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Barriers to Accessing Primary Dental Care for the Uninsured/Underinsured Population in the City of Cincinnati

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Abstract

Despite federal, state and local efforts to provide access to dental services to vulnerable populations such as the uninsured and underinsured, many people still do not receive adequate dental care. This study seeks to identify barriers to primary dental care in the City of Cincinnati. The Cincinnati Health Department (CHD) operates five safety net health centers which provide dental care for the citizens of the Cincinnati service area. Surveys conducted in these centers found that cost was the main reason individuals do not see the dentist regularly. Even in those with dental insurance cost was a major barrier, although most respondents felt that the cost at CHD centers was fair. In addition to cost, fear was cited second most frequently. Chi square analyses were conducted to determine if there were differences based on specific demographics. There was a significant difference in the perceived barriers to dental care based on insurance status. Those without insurance were more likely to cite cost as a barrier. Oral health is important for many reasons. Visiting the dentist regularly is essential in maintaining good oral health. Efforts to increase dental care access for the uninsured/underinsured should focus on overcoming cost barriers.

INTRODUCTION:

Dental caries (decay) has been identified by Healthy People 2010 (HP 2010) as "one of the most common chronic diseases of childhood, occurring five to eight times as frequently as asthma, the second most common chronic disease in children." Data from the third National Health and Nutrition Examination Survey (NHANES III) showed that 30 percent of all adults had untreated dental caries. Because of this, HP 2010 has identified several goals aimed at increasing access to dental care, decreasing the proportion of children and adults with dental caries and increasing the proportion of children and adults who receive preventive dental care.

Despite federal, state and local efforts to provide access to dental services to vulnerable populations, many people still do not receive dental care. This is especially true for those who are uninsured and/or underinsured. For the purposes of this research, underinsured is defined as having Medicaid or similar publicly funded health/dental coverage.

The Cincinnati Health Department (CHD) operates five safety-net health centers which provide both medical and dental care to the citizens in the Cincinnati service area. This includes those who live within the limits of the City of Cincinnati and those in certain areas outside of the city limits. One of the centers is dedicated to serving the homeless population. Many of the patients served in these clinics are uninsured. For the uninsured population the cost for services is based on a sliding-scale fee. Patients are asked to provide proof of household income and the number of family members in their household in order to determine their discount status. The 100 percent fee is calculated using the 60^{th} percentile of the usual, customary and reasonable fee (UCR) in the Ohio region National Dental Advisory Service, 2009). Patients are offered a 75, 50 or 25 percent discount off the total cost of services or the "minimum" discount. The "minimum" fee for services is either five dollars per service or the lab fee, if there is one.

Since the CHD operates safety-net dental clinics for its citizens, accepts Medicaid and other publicly funded health/dental care plans and offers substantial discounts to those who are uninsured, one would think that most of the barriers to dental care for the uninsured have been eliminated. This is not the case. There are still those who do not seek regular, preventive dental care.

STATEMENT OF PURPOSE:

The purpose of this project is to understand the barriers to primary dental care that affect the uninsured and underinsured population in the City of Cincinnati. At first glance it seems that access is not an issue. Although there are five CHD health clinics that offer dental services as well as a few other Federally Qualified Health Centers (FQHCs), there are still many uninsured individuals and families who do not have a regular source of dental care. These services are offered at a discount and the clinics also accept public health and dental plans for payment. This project seeks to find out what the barriers and perceived barriers to dental care access are from the patients' perspective.

Research questions

This study examines the following research questions:

1. What are the barriers to accessing primary dental care for the uninsured/ underinsured population in the City of Cincinnati?

2. Is there a difference in the perceived barriers to accessing primary dental care based on race?

3. Is there a difference in the perceived barriers to accessing primary dental care based on employment status?

4. Is there a difference in the perceived barriers to dental care based on insurance status?

Hypotheses

Null Hypothesis 1. There will be no significant difference in the perceived barriers to accessing primary dental care based on race.

Null Hypothesis 2. There will be no significant difference in the perceived barriers to accessing primary dental care based on employment status.

Null Hypothesis 3. There will be no significant difference in the perceived barriers to accessing primary dental care based on insurance status.

REVIEW OF LITERATURE:

Access to dental care is an issue that has been studied frequently. Literature related to dental care access has consistently shown that efforts to increase dental care access should be patient focused. Historically, literature related to access to dental care has been focused on factors external to the patient such as location of services, hours of operation and the availability of the dental work force. More recently, researchers began to explore those factors internal to the patient such as the patient's perceived need for dental care, the importance of dental care, and the willingness of the patient to seek care. Therefore, there are both external and internal barriers to dental care. All of these factors combined create barriers to dental care access. It is important to identify the barriers to accessing dental care in order to develop and implement programs and initiatives to increase access. Previous literature has focused primarily on the availability of care. Although many Americans seek dental care regularly there remain many who do not; particularly those who are covered by publicly funded health/dental care coverage (Guay, 2004).

Measuring access to dental care is difficult. Dental visits have been widely used as an indicator of access. Mueller, Schur, and Paramore (1998) present data from the 1994 Robert Wood Johnson Foundation Access to Care Survey. These data show the dental care needs in the US population. The survey was conducted by telephone and those who did not have a telephone were interviewed in person. There were 3,450 respondents to the survey and there was a 75 percent response rate. Results revealed that 8.5 percent of the US population had unmet dental care needs in 1994. Almost half of the 3,450 respondents reported that they had not attempted to obtain dental care when needed. The most cited reasons for not obtaining care were financially motivated. Other reasons were difficulty getting an appointment and lack of insurance. The authors recommend national policies to expand access to dental care. There were limitations to this study, including non-response bias and self-report bias (Mueller, Schur, & Paramore, 1998).

Those populations deemed most vulnerable to inadequate dental care access are the poor, the working poor, uninsured, unemployed, rural area residents, culturally isolated groups, mobility-restricted people, people with special needs and American Indian/Alaska Natives (Guay, 2004). Guay identified three separate factors which affect access to dental care: the demand for dental care, the availability of dental workforce and the economic environment. The federal government has developed programs and passed legislation to concentrate on identifying those areas having low numbers of dentists.

Focusing on dental health personnel shortages is one way to increase dental care access, though it has been proved inefficient in that this solution does not consider the free market. Even if there are more dental health personnel they will not want to practice if there is no market support for dental practice. Guay (2004) notes that access to care problems are complex and barriers to care must be identified and understood prior to developing a solution to the problem.

Defining access based on factors which are internal to the patient is essential to understanding why so many do not seek dental care (Guay, 2004).

In his review of several studies, Guay (2004) found that less than 20 percent of those covered by Medicaid had visited the dentist in 2002. Medicaid is a federally funded health coverage program which provides dental care benefits in addition to health care benefits. Despite this, Medicaid beneficiaries have surprisingly low rates of dental visits and high rates of caries incidence (Guay, 2004). One of the primary reasons for not seeking care was lack of dental providers who would accept Medicaid. The recruitment and training of dentists to participate in the Medicaid program is one way to overcome this barrier. Greenberg, Kumar, and Stevenson (2008) tested this in the state of New York and found recruitment of and training dentists to participate in Medicaid to be successful in increasing dental visits by Medicaid beneficiaries. The authors also suggest increasing Medicaid reimbursement rates as a way to increase visits in this population (Greenberg, Kumar, & Stevenson, 2008). Guay (2004) also acknowledges that increasing reimbursement rates will help but other changes are needed to overcome the problem.

Children are one group who are especially affected by inadequate access to care. The 2003 Medical Expenditure Panel Survey (MEPS) conducted by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics revealed that only 38 percent of all poor, near poor or low-income children and 60 percent of all middle or high-income children between 2 and 17 years of age reported that they had a dental visit during 2003. MEPS employees interviewed each household in person three times over 18 months. There were differences in the likelihood of a dental visit based on several factors. Those factors include income, age, race/ethnicity, health insurance status, health status and parents' educational level.

Chu, Sweis, Guay, and Manski (2007) conclude that children from homes with higher income levels were more likely to seek dental care than those from low income homes. This finding confirms findings in other studies which show low income as a barrier to dental care. Again, there is a recurring theme related to financial/income barriers to dental care. Financial barriers to dental care could be considered either external or internal to the patient. Financial factors external to the patient could be the cost of services, which patients have no control over. Financial factors internal to the patient may be that the costs of services are too expensive or that the patient is unemployed and has no income.

If individuals are not seeking care at dental offices or clinics, where do they go for dental care? Many individuals seek emergency room care for dental problems. Cohen et al. (2009) conducted focus groups to find out why. There were 53 participants in the focus groups. The groups consisted of low-income White, Black and Hispanic adults who had dental problems and who had received care from an emergency room or physician instead of a dentist during the year prior to the interview. Again, financial barriers were the most frequently reported reason why care was not sought at a dental office. Most respondents were aware that physicians were not qualified to treat dental problems and reported that they would eventually seek dental care. This was a small study and results cannot be generalized to the entire low income population in the United States. However the findings are consistent with other literature cited in this review.

Similar to the Cohen et al. (2009) study, a study was conducted in Australia using the Theory of Planned Behavior. The Theory of Planned Behavior is a social cognition theory which states that behavior is predicted by the intention to perform the behavior and also by perceived behavioral control when behavior is not under complete volitional control. This study used the theory to assess the factors which influence the use of public dental services. The study included

517 randomly selected adults who were patients at a public dental facility who completed a questionnaire about their attitudes and beliefs in regard to dental care. The questionnaire consisted of questions that measured the individuals' attitudes, intentions, subjective norms, and perceptions of behavioral control and self-efficacy as it relates to visiting the dentist. Of the 517 individuals who completed the questionnaire, only 10.4 percent had private dental insurance. The use of public dental facilities appeared to be influenced by perceived barriers to dental care. Those perceived barriers included belief that the dentist would harm the patient, the belief that by visiting the dentist the patient could prevent tooth decay, and whether or not the patient had complete control over being able to visit the dentist. The authors concluded that both structural barriers, such as location of dental clinics, and individual barriers should be the focus of efforts to increase dental visits (Luzzi & Spencer, 2008).

Mouradian (2006) refers to volunteer efforts that seek to solve the dental access problem as band-aid solutions. Volunteer run dental clinics are an inadequate solution for a number of reasons. This article identifies several barriers to dental care access that volunteer clinics cannot and do not address. Location is one problem in that volunteer clinics are normally located in places where the dentists are willing to practice. Other identified barriers are hours of operation/timing, language barriers, and no continuity of care. Mouradian concludes that "dentistry has a critical role to play in addressing health disparities, but must partner with other public, private and community stakeholders to ensure adequate access and a rational approach to health disparities" (Mouradian, 2006, p.1179).

Other suggestions to alleviate the problem of inadequate access to dental care are more preventive in nature. Fuente-Hernandez and Acosta-Gio (2007) recommend that efforts to combat this problem start with dental school education. They give examples of ways dental

schools can educate their students about the need for adequate care for everyone, regardless of income and insurance status. They conclude that areas of focus should be on serving the community and on prepping future dental providers for public dental health practice.

Upon reviewing the literature, it became even more evident that the barriers to dental care in the City of Cincinnati should be identified. Once those barriers are identified CHD may begin breaking them down. Although CHD has done a good job at serving the uninsured and low-income population, work still needs to be done. By identifying the barriers and addressing them CHD can target those groups and increase access to dental care.

METHODS:

A one page, 11 item survey was developed to determine the perceived barriers to dental care by city of Cincinnati residents who come to the CHD dental clinics for emergency dental care. The survey asked questions related to their attitudes and beliefs about dental care and questions related to identified barriers to dental care. The first five questions were related to demographics; age, race, gender, employment status and dental insurance status. The next two questions asked the reason for the patients visit on the day the survey was completed and whether or not the patient had an appointment. The next three questions asked about the patients' views of the importance of seeing the dentist, the main reason the patient did not see the dentist regularly and the cost of dental treatment. Lastly, patients were asked how they found out that dental care was available at the CHD clinics.

The survey was anonymous. Selection criteria included adults 18 years of age or older, who were not edentulous (without teeth), and who reported no regular source of dental care (do not visit the dentist for routine treatment such as cleanings, exams, restorative treatment every

six months). Patients were asked verbally if they see the dentist on a regular basis, if they answered no they were asked to complete the survey.

This was a convenience sample drawn from patients who came to the CHD dental clinics for emergency treatment. Data were collected from patients utilizing the Northside Health Center, Millvale at Hopple Health Center, and Elm Street Health Center dental clinics. Approval for the study was obtained from both Wright State University and the CHD Institutional Review Boards.

Patients who came to the dental clinics for walk-in emergency treatment from May 10 through June 14, 2010 were asked to participate in the study. At the time of registration the purpose of the study was explained verbally. The patients were informed that their participation was completely voluntary, that they could drop the survey at any time and that by completing the survey they were granting their permission for their responses to be used in the study. They also received a written cover letter reiterating the verbally given information. The patients were instructed to choose only one response per question on the survey. The time required to complete the survey was approximately five to ten minutes.

Once completed, the surveys were given back to the researcher and placed in an envelope. The envelope was sealed at the end of each day and taken to the researcher's home. At the end of each day the researcher opened the envelope and the surveys were counted and examined for accuracy. Surveys were considered unusable if the participant selected more than one answer on any question except the last question.

Data were analyzed using PASW Statistics 18. Descriptive statistics were used to describe the demographic and background information. An alpha level of .05 was established for determining significance of correlations.

RESULTS AND DATA ANALYSIS:

One hundred sixty two surveys were distributed and 125 people completed the survey, resulting in a response rate of 77 percent. Sixteen surveys did not produce useable data, as they were either incomplete or respondents answered the questions inappropriately. Those surveys were discarded resulting in a sample size of 109 and a participation rate of 67 percent.

Table 1 presents demographic and background characteristics of study participants. Participants were mostly young (66 percent were 42 years of age or younger) and predominantly African American (69 percent). While a little more than one-third were employed, three quarters of all participants reported having no dental insurance.

Table 1 Demographic and Background Characteristics of Participants

Characteristics	n	%
Age		
18-24	13	12
25-34	37	34
35-42	22	20
43-50	19	17
51-60	13	12
60+	5	5
Race		
African American	75	69
Caucasian	29	27
Hispanic/Latino	1	1

Asian	1	2
Other	1	2
Employment Status		
Student	8	7
Employed	39	36
Unemployed	62	57
Gender		
Male	50	46
Female	59	54
Dental Insurance Status		
Uninsured	82	75
Private Insurance	6	5
Medicaid	21	19

N=109; Percents refer to valid percents; Missing values excluded

The next question asked the reason for the participants visit to the dentist on the day the survey was completed. As was expected, most (81 percent) answered they were there for emergency treatment. The second most frequent answer was fillings or other treatment, given by 11 percent of respondents. Three percent answered either cleaning, check-up/exam or chose more than one answer.

As was expected, most (82 percent) of the participants did not have an appointment. The majority of the participants believed that regular dental care was important, as evidenced by 89

percent agreeing that they need to see a dentist regularly. Table 2 summarizes participant responses to these questions.

Table2. Demographic and Background Characteristics of Participants

Characteristics	n	%
Reason for visit		
Cleaning	3	3
Check-up/Exam	3	3
Fillings/Other	12	11
Emergency Treatment	88	81
Did you have an appointment?		
Yes	15	14
No	89	82
Seeing the dentist important?		
Yes	96	88
No	12	11

N= 109; Percents refer to valid percents; Missing values excluded; Multiple responses excluded

The participants were asked the main reason they did not see the dentist on a regular basis and were given 11 choices and asked to choose only one. For the purposes of further data analysis, these options were collapsed into four categories: fear, cost, convenience and not important/no problem. Figure 1 lists all possible response options as well as items included in each category.

Figure 1. Categories of responses

Categories	**Items**
Fear	Afraid of dentist
	Nervous about treatment
Cost	No insurance
	Could not afford treatment
Convenience	No transportation
	Did not know there was a dental clinic in Cincinnati
	Office too far away from your home
	Office hours not convenient
	Was not able to get an appointment
Not important/no problem	Haven't had pain in the last twelve months
	Seeing the dentist is not important

Table 3 lists frequency of response for each item.

Table 3. Barriers to Dental Care

Barrier	n	%
Afraid of dentist	12	11
Nervous about treatment	8	7
No insurance	40	37
No transportation	1	1

Office too far away from home	1	1
Did not know there was a dental clinic in Cincinnati	0	0
Office hours not convenient	2	2
Could not afford treatment	13	12
Haven't had pain in the last twelve months	16	15
Seeing dentist is not important	1	1
Was not able to get an appointment	1	1

N= 109; Percents refer to valid percents; Missing values excluded

Cost was cited by 49 percent of the participants, which is more often than any other reason for not seeing the dentist regularly. Fear was cited second most often, by 18 percent. Sixteen percent of the participants believed that seeing the dentist was not important or reported they had no problems within the last twelve months. Convenience was reported the least, by only 5 percent of participants. Fourteen of the participants either did not answer this question or selected more than one answer.

The next question asked if the patient believed that the cost of dental treatment at the Cincinnati Health Department clinics was fair. Most (87 percent) percent believed the cost was fair, while seven percent did not believe the cost was fair and 5 percent did not respond to this question.

The final question asked how the patient found out that they could get dental care at the CHD clinics. Word of mouth was cited more often than any other method. Seventy-five people selected word of mouth, 15 were referred by their medical doctor, 10 selected other advertisement, 6 heard about the dental clinics on the internet and 2 people found the clinics in the phone book.

Hypotheses Testing

As noted, for the purposes of further statistical analysis the perceived barriers to not seeing the dentist were re-coded into four categories: fear, cost, convenience and no problem and/or pain.

Null hypothesis 1. There will be no significant difference in the perceived barriers to accessing primary dental care based on race.

Because 96 percent of the sample was identified as either African American or White, other racers were excluded from this analysis. A Chi square analysis was conducted to determine whether the perceived barriers differed based on race. While a larger percentage of Whites than African Americans reported fear as a barrier, results showed that there was no significant difference in the perceived barriers reported by African Americans and the perceived barriers reported by Whites (p=.074). The null hypothesis was not rejected.

Table 4. Barriers to regular dental care by race

	Barriers				
	Fear	Cost	Convenience	No Need	TOTAL
African American	11 (16%)	38 (57%)	5 (8%)	13 (19%)	67
White	9 (39%)	12 (52%)	0 (0%)	2 (9%)	23

N= 90; Percents refer to valid percents

Null Hypothesis 2. There will be no significant difference in the perceived barriers to accessing primary dental care based on employment status. A Chi Square analysis was conducted to determine whether the perceived barriers differed based on employment status. Results showed that there was no significant difference in the perceived barriers reported by employed, unemployed and student participants (p=.482). The null hypothesis was not rejected.

Table 5. Barriers to regular dental care by employment status

	Barriers				
	Fear	Cost	Convenience	No Need	TOTAL
Student	1 (14%)	4 (57%)	0 (0%)	2 (29%)	7
Employed	7 (21%)	17 (52%)	2 (6%)	7 (21%)	33
Unemployed	12 (22%)	32 (58%)	3 (5%)	8 (18%)	55

N=95; Percents refer to valid percents

Null Hypothesis 3. There will be no significant difference in the perceived barriers to accessing primary dental care based on dental insurance status. A Chi Square analysis was conducted to determine whether the perceived barriers differed based on dental insurance status. The results showed that there was a significant difference in the perceived barriers reported by those with no insurance, private insurance and public insurance (p=.011). The null hypothesis was rejected. People with no insurance were more likely to mention cost as a barrier to regular dental care, as were people with private dental insurance. Only 18 percent of those with Medicaid cited cost as a barrier.

Table 6. Barriers to regular dental care by insurance status

	Barriers				
	Fear	Cost	Convenience	No Need	TOTAL
No Insurance	10 (14%)	47 (65%)	3 (4%)	12 (17%)	72
Pvt. Insurance	2 (33%)	3 (50%)	1 (17%)	0 (0%)	6
Medicaid	8 (47%)	3 (18%)	1 (6%)	5 (29%)	17

N=95; Percents refer to valid percents

DISCUSSION:

A total of 109 participants were surveyed regarding their perceived barriers to accessing primary dental care. Participants were emergency patients at 3 CHD dental clinics. The

majority of participants were African American, 69 percent, and female, 54 percent. The largest group (34 percent) were ages 25-34. Including students, 64 percent of the participants were unemployed and most (75 percent) were uninsured or underinsured (19 percent).

As has been found in other studies, cost of care was a major barrier to study participants, with nearly half, (49%) reporting it as a barrier. Fifty seven percent of African American participants reported cost as a main reason for not seeing the dentist on a regular basis vs. fifty two percent of Caucasians, this difference was not significant. This suggests that cost is a barrier to accessing primary dental care regardless of race, but these findings differ from the populations that Guay (2004) identified as most vulnerable to inadequate dental care access which included culturally isolated groups, which may include minorities. One possible explanation for this finding could be that regardless of race, persons with a low income are at greater risk of inadequate dental care access. Additionally, this result could be attributed to the relatively small sample size.

Upon examining the insurance status of the participants as an indicator of access to dental care, it was found that 66 percent of those without dental insurance, 50 percent of those with private insurance and 18 percent of those with Medicaid cited cost as a reason for not seeing the dentist regularly.

As expected, most (66 percent) of those without insurance cited cost as a barrier. It was surprising that half of those with private insurance cited cost as a barrier. This result suggests that those who do have dental insurance may perceive that coverage as inadequate due to high premiums, deductibles or out of pocket costs.

Findings from Guay's (2004) review of several studies found that less than 20 percent of those covered by Medicaid had visited the dentist in 2002. He found that Medicaid beneficiaries

have surprisingly low rates of dental visits and high rates of caries incidence (Guay, 2004). Medicaid provides dental benefits to certain low income populations, although it does not cover all costs for all dental treatments. This suggests that although people have dental coverage, there may be other barriers that prevent individuals from seeing the dentist regularly.

Only 18 percent of those with Medicaid cited cost as a barrier. This result suggests that there are other barriers to care for those who do have adequate dental coverage. Of those who had Medicaid, 23 percent cited not having any pain/problem as the reason for not seeing the dentist in the past 12 months. There were relatively few individuals in the sample who indicated that they were covered by Medicaid (19 percent).

While 79 percent of the unemployed reported no dental insurance, only one third of the employed had insurance. This finding suggests that employers either are not offering dental benefits to their employees or if dental insurance is offered, employees are not taking advantage of the benefit. Another explanation could be that those who were employed may not work full time hours and may not be eligible for benefits. This finding, along with the finding that 50 percent of those with private insurance still cite cost as a barrier, show that dental benefits for this sample, even if they have them, are inadequate to overcome the cost barrier.

Eighty-seven percent of the sample thought the cost of dental services at the CHD dental clinics was fair. Since most participants cited cost as a barrier, this finding suggests that perhaps the participants were not aware of the discounts available at the CHD dental clinics before they came in to be treated. This finding may also suggest that although the participants thought the cost was fair, they may not have felt the cost was what they could afford.

When asked if seeing the dentist was important, 89 percent answered yes. The Theory of Planned Behavior states that behavior is predicted by the intention to perform the behavior

(Luzzi & Spencer, 2008). This suggests that those who thought that seeing the dentist was important still may not see the dentist regularly if they do not have the intention of doing so. Simply believing that seeing the dentist is important does not constitute intent to do so.

Additionally, while most of the participants felt that seeing the dentist was important, this belief alone is not sufficient to overcome other barriers. For example 15 percent of the participants reported they didn't see the dentist regularly because either they did not feel it was important or because they did not have any pain. This suggests that although people think it is important to see the dentist regularly, they don't think about going until they have unpleasant symptoms. If people are more likely to go to the dentist only when they feel pain or other symptoms, preventive care may be less accepted.

This study showed that most participants found out about the CHD clinics by word of mouth. It is unclear if the participants were simply told that the clinic was available for emergency treatment or if they were told that the clinics offer comprehensive dental treatment as well. It is also unclear if the participants were told of the cost of services, although the fact that most participants cited cost as a barrier leads one to believe that the participants may not have been told of the discounts available at the clinics.

The findings of this study reinforce the findings in the 1998 Robert Wood Johnson Foundation Access to Care Survey in which almost half of the respondents reported that they had not attempted to obtain dental care when needed. The most cited reasons for not obtaining care were financially motivated, including lack of dental insurance (Meuller, Schur, & Paramore, 1998). The authors recommend national policies to expand access to dental care.

The findings of this study should be considered when addressing strategies to increase access to dental care. This study indicated that cost and lack of dental insurance are major

barriers to primary dental care, which suggests that strategies could include expanding Medicaid dental coverage so that more people are eligible and more services are covered.

Although cost was identified as a barrier, 87% of the participants said that the cost for treatment at the CHD clinics was fair. Although most participants felt that the cost of services at the CHD clinics was fair, feeling that the cost is fair does not mean that the cost is affordable. It is likely that more people will be willing to access dental services if they perceive the cost as fair. This suggests that the public should be informed of the availability of comprehensive dental care and of the discounts for dental services.

When asked how they heard about the CHD dental clinics, word of mouth was the most cited response. Since word of mouth has been shown to be effective in drawing patients into the clinics for emergency treatment, this method might be used to inform the public of the availability of comprehensive care as well. Patients who come in to the dental clinics for emergency treatment could be given a pamphlet or brochure outlining the services offered at each clinic. Patients may then share that pamphlet with other members of their community. The CHD currently makes every attempt to schedule appointments for a follow-up appointment for a complete exam and cleaning; however, the no-show rate for these appointments remains high.

Fear was the second most cited reason for not seeing the dentist regularly which may explain why once cost is eliminated as a barrier (substantial discounts) some still do not keep their appointment for comprehensive, preventive care. In addition, the study showed that while most people believe visiting the dentist regularly is important, there remain those who do not seek preventive dental care, instead only seeking care when having a dental problem or dental pain.

The Cincinnati population's access to dental care is affected by their perceived barriers. Those barriers include elements of 4 categories; fear of the dentist, convenience of seeing the dentist regularly, cost and having no dental problem or pain. The study found that of these cost and fear were most important. Since patients currently get substantial discounts on services, lowering the cost is not advised.

Efforts to increase access to dental care in the CHD dental clinics and their service areas should focus on informing the public of the discounts available for dental services. It is possible that while individuals are aware of the discounts available, they may not be aware of the degree to which the services are discounted. Perhaps if patients were informed of the full price for services before the discount was applied, and then told of the discount, they may view the discounted price as affordable compared to the full price. Informing people of the amount of money they are saving may be more valuable in showing that the cost is in fact inexpensive compared to other dental practices.

Focusing on primarily preventive dental care may also break the cost barrier; particularly for those with private insurance. Generally preventive services such as cleanings, exams and x-rays are covered at a higher percentage than other services such as fillings and root canals or crowns. If more people could see the dentist for preventive care, instead of only when there is pain, perhaps the chances of developing a dental problem would decrease, consequently lowering the cost of services.

The CHD does an outstanding job of treating the City of Cincinnati's low income, uninsured/underinsured population. Efforts to increase dental care access, based on the barriers identified in this study, should be developed and implemented quickly in order to serve more citizens who are in need of regular, comprehensive dental care.

Fear may be addressed on an individual basis. The CHD could develop a marketing campaign focused on alleviating fear and anxiety of the dentist and dental treatment. In addition, since word of mouth was shown to be effective in informing the public of the services offered at the CHD dental clinics, word of mouth may also be used to spread the word that the CHD staff is sensitive to the fears and needs of each patient they treat.

Limitations/Recommendations

One limitation of this study was the small sample size. The survey was distributed in three of the five CHD dental clinics. Distributing the survey in each of the CHD clinics may have yielded a larger sample size and may have increased statistical significance. A larger sample size may have also made the findings of this study more generalizable to the entire population.

Self report is a limitation to this study as well. When asked the reason for not seeing the dentist regularly, participants may have not chosen the true reason and instead may have chosen the answer they thought the researcher expected them to choose. For example, a participant may have felt seeing the dentist was not important but may have answered differently for fear of choosing the "wrong" answer. This is called social desirability bias.

One recommendation for improving this study would be to allow the participants to choose more than one answer when asked the main reason for not seeing the dentist regularly. This could give the researcher a better understanding of all of the barriers that prevent each participant from seeing the dentist regularly. Participants may have wanted to choose more than one answer but were essentially forced to choose one, although one response may not truly represent all of the reasons they do not see the dentist regularly. Using open-ended questions in

the survey may have been more effective in identifying other barriers that may not have been captured in the options given by the researcher.

In addition, selection bias is a limitation to this study. Since participants were not selected randomly external validity of this study may be compromised.

Lastly, this study looked only at uninsured/underinsured patients treated at CHD locations. If patients from other dental clinics in the area could have been included, a better understanding might have been obtained of barriers faced by the uninsured/underinsured population not only within the City of Cincinnati limits, but of the population in the greater Cincinnati area as well.

One study referenced in this study used the Theory of Planned behavior to show that behavior is predicted by intention to perform the behavior. Future studies might use this model in evaluating the intent of the selected population to seek regular, comprehensive dental care.

There are several public health implications to individuals not seeing the dentist for regular, preventive care. This lack of care not only leads to severe oral problems but may lead to medical problems as well. Greg Johnstone (2010), in his article "Oral Health and the General Health Implications" highlights the fact that one's good general health starts with good oral health. Johnstone quoted Dr. William Worrall Mayo of the Mayo clinic as saying "If a person can take care of their teeth and gums they can extend their life by at least ten years" (Johnstone, 2010). Many vascular diseases have been linked to poor oral health, as well as cancer. Many diseases first appear in the mouth, and dentists are sometimes the first to diagnosis certain conditions.

In addition to preventing other diseases and illnesses, maintaining good oral health allows one to have a healthy diet. People with no teeth or even diseased teeth often have to change their

diet to accommodate for their handicap (Johnstone, 2010). It becomes increasingly difficult to eat when one's teeth hurt or are missing. This difficulty may lead to poor eating habits and lack of essential nutrients.

Johnstone also mentions several studies which identify medical conditions that have early oral manifestations and/or that those conditions include AIDS and other auto-immune conditions, diabetes and human papilloma virus. The risk of other conditions such as stroke, heart disease and pancreatic cancer may increase in individuals with poor oral hygiene (Johnstone, 2010).

Oral health is important for many reasons. Visiting the dentist regularly is essential in maintaining good oral health. For the uninsured/underinsured population, making dental care more accessible is crucial. An individual's decision to seek regular dental care is complex and depends on a number of factors, cost being a major factor. The apparent tendency of people to avoid seeing the dentist unless they are having symptoms is a major factor as well. This tendency may affect preventive dental care, which, as previously stated, is essential in maintaining good oral health.

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Appendix A

Survey Instrumentation

What are the barriers to accessing primary dental care for the uninsured/underinsured population in the City of Cincinnati?

This anonymous survey is part of a research project for Wright State University's Master of Public Health program. We are trying to identify reasons that might keep people from using the dental clinic on a regular basis. Your participation in this research is voluntary and you may withdraw at any time. Neither your participation or non-participation in this research will affect your dental treatment at the Cincinnati Health Department dental clinics. There are no risks or benefits attached to your participation. The answers you provide will be used to identify barriers to dental care access in the City of Cincinnati. If you have questions about this research you may contact me or my Wright State University faculty advisor. Thank you.

Kiana R. Trabue
Principal Investigator
513-357-7610
Carla Clasen, MPH
WSU Faculty Advisor
937-258-5543

1. **Age**
   ____18-24
   ____25-34
   ____35-42
   ____43-50
   ____51-60
   ____60+

2. **Race**
   ____Black/African American
   ____Caucasian
   ____Hispanic/Latino
   ____Asian
   ____American Indian/Alaska Native
   ____Other

3. **Employment Status**
   ____Student
   ____Employed
   ____Unemployed

4. **Gender**
   ____Male
   ____Female

5. **Dental Insurance Status**
   ____No insurance
   ____Private insurance
   ____Medicaid (Caresource, Amerigroup etc.)

6. **What is the reason for your visit today?**
   ____Cleaning
   ____Check-up/Exam
   ____Fillings or other treatment
   ____Emergency treatment (pain, swelling, infection)

7. **Did you have an appointment today?**
   ____Yes
   ____No

8 . Do you think you need to see the dentist on a regular basis?
   ____Yes
   ____No

9. What is the MAIN reason you do not see the dentist on a regular basis? (every six months)
YOU MAY CHOOSE ONLY ONE ANSWER
   ____Afraid of dentist
   ____Nervous about treatment
   ____No insurance
   ____No transportation
   ____Did not know there was a dental clinic in Cincinnati
   ____Office too far away from your home
   ____Office hours not convenient
   ____Could not afford treatment
   ____Haven't had pain in the last twelve months
   ____Seeing the dentist is not important
   ____Was not able to get an appointment

10. Do you think the cost for treatment at Cincinnati Health Department dental clinics is fair?
   ____Yes
   ____No

11. How did you find out about Cincinnati Health Department dental clinics?
   ____Internet
   ____Phone book
   ____Word of mouth
   ____Other advertisement
   ____Referred by medical doctor

Appendix B

Wright State University Institutional Review Board Approval

Office of Research and Sponsored Programs
201J University Hall
3640 Col. Glenn Hwy.
Dayton, OH 45435-0001
(937) 775-2425
(937) 775-3781 (FAX)
e-mail: rsp@wright.edu

DATE: April 23, 2010

TO: Kiana Trabue, , Graduate Student
Dept. of Community Health
Carla Clasen, MPH,

FROM: B. Laurel Elder, Chair
WSU Institutional Review Board

SUBJECT: SC# 4176
'What are the Barriers to Accessing Primary Dental Care in the City of Cincinnati for the Uninsured/Underinsured?'

At the recommendation of the IRB Chair, your study referenced above has been recommended for exemption. Please note that any change in the protocol must be approved by the IRB; otherwise approval is terminated.

This action will be referred to the Full Institutional Review Board for ratification at their next scheduled meeting.

NOTE: This approval will automatically terminate one (1) year after the above date unless you submit a "continuing review" request (see http://www.wright.edu/rsp/IRB/CR_sc.doc) to RSP.

If you have any questions or require additional information, please call Robyn Wilks, IRB Coordinator at 775-4462.

Thank you!

Enclosure

RESEARCH INVOLVING HUMAN SUBJECTS

SC# 4176

ACTION OF THE WRIGHT STATE UNIVERSITY
EXPEDITED REVIEW
Assurance Number: FWA00002427

Title: 'What are the Barriers to Accessing Primary Dental Care in the City of Cincinnati for the Uninsured/Underinsured?'

Principal Investigator: Kiana Trabue, , Graduate Student
Dept. of Community Health
Carla Clasen, MPH,

The Institutional Review Board Chair has approved an exemption with regard to the use of human subjects on this proposed project.

REMINDER: Federal regulations require prompt reporting to the IRB of any changes in research activity [changes in approved research during the approval period may not be initiated without IRB review (submission of an amendment), except where necessary to eliminate apparent immediate hazards to subjects] and prompt reporting of any serious or on-going problems, including unanticipated adverse reactions to biologicals, drugs, radioisotope labeled drugs or medical devices.

D Lamm Ellis Ph.D.

Signed Chair, WSU-IRB

Approval Date: April 23, 2010
IRB Mtg. Date: May 17, 2010

Appendix C
Cincinnati Health Department Institutional Review Board Approval

City of Cincinnati
Board of Health

Health Department

3101 Burnet Avenue
Cincinnati, Ohio 45229-3098
Phone (513) 357-7280

NOBLE MASERU, Ph.D., MPH
Health Commissioner

August 31, 2010

Ms. Kiana Trabue
Hamilton County Public Health
250 William Howard Taft Road
Cincinnati, Ohio 45219

Dear Ms. Trabue:

This letter is to confirm that your project, "What are the barriers to accessing primary dental care for the uninsured/underinsured in the city of Cincinnati?" was approved by the Cincinnati Health Department Institutional Review Board (CHD IRB) in May 2010. The CHD IRB also approved the use of your questionnaire in interviewing CHD patients for your project.

I you require any further information concerning this matter, please let me know.

Sincerely,

Lawrence S. Holditch, M.D.
CHD Medical Director
Chair, CHD IRB

Equal Opportunity Employer

Appendix D
Public Health Competencies

Domain #1: Analytic Assessment Skill

- Defines a problem
- Determines appropriate uses and limitations of both quantitative and qualitative data
- Identifies relevant and appropriate data and information sources
- Makes relevant inferences from quantitative and qualitative data
- Recognizes how the data illuminates ethical, political, scientific, economic, and overall public health issues

Domain #2: Policy Development /Program Planning Skills

- Collects, summarizes and interprets information relevant to an issue

Domain 3#: Communication Skills

- Communicates effectively both in writing and orally, or in other ways
- Solicits input from individuals and organizations
- Advocates for public health programs and resources
- Effectively presents accurate demographic, statistical, programmatic, and scientific information for professional and lay audiences

Domain #4: Cultural Competency Skills

- Identifies the role of cultural, social, and behavioral factors in determining the delivery of public health services

Domain #5: Community Dimensions of Practice Skills

- Establishes and maintains linkages with key stakeholders

Domain #6: Basic Public Health Sciences Skills

- Defines, assesses, and understands the health status of populations, determinants of health and illness, factors contributing to health promotion and disease prevention, and factors influencing the use of health services
- Identifies and applies basic research methods used in public health
- Applies the basic public health sciences including behavioral and social sciences, biostatistics, epidemiology, environmental public health, and prevention of chronic and infectious diseases and injuries
- Identifies and retrieves current and relevant scientific evidence
- Identifies the limitations of research and the importance of observations and interrelationships