showed a weak distribution of responses. For instance, "strongly agree" and "agree" responses were collapsed into one category coded "agree".

## **Results**

Of the 99 surveys sent to dentists, no electronic versions were returned as non-deliverable and one physical copy was returned due to an incorrect address. Fifty-four participants completed the internet-based survey and 15 completed the physical version for a total response rate of 69 percent. The demographic and self-reported clinic characteristics of survey respondents are presented in Table 1. Three participants did not provide age information and two did not provide a dental school graduation date. Most of the respondents were Caucasian (70 percent) males (61 percent) with a mean age of 40.5 (SD = 11.8). Of the 62 percent of respondents who completed a CBE while in dental school, 79 percent reported it as mandatory for graduation. No significant differences in demographics or clinic characteristics were found between dentists with CBE supervisory experience and those without. The majority of respondents described their clinic sites as employing four or more general dentists (74 percent); clinic location was described as urban (42 percent), rural (42 percent) and suburban (16 percent).

**Table 1. Demographic and clinic characteristics of survey respondents.**

	<b>Total (N = 69) N</b>
<b>Gender</b>	
Male	42 (60.9%)
Female	27 (39.1%)
<b>Ethnicity</b>	
Hispanic/Latino	2 (2.9%)
Non-Hispanic/Latino	67 (97.1%)
<b>Race</b>	
Caucasian	48 (69.7%)
Asian	15 (21.7%)
Other	3 (4.3%)
No response	3 (4.3%)
<b>Years practicing at current clinic</b>	
0 – 5 years	35 (50.7%)
6 – 15 years	30 (43.5%)
More than 15 years	4 (5.8%)
<b>Private Practice Experience</b>	
Yes	40 (58.0%)
No	28 (40.6%)
No response	1 (1.4%)
<b>Participation in CBE during dental school</b>	
Yes	43 (62.3%)
No	26 (37.7%)
<b>If participation in CBE during dental school, was it</b>	
Optional	9 (13.0%)
Mandatory	34 (49.3%)
Not applicable	26 (37.7%)
<b>CHC Clinic location</b>	
Urban	29 (42.0%)
Suburban	11 (16.0%)
Rural	29 (42.0%)
<b>Number of general dentists at CHC</b>	
1-3	15 (21.7%)
4 or more	51 (73.9%)
No response	3 (4.4%)

**Table 1. continued**

	<b>Mean (SD)</b>
<b>Age</b>	40.5 (11.8)
<b>Years since dental school graduation</b>	12.5 (11.2)

SD=standard deviation

*Respondents' Perceptions of the Effects of CBEs on Students, Patients, Dentists and the Clinic*

Regardless of past experience supervising dental students, nearly all (97 percent) respondents felt that a CBE would have a positive impact on a student's education (Table 2). Although the majority of responses were positive, there were differing opinions between those with and without CBE supervisory experience regarding students' impact on the host clinic, patients and clinic dentists (see Table 2). Having experience supervising dental students was significantly associated with dentists' opinions of the benefit of students to the clinic's patients and quality of care provided by senior dental students at externship sites ( $p=0.035$  and  $p=0.034$ ). The data show that proportionately more dentists without CBE supervisory experience rated students' delivered quality of care and the effect CBEs on patients as positive; whereas those with CBE supervisory experience were less positive.

**Table 2. Respondents' perceptions of the effects of CBEs on students, patients, dentists and the clinic.**

	<b>CBE Supervisory Experience (N = 45) N (%)</b>	<b>No CBE Supervisory Experience (N = 24) N (%)</b>	<b>P-value*</b>
<b>How would you rate CBE impact on a student's education?</b>			
Positive	45 (100%)	22 (91.7%)	0.118
Neutral	0 (0)	2 (8.3%)	
Negative	0 (0)	0 (0)	
<b>Do you believe a student's presence benefits the community health clinic in a positive or negative way?</b>			
Positive	31 (68.9%)	20 (83.3%)	0.510
Neutral	10 (22.2%)	3 (12.5%)	
Negative	4 (8.9%)	1 (4.2%)	
<b>Do you believe a student's presence benefits the clinic's dentists in a positive or negative way?</b>			
Positive	34 (75.6%)	20 (83.3%)	0.895
Neutral	8 (17.8%)	3 (12.5%)	
Negative	3 (6.6%)	1 (4.2%)	
<b>Do you believe a student's presence benefits the clinic's patients in a positive or negative way?</b>			
Positive	21 (46.7%)	19 (79.2%)	0.035**
Neutral	17 (37.8%)	4 (16.7%)	
Negative	7 (15.5%)	1 (4.1%)	
<b>How would you rate overall quality of care provided by SENIOR dental students at extramural/off-site clinics?</b>			
Above average	20 (44.5%)	18 (75.0%)	0.034**
Average	19 (42.2%)	6 (25.0%)	
Below average	5 (11.1%)	0 (0)	
No response	1 (2.2%)	0 (0)	

\*Calculated from Fisher's Exact Test.

\*\* P< 0.05

### *Preceptors' Perceptions of the Effects of CBE on Clinic Productivity*

Dentists with CBE supervisory experience were asked questions about the impact of dental students on patient care and clinic productivity (see Table 3). While most dentists reported no change in the length of a workday when a student was present, 7 dentists (16 percent) said the length of their workday did increase; the average increase was 37 minutes. Respondents unanimously agreed that senior dental students are more clinically productive while on a CBE compared to dental school clinics. However, 5 or fewer dentists reported a student's presence was associated with an increase in their own productivity. Most chose "no change" or "less" to describe the amount of treatment they provided per patient (82 percent) while supervising a dental student, the amount of treatment the clinic provided per patient (84 percent), the number of patients they treated in a day (87 percent), and the daily number of patients treated in the clinic (60 percent). Twenty-five respondents (56 percent) said the presence of a student didn't affect their productivity as assessed by the clinic's management. Most (87 percent) reported no impact on salary; three (7 percent) reported an increase in income and one (2 percent) said a student's presence decreased their income while 4 percent of respondents were unsure.

**Table 3. Reported effects of CBE on patient care by dentists with CBE supervisor experience.**

	<b>CBE Supervisory Experience (N = 45) N (%)</b>
<b>How does a student's presence affect the amount of time you spend at the clinic?</b>	
More	7 (15.6%)
No Change	36 (80.0%)
Less	0 (0)
Not sure	2 (4.4%)
<b>Are senior dental students more or less clinically productive while on a CBE?</b>	
Much More/More	45 (100%)
No Change	0 (0)
Less	0 (0)
<b>How does a student's presence affect the amount of treatment YOU provide per patient?</b>	
More	5 (11.1%)
No Change	27 (60.0%)
Less	10 (22.2%)
Not sure	3 (6.7%)
<b>How does a student's presence affect the amount of treatment the CLINIC provides per patient?</b>	
More	3 (6.7%)
No change	19 (42.2%)
Less	19 (42.2%)
Not sure	4 (8.9%)
<b>How does a student's presence affect the number of patients you treat?</b>	
More	3 (6.7%)
No change	24 (53.3%)
Less	15 (33.3%)
Not sure	3 (6.7%)
<b>How does a student's presence affect the number of patients treated in the clinic?</b>	
More	13 (28.9%)
No change	20 (44.4%)
Less	7 (15.6%)
Not sure	5 (11.1%)

**Table 3. continued**

<b>How does a student's presence affect your productivity as assessed by the clinic's administration?</b>	
Increases assessed productivity	6 (13.3%)
Productivity stays the same	25 (55.6%)
Decreased assessed productivity	8 (17.8%)
Not sure	5 (11.1%)
No response	1 (2.2%)
<b>How does a student's presence affect your income/salary?</b>	
Increases	3 (6.7%)
No change	39 (86.7%)
Decreases	1 (2.2%)
Not sure	2 (4.4%)

*Perceptions of CHC participation in CBE and preferred incentives for participation*

All respondents, regardless of CBE supervisory experience, were asked why a CHC would choose to participate in CBE. The items most often endorsed were to recruit future staff dentists (32 percent) and a desire to participate in dental education (32 percent). Reasons against participation included additional administrative work (25 percent), decreased clinic productivity (23 percent), not enough clinic space (20 percent), and legal concerns about dental students providing care at the clinic (16 percent). Five dentists who chose “other” for this question mentioned that quality of care might be a concern for community-based clinics. One stated that “patients have longer appointments with less treatment completed” while another added that “patients may not want students working on them”. A lack of training in pediatric dentistry was a concern for three dentists. One said that “dental students need more experience with children prior to coming to community clinics”. Reasons a community-based clinic would and would not participate in a CBE were not significantly different between dentists with and without CBE supervisory experience ( $p=0.654$  and  $p=0.607$ , respectively).

Sixty-one percent of respondents felt that dentists should receive incentives for supervising dental students. Using a list of choices provided in the survey, respondents ranked their preferred incentive on a scale of one (most preferred) to five (least preferred). The mean rank and associated standard deviation was calculated for each response. The preferred incentives, beginning with most preferred, were a financial bonus (mean=2.5 (1.6)), free dental continuing education classes (mean=2.5 (1.4)), additional vacation time (mean=3.2 (1.2)), access to dental school libraries and electronic journals (mean=3.3 (1.4)) and additional administrative time (mean=3.5 (1.3)).

In response to questions about CBE financing, respondents were distributed relatively evenly in their opinion of whether or not dental school should pay clinics for hosting dental students (yes=32 percent, no=30 percent, not sure=36 percent). When asked if clinics should pay dental schools when hosting dental students, their opinion was clearly “no” (91 percent). Over half (56 percent) indicated clinics should not pay for a student’s living expenses and 19 percent were unsure.

The final comments made by respondents in the open-ended section at the end of survey were generally supportive of CBE programs and many dentists offered suggestions for improving them. One dentist felt that “dental students can only increase productivity at a CHC if there are open chairs not currently being used at the site”. Auxiliary staff experience and clinic organization could be a barrier to CBE program success. Said one respondent: “In a poorly run clinic where my staff is poorly trained I really do not want to have the burden of a student”. Eleven dentists felt that community-based clinics wouldn’t participate in CBEs due to legal concerns about the dental work provided by students. One of them asked that dental schools “give more help on allaying fears of the repercussions of poor work or legal considerations”.

## **Discussion**

The purpose of this study was to explore community-based dentists' perceived effects of CBEs on staff dentists, clinic productivity and quality of patient care. Although information that specifically addresses these opinions is limited, getting input from these key stakeholders is critical to clinic dental directors and dental educators. The success of CBE programs and dental clinics depends greatly on the supervising dentists. As teachers and dental care providers, they interact heavily with dental students, clinic staff and patients. Their unique perspectives can help identify ways to improve externship programs. Perhaps most importantly, it's imperative to understand the opinions of community-based dentists to ensure their continued and expanded support of CBE programs. It's essential to know what they're thinking or feeling so that it can be addressed during CBE program design and implementation.

The results of this survey pertaining to the benefits of CBEs on students, patients, dentists and clinics were promising. In all of these categories, the majority of the responses were consistently positive regardless of whether the respondent had actual experience supervising dental students. The nearly unanimous belief that CBE programs have a positive influence on a dental student's education and individual productivity should encourage their continued development by dental educators.

Dentists with CBE supervisory experience were more likely to report the programs' effects on patients and the students' delivered quality of care as neutral or negative. It is highly possible that these two significant findings are related and it is pertinent to understand what is causing the

change in perception of community-based dentists after they supervise dental students. A dental student is generally expected to take longer providing dental treatment compared to an experienced dentist. The patient benefits and quality of care could be viewed negatively if they are spending more time in the dental chair or getting less work done per appointment as 42 percent of the dentists with CBE supervisory experience reported. Varying levels of supervision between academic and community-based clinic environments could also be affecting the perceptions of delivered quality of care. Dentists at community-based clinics are often treating patients while supervising dental students and may spend less time with students compared to their dental school counterparts. Community-based dentists may feel less enthusiastic about the students' delivered quality of care and benefit to the patients after experiencing some of these situations firsthand. Since both dentists and dental students have shown concern for these topics, more efforts should be made to understand the components of quality of care and how best to maintain it in the CBE setting.

Most dentists with CBE supervisory experience reported no change in productivity when a student was present in the clinic. While it would have been preferable to learn that dentists perceived an increase in productivity, whether by increased number of patients seen per day or by more procedures completed per patient, the absence of signs that CBE programs are negatively affecting patients' access to care at community health centers is encouraging. The smaller numbers of dentists who reported decreases in clinic productivity should not be discounted. These impressions indicate a need for CBE administrators to work with community-based clinics to identify and implement best practices that reduce the likelihood for decreases in clinic productivity.

Results from this study support the idea that community-based clinics view participation in CBE programs as a provider recruitment tool.<sup>20</sup> Respondents chose this and a desire to participate in dental education as the most likely reasons a clinic would choose to host students. Four of the seven dentists who selected “other” provided a written response that described a desire to introduce students to community-oriented healthcare. For example, one dentist thought that community-based clinics would want to help “expose dental students to working in public health, and give them the opportunity to work at a faster pace/schedule than in dental school”. These community-based dentists want to help broaden dental education and foster an appreciation of a public health oriented career with hopes of building an adequate workforce willing to treat underserved patients.

Additional administrative work and a decrease in clinic productivity were the most popular responses for why a clinic would not participate in CBEs. Regardless of whether these effects actually occur, the perception that they do could undermine a program’s reputation and success. Staff dentists expecting to work more or see fewer patients when a student is present aren’t likely to continuously support these programs or increase their level of participation. The written responses to this question further emphasized the concern some dentists have with the quality of care delivered by dental students. Addressing these concerns is pertinent to ensure the reported mutually beneficial nature of CBE programs.

Similar to Levy et al.’s survey of physicians in private and community-based practices, dentists involved in externships selected free continuing education as one of their preferred incentives for

participation.<sup>28</sup> However, the dentists were less enthusiastic about gaining access to dental school libraries and journals and ranked this choice last. Instead, they ranked financial bonuses as another preferred incentive. Levy's finding that 87 percent of physicians reported spending more time in clinic when a student was present was not duplicated in this study. Only 16 percent of the dentists with CBE supervisory experience reported spending more time in clinic. Therefore, a student's presence appears to have little effect on a dentist's length of workday.

Some authors have recommended that community-based clinics help pay for costs associated with CBE programs.<sup>10, 23, 24</sup> While these recommendations were based on sound financial analysis, it appears that community-based dentists in Washington State don't agree with them. No dentists in this survey felt that community-based clinics should pay dental schools for hosting students. In fact, many felt that dental schools should pay the community clinics for hosting students. Even when asked if clinics should pay for a student's living expenses while participating in a CBE, the majority of dentists did not support the idea.

This study has several limitations that should be considered. The cross-sectional study design did not allow for assessment of the different factors that can shape respondents' opinions. It is possible that a dentist's most recent experiences with dental students, whether positive or negative, heavily influenced their responses. The respondents were all practicing in Washington State and likely did not base their responses on a broad range of CBE programs. While the response rate was moderately high for a survey, the sample size was small and specific results should be evaluated with caution. Our sample size was limited by a few clinics that would not provide staff dentist contact information due to conflicts with organizational policies.

Comparisons with similar physician surveys should be made with caution since this survey specifically targeted dentists practicing in community-based clinics.

Conducting this survey with a larger, national sample would provide a better representation of how community-based dentists generally perceive CBE programs. This study cannot quantitatively validate whether the respondents' self-assessment of clinic productivity during a student's CBE was accurate. However, the intention of this study was to identify the perceptions of dentists and compare them with what other studies have shown.

This study provides evidence that should encourage the growth and support of dental CBE programs. Community-based staff dentists overwhelmingly agree that dental students benefit from the programs and are more productive than when practicing in a traditional dental school clinic. However, the results also highlight the importance of program design in ensuring that a student's presence does not have significant adverse effects on patient care or clinic productivity. Even if data contradicts these perceived effects, there is much to be gained by dental schools ensuring that community-based dentists feel as though they, and the clinic, can benefit from participation in CBEs. Dentists who supervise dental students should be considered key stakeholders in the implementation of CBE programs since their opinions and efforts can affect the students' educational experience. Interestingly, dental schools are in an excellent position to provide the incentive most valued by these dentists, free continuing education classes. Doing so would be one way of helping foster perceptions that CBE programs are mutually beneficial to dental schools, dental students, patients and community-based dentists.

## **Conclusions**

Within the limitations of this study, the following conclusions were made:

- The majority of community-based dentists with or without CBE supervisory experience believe that CBE programs benefit dental students, clinics, patients and dentists.
- Dentists with CBE supervisory experience were more likely to report the programs' effects on patients and the students' delivered quality of care as neutral or negative.
- Dentists did not report an increase in overall clinic production when a student was present and did not feel community-based clinics should pay dental schools for the opportunity to host dental students.
- Free continuing education classes were the preferred incentive for participating in CBEs.
- Staff dentists should be considered key stakeholders in the design and implementation of CBE programs.

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**APPENDIX A: SURVEY OF STAFF DENTISTS AT  
WASHINGTON STATE COMMUNITY CLINICS**

**INFORMATION FORM**  
WIRB protocol #41732

**INVESTIGATORS**

James Cannava DMD – Principal Investigator  
Colleen Heubner PhD, MPH – Committee Chair  
Joseph Kelly DMD, MS, MPH – Committee Member  
Wendy Mouradian MD, MS – Committee Member  
Christine Riedy PhD, MPH – Committee Member

**RESEARCHER'S STATEMENT**

We are asking you to be in a research study. The purpose of this page is to give you the information you will need to help you decide if you want to be in the study. Please read the form carefully. You may ask questions about the purpose of the research, what we would ask you to do, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions, you can decide if you want to be in the study or not.

**PURPOSE OF THE STUDY**

The University of Washington is funding and conducting a survey of dentists in Washington State who work at community-based clinics. The purpose is to better understand how these health providers view the use of community-based externships/rotations in dental education. The results could be used to help shape education and clinical policies in the future.

**PROCEDURES**

We are asking you to complete the survey. Most people find that it takes less than 15 minutes to do so. The questions ask about your involvement in dental community-based externships and your perceptions of how they impact dental students, patients and the host-dental clinic. You can refuse to answer or skip any question.

By selecting AGREE below, you agree to participate in the study and can complete the rest of the survey. Selecting DECLINE and returning this survey in the self-addressed envelope addressed will prevent any future correspondence from being sent to you.

**COSTS, RISKS, BENEFITS, AND ALTERNATIVES**

There are no costs associated with participation in this study. Although some people feel providing information about themselves is an invasion of privacy, this project presents minimal risk. This is not a treatment study. You will not receive any direct medical benefits from taking part in the study nor are there alternative treatments involved.

### **CONFIDENTIALITY AND PRIVACY OF STUDY INFORMATION**

Your participation and the associated survey data will be confidential (linked to identifiers). The following groups may need to review study records about you: Institutional oversight review offices at the research site, the UW, or state; and federal regulators, and Western Institutional Review Board® (WIRB). Data will be used to measure the general opinions of dentists regarding dental community-based externships. Data will be retained for twelve months.

### **VOLUNTARY PARTICIPATION AND WITHDRAWAL**

Being in this study is voluntary. You may decide not to take part or you may leave the study at any time. Your decision will not result in any penalty or loss of benefits to which you are entitled. The study team may take you off this study at any time without your consent.

### **QUESTIONS**

If you have questions about this project, contact James Cannava, DMD at the University of Washington Department of Pediatric Dentistry: (206) 830-2142 or by email: [cannava@uw.edu](mailto:cannava@uw.edu).

### **SUBJECT'S STATEMENT**

I have read the information in this consent form (or it has been read to me). All my questions about the study and my part in it have been answered. I freely consent to take part in this research study.

By agreeing to participate in this study, I will not lose any of the legal rights that I would otherwise have as a subject in a research study.

- I have read the information statement and **AGREE** to participate in this study.
- I **DECLINE** participation in this study.

### Part A: Dental Clinic Characteristics

**Q1. Which of the following options best describes the dental clinic where you spend most of your time treating patients?** (Please select one response)

- Community Health Clinic
- Indian Health Clinic
- Migrant Health Clinic
- Private Practice Clinic
- Other \_\_\_\_\_

*The rest of this survey refers to the clinic in which you spend MOST of your time treating patients*

**Q2. Which of the following best describes this clinic's location?**

- Urban
- Suburban
- Rural
- Other \_\_\_\_\_

**Q3. How many GENERAL dentists practice at this clinic?** (Include full and part-time dentists)

- 1
- 2
- 3
- 4
- 5
- More than 5

**Q4. How many years have you been practicing at this clinic?** (Include full and part-time work)

- 0 – 5 years
- 6 – 15 years
- More than 15 years

**Q5. Did you participate in an externship or rotation at a community-based clinic while in dental school?**

- Yes
- No → Skip to Q6

→ **If yes, was participation optional or mandatory for graduation?**

- Optional
- Mandatory for graduation

**Q6. Have you ever supervised a dental student on an externship or rotation?**

- Yes → If yes, please continue to PART B (Q7) of this survey
- No → If no, please skip to PART C (Q34) of this survey

## **Part B: Direct Experience Supervising Dental Students on an Externship or Rotation**

**COMPLETE THIS SECTION IF YOU HAVE HAD DIRECT EXPERIENCE SUPERVISING DENTAL STUDENTS ON AN EXTERNSHIP OR ROTATION: We would like to know your opinion of how community-based externships affect dental students and your clinical practice.**

**If you have *not* had direct experience as a supervisor of dental students on externships or rotations, please skip to Part C of the survey.**

## **EFFECTS ON THE DENTAL STUDENT**

**Q7. In general, do you believe participation in a community-based clinical externship or rotation has a positive or negative impact on a students' education? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q8. In general, do you believe SENIOR dental students are more or less clinically productive at extramural/off-site clinics compared to the dental school clinics? (Select ONE response)**

- Much More
- More
- Same
- Less
- Much Less

## **EFFECTS ON THE CLINIC, PATIENTS AND DENTISTS**

**Q9. In general, do you believe a dental student's presence benefits community-based clinics in a positive or negative way? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q10. In general, do you believe a dental student's presence in a community-based clinic benefits the clinic's PATIENTS in a positive or negative way? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q11. In general, do you believe a dental student's presence in a community-based clinic benefits the clinic's DENTISTS in a positive or negative way? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q12. In general, how would you rate the overall quality of care SENIOR dental students provide at extramural/off-site clinics? (Select ONE response)**

- Excellent
- Above Average
- Average
- Below Average
- Poor

**IMPACT OF A DENTAL STUDENT'S PRESENCE ON A  
DENTIST'S PRACTICE**

**Q13. In general, how does a dental student's presence in the clinic affect the number of patients YOU treat in a day? (Do not count those treated primarily by the student)**

- I see more patients
- I see the same number of patients
- I see fewer patients
  
- Not sure

**Q14. In general, how does a dental student's presence in the clinic affect the amount of time YOU spend working at the clinic in a day?**

- More time —————> Approximately how many MORE minutes in a day? (Round to the nearest whole number) \_\_\_\_\_
- No change
- Less time —————> Approximately how many LESS minutes in a day? (Round to the nearest whole number) \_\_\_\_\_
  
- Not sure

**Q15. In general, how does a dental student's presence in the clinic affect the AMOUNT of dental treatment you personally provide per patient visit?**

- I do more work per patient
- I do the same amount of work per patient
- I do less work per patient
  
- Not sure

**Q16. In general, does a dental student's presence in the clinic affect your individual productivity as assessed by the organization you work for?**

- My assessed productivity increases
- My assessed productivity stays the same
- My assessed productivity decreases
  
- Not sure or the clinic does not assess an individual provider's productivity

**Q17. In general, how does a dental student's presence in the clinic affect your income/salary?**

- My income/salary increases
- No change
- My income/salary decreases
  
- Not sure

**GENERAL IMPACT OF A DENTAL STUDENT'S PRESENCE  
ON THE CLINIC**

**Q18. In general, how does a dental student's presence in the clinic affect the AMOUNT of dental treatment that is provided per patient visit?**

- More treatment is provided per patient visit
- No change
- Less treatment is provided per patient visit
  
- Not sure

**Q19. In general, how does a dental student's presence in the clinic affect the number of patients the CLINIC treats in a day (all dental patients combined)?**

- More patients are treated —————> Approximately how many more in a day? (Round to the nearest whole number) \_\_\_\_\_
- No change
- Less patients are treated —————> Approximately how many less in a day? (Round to the nearest whole number) \_\_\_\_\_
- Not sure

**PARTICIPATION IN COMMUNITY-BASED EXTERNSHIPS:**  
**COSTS AND INCENTIVES**

**Q20. What do you believe is the main reason a community-based clinic would choose to host students on community-based externships? (Please select ONE response)**

- Recruit FUTURE staff dentists
- Improve staff dentist morale
- Retain CURRENT staff dentists
- Increase clinic revenue
- Increase patient access to dental care
- A desire to participate in dental education
- Other (please describe) \_\_\_\_\_

**Q21. What do you believe is the main reason a community-based clinic would choose NOT to host students on community-based externships? (Please select ONE response)**

- They cost the clinic money
- They decrease clinic productivity
- They require additional administrative work
- Legal concerns about dental students providing care at the clinic
- Not enough clinic space for students
- Other (please describe) \_\_\_\_\_

**Q22. Do you believe dental schools should pay community-based clinics that host dental students on externships?**

- Yes
- No
  
- Not sure

**Q23. Do you believe a community-based clinic should pay dental schools for the opportunity to host dental students on externships?**

- Yes
- No
  
- Not sure

**Q24. Do you believe a community-based clinic that hosts dental students should help pay for expenses (e.g. travel, housing) accrued by the students during the externship?**

- Yes
- No
  
- Not sure

**Q25. Do you believe dentists that supervise dental students at community-based clinics should receive incentives for doing so?**

- Yes
- No
  
- Not sure

**Q26. Imagine that a dental school is planning to offer incentives to dentists at community-based clinics for supervising dental students on externship or rotations. Which incentives would you value the most if you were supervising a dental student? Please rank the listed incentives in order of preference (1=most preferred, 5=least preferred)**

Use each number ONCE

\_\_\_\_\_ Access to dental school library and electronic journals

\_\_\_\_\_ Additional administrative (non-clinical) time

\_\_\_\_\_ Additional vacation time

\_\_\_\_\_ Financial bonus

\_\_\_\_\_ Free dental continuing education courses

**Q27. Are you Hispanic or Latino origin?**

Yes

No

**Q28. Please choose among the following categories to describe your race: (Check all that apply)**

White

Black or African American

American Indian

Alaska Native

Asian

Native Hawaiian or Other Pacific Islander

Other

**Q29. Your gender:**

Male

Female

**Q30. In what year were you born?**

\_\_\_\_\_ Year

**Q31. In what year did you receive your dental degree?**

\_\_\_\_\_ Year

**Q32. Have you ever worked or do you currently work in a private practice dental office?**

- Yes
- No

**Q33. Do you have any additional comments about this questionnaire or about community-based externships?** If so, please write them in the box below.

**THIS CONCLUDES THE SURVEY. PLEASE PLACE IT IN THE SELF-ADDRESSED ENVELOPE AND MAIL ACCORDINGLY.** Thank you for your participation and time. Results of this survey will be available in approximately twelve months.

**Part C: No Direct Experience Supervising Dental Students  
on an Externship or Rotation**

**ANSWER PART C IF YOU HAVE *NOT* HAD DIRECT EXPERIENCE SUPERVISING DENTAL STUDENTS ON AN EXTERNSHIP OR ROTATION:** We would like to know your opinion of how community-based externships **MIGHT** affect dental students and your clinical practice.

## **POSSIBLE EFFECTS ON THE DENTAL STUDENT**

**Q34. Do you believe participation in a community-based clinical externship or rotation would have a positive or negative impact on a students' education? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q35. Do you believe SENIOR dental students would be more or less clinically productive at extramural/off-site clinics compared to the dental school clinics? (Select ONE response)**

- Much More
- More
- Same
- Less
- Much Less

## **POSSIBLE EFFECTS ON THE CLINIC, PATIENTS AND DENTISTS**

**Q36. Do you believe a dental student's presence would benefit community-based clinics in a positive or negative way? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q37. Do you believe a dental student's presence in a community-based clinic would benefit the clinic's PATIENTS in a positive or negative way? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q38. Do you believe a dental student's presence in a community-based clinic would benefit the clinic's DENTISTS in a positive or negative way? (Select ONE response)**

- Very Positive
- Positive
- Neutral
- Negative
- Very Negative

**Q39. What level of quality of care do you believe SENIOR dental students are capable of providing at extramural/off-site clinics? (Select ONE response)**

- Excellent
- Above Average
- Average
- Below Average
- Poor

**PARTICIPATION IN COMMUNITY-BASED EXTERNSHIPS:**  
**COSTS AND INCENTIVES**

**Q40. Are you interested in supervising students on dental school externships or rotations?**

- Yes
- No
  
- Not sure

**Q41. What do you believe is the most likely reason a community-based clinic would choose to host students on community-based externships? (Please select ONE response)**

- Recruit FUTURE staff dentists
- Improve staff dentist morale
- Retain CURRENT staff dentists
- Increase clinic revenue
- Increase patient access to dental care
- A desire to participate in dental education
- Other (please describe): \_\_\_\_\_

**Q42. What do you believe is the main reason a community-based clinic would choose NOT to host students on community-based externships? (Please select ONE response)**

- They cost the clinic money
- They decrease clinic productivity
- They require additional administrative work
- Legal concerns about dental students providing care at the clinic
- Not enough clinic space for students
- Other (please describe): \_\_\_\_\_

**Q43. Do you believe dental schools should pay community-based clinics that host dental students on externships?**

- Yes
- No
  
- Not sure

**Q44. Do you believe a community-based clinic should pay dental schools for the opportunity to host dental students on externships?**

- Yes
- No
  
- Not sure

**Q45. Do you believe a community-based clinic that hosts dental students should help pay for expenses (e.g. travel, housing) accrued during the externship?**

- Yes
- No
  
- Not sure

**Q46. Do you believe dentists that supervise dental students at community-based clinics should receive incentives for doing so?**

- Yes
- No
  
- Not sure

**Q47. Imagine that a dental school is planning to offer incentives to dentists at community-based clinics for supervising dental students on externship or rotations. Which incentives would you value the most if you were supervising a dental student? Please rank the listed incentives in order of preference (1=most preferred, 5=least preferred)**

Use each number ONCE

- \_\_\_\_\_ Access to dental school library and electronic journals
- \_\_\_\_\_ Additional administrative (non-clinical) time
- \_\_\_\_\_ Additional vacation time
- \_\_\_\_\_ Financial bonus
- \_\_\_\_\_ Free dental continuing education courses

**Q48. Are you Hispanic or Latino origin?**

- Yes
- No

**Q49. Please choose among the following categories to describe your race: (Check all that apply)**

- White
- Black or African American
- American Indian
- Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other

**Q50. Your gender:**

- Male
- Female

**Q51. In what year were you born?**

\_\_\_\_\_ Year

**Q52. In what year did you receive your dental degree?**

\_\_\_\_\_ Year

**Q53. Have you ever worked or do you currently work in a private practice dental office?**

- Yes
- No

**Q54. Do you have any additional comments about this questionnaire or about community-based externships?** If so, please write them in the box below. Thank you for your participation and time. Results of this survey will be available in approximately twelve months.

**THIS CONCLUDES THE SURVEY. PLEASE PLACE IT IN THE SELF-ADDRESSED ENVELOPE AND MAIL ACCORDINGLY.** Thank you for your participation and time. Results of this survey will be available in approximately twelve months.