

Acute Dental Care Initiative: A Project of the Washtenaw Health Initiative

Executive Summary

Background

Low-income individuals with acute dental needs often do not have access to oral health care. As a result, many of these individuals present to the emergency room with preventable oral health issues. To address this problem, the Acute Dental Care Initiative developed a referral system to connect Washtenaw County residents presenting at the UMHS and SJMHS emergency rooms with the appropriate oral health care within a community setting.

Project Description

The goal of Acute Dental Care Initiative was to develop an effective referral process to divert patients presenting with acute dental care issues from University of Michigan Health System (UMHS) and Saint Joseph Mercy Health System (SJMHS) Emergency Departments (EDs) to the Community Dental Center (CDC). CDC staff developed broad inclusion criteria for ED staff¹. Guidelines included that the condition was acute, the patient had signs of infection, that patient had not experienced trauma, and that the patient was a county resident. Referral guidelines were intentionally broad to remove the pressure to diagnose from the ED physician. Once a patient was referred, CDC staff contacted the patient to make an appointment for follow-up care at the CDC.

The program utilized a capitated treatment cost of \$400 per patient, per episode of care amount. This amount was determined after a CDC dentist and the billing manager at the University of Michigan School of Dentistry (UMSD) reviewed past treatment data to identify the average amount needed for CDC dentists to stabilize the mouth and prevent repeat visits to the ED. Patients who required minimal care were then able to subsidize costs for patients with more complicated care plans.

Evaluation Questions

The evaluation sought to answer the following questions:

1. How effective was the referral process in diverting patients presenting with acute dental care issues from the UMHS and SJMHS ERs to the CDC?
2. What were the challenges to implementing the referral process?
3. How does the profile of referred patients compare to the profile of patients who received care at the CDC?

¹ Program inclusion criteria included in Appendix.

Methodology

The evaluation examined both process and outcome measures. Using a mixed methods approach, the evaluation assessed quantitative data from the UMSD billing data, UMHS and SJMHS ER data and CDC metrics alongside qualitative data from key program participants.

Program Outcomes

Program Referrals: A total of 545 patients were referred through the program from October 13, 2013 through January 24, 2016. Of the 545 referrals to the CDC, 84% (N=460) accurately met the referral criteria, suggesting ED staff had a high understanding of inclusion criteria. Of the correct patient referrals, 232 patients had at least one visit to the CDC and 167 patients completed treatment at the CDC.

Patients treated at the CDC: While program referrals were evenly split between males and females, females were slightly more likely to visit the CDC than males (52% and 48% respectively). Among patients who completed their treatment at the CDC, the majority of patients (N=75) completed their treatment within one visit, while only 5% of patients needed 7 or more CDC visits to complete treatment.

Program Satisfaction: The Acute Dental Care Initiative generated high levels of satisfaction from UMHS and SJMHS staff as well patients referred through the program. Many suggested that the program should be permanently supported.

Conclusions and Recommendations

Overall, the Acute Dental Care Initiative was an effective program. Patient referrals from participating emergency departments were highly accurate; more than half of patients contacted by CDC staff visited the CDC at least once, and; 72% of patients who visited the CDC completed treatment. Additionally, the program generated overall patient and provider satisfaction, with many advocating for the program to be extended. Recommendations for future program implementations are as follows:

- 1. Identify opportunities to address barriers other than cost that may have prevented patients from being treated at the CDC.** Despite the effectiveness of the program, approximately 40% of the patients contacted by the CDC did not receive care at the CDC. This suggests that those patients faced barriers other than cost that prevented them from receiving care at the CDC. Future program implementations might explore alternative methods of alleviating barriers to receiving care in addition to cost such as transportation, childcare, or fear of dentists.
- 2. Implement future programs in emergency settings that see a high volume of eligible patients.** The majority of program referrals came from SJMHS, likely due to the higher number of eligible patients seen at SJMHS in comparison to UMHS. While UMHS is an academic medical center that receives patients from across the state, SJMHS is a tertiary medical center who sees more county residents that were eligible for referral. Future program implementations should target medical settings that will capture the highest number of eligible patients.
- 3. Explore alternative ways to catch patients at a teachable moment.** Patients referred through the program were stabilized at the ED before being referred. It is possible that once some

4. referred patients were stabilized at the ED and no longer in pain, they no longer saw the need to visit the CDC. Future implementations might benefit by incorporating an educational component into the program at the point of referral to increase awareness and importance of appropriate dental care.
5. **Track whether patients referred to the CDC returned to the ED.** The evaluation team was unable to determine whether referred patients who were not treated at the CDC ultimately returned to the ED with a dental need. Future program implementations should consider obtaining IRB approval in order to identify whether referred patients returned to the ED.

Detailed Evaluation Report

Background

Low-income individuals with acute dental needs often do not have access to oral health care. As a result, many of these individuals present to the emergency room with preventable oral health issues. To address this problem, the Acute Dental Care Initiative developed a referral system to connect Washtenaw County residents presenting at the UMHS and SJMHS emergency rooms with the appropriate oral health care within a community setting.

Project Description

The goal of Acute Dental Care Initiative was to develop an effective referral process to divert patients presenting with acute dental care issues from University of Michigan Health System (UMHS) and Saint Joseph Mercy Health System (SJMHS) Emergency Departments (EDs) to the Community Dental Center (CDC). CDC staff developed broad referral guidelines for ED staff². Guidelines included that the condition was acute, the patient had signs of infection, that patient had not experienced trauma, and that the patient was a county resident. Referral guidelines were intentionally broad to remove the pressure to diagnose from the ED physician. Once a patient was referred, CDC staff contacted the patient to make an appointment for follow-up care at the CDC.

Prior to program launch, the WHI Acute Dental Initiative Project Team met with ED staff from both UMHS and SJHMS to introduce the program and describe inclusion criteria. UMHS and SJMHS developed their own different referral protocols. ED physicians at UMHS who identified a patient eligible for treatment at the CDC referred the patient to the UMHS social work team. Members of the social work team then completed the referral process with the patient. By contrast, ED physicians at SJMHS referred patients directly within the ED.

During the patient's first visit, the CDC dentist would address the dental problem that caused the patient to go to the CDC. However, the dentist would often also identify other dental issues during the first visit and develop a treatment plan to ensure the patient received a more comprehensive dental visit.

Evaluation Questions

The evaluation sought to answer the following questions:

1. How effective was the referral process in diverting patients presenting with acute dental care issues from the UMHS and SJMHS ERs to the CDC?
2. What were the challenges to implementing the referral process?
3. What was the profile of referred patients and patients who received care at the CDC? [How does the profile of referred patients compare to the profile of patients who received care at the CDC?]

² Program Inclusion Criteria included in Appendix.

Methodology

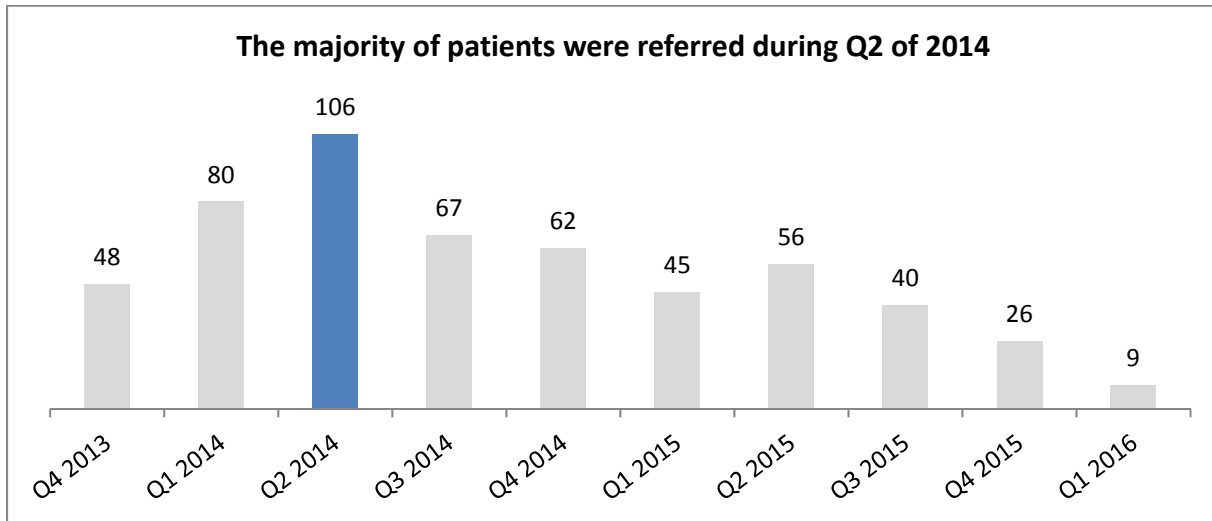
The evaluation examined both process and outcome measures. Using a mixed methods approach, the evaluation assessed data from several sources.

1. University of Michigan School of Dentistry (UMSD) billing data- UMSD billing data tracked information about all patients referred from SJMHS and UMHS. Program data was pulled on February 2, 2016.
2. UMHS and SJMHS ED billing data- Billing data was requested from both UMHS and SJMHS EDs for October 2012 through September 2013 and October 2013 through September 2015.
3. Community Dental Clinic (CDC) Patient Survey data- Patients treated at the CDC were asked to complete a patient survey following treatment. The survey asked about a number of factors including patient satisfaction with treatment, barriers to receiving care, and comorbid conditions.
4. Qualitative data from program providers-The evaluation team requested feedback from program providers regarding the strengths and weaknesses of the program. Feedback was requested and received over email.

Program Outcomes

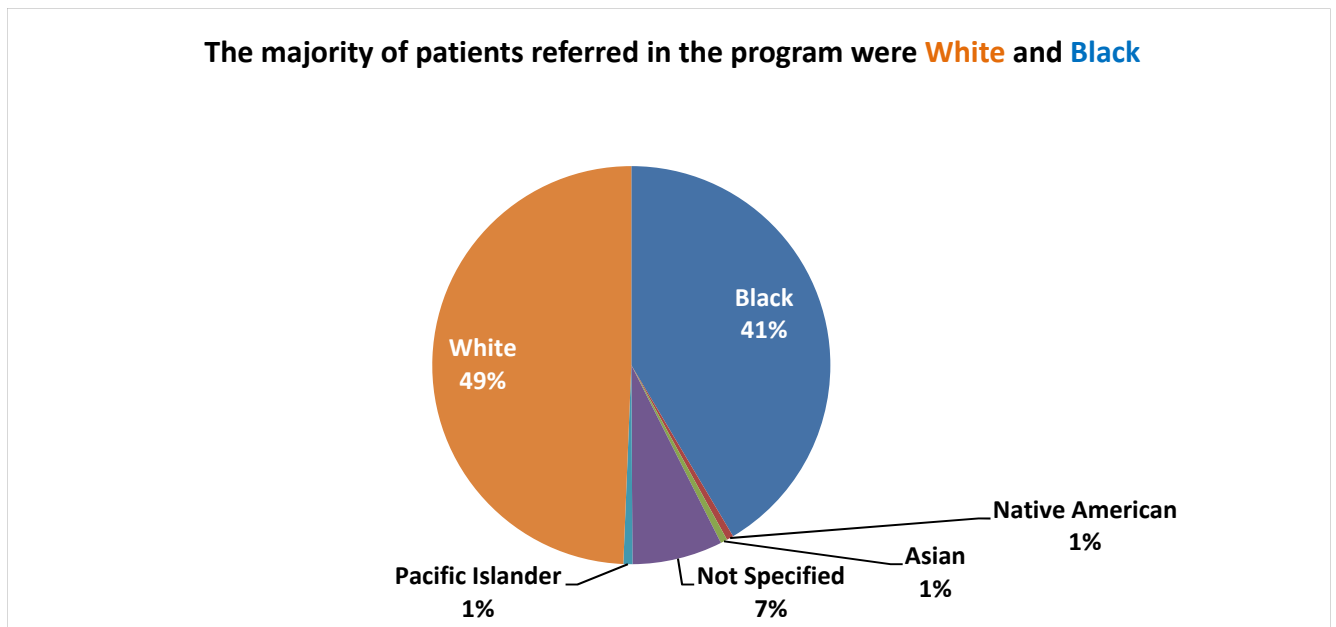
Program Referrals

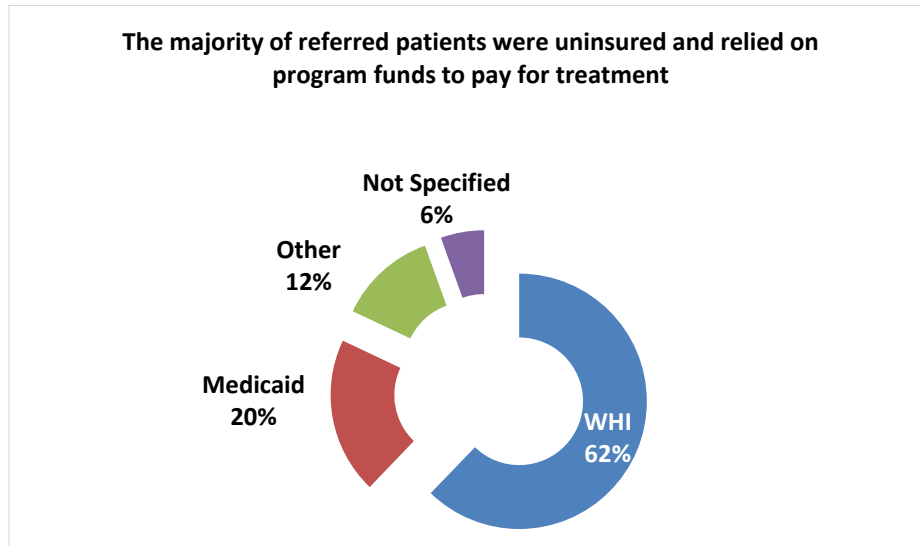
A total of 545 patients were referred through the program from October 13, 2013 through January 24, 2016, with a large number of patients being referred during the second quarter of 2014.



Patient Demographics

Patients referred through the program had an average age of 36, with ages ranging from 0-75 years old. Referrals were almost evenly split between males (50%) and females (49%, N=266) and 90% of patients referred were either White or Black. Additionally, the majority of patients referred through the program were uninsured and relied on program funds to compensate the dental care they received.





Referring Institutions

Of the 545 patients who were referred throughout the program, 81% (N=439) of the referrals came from SJMHS. The difference in number of referrals could have resulted in the various differences of the referring institutions. While UMHS is an academic medical center that receives complex patients from across the state, SJMHS is a tertiary medical center who sees more county residents and therefore likely saw a greater pool of patients who were eligible for referral.

Effect on ED Dental Visits

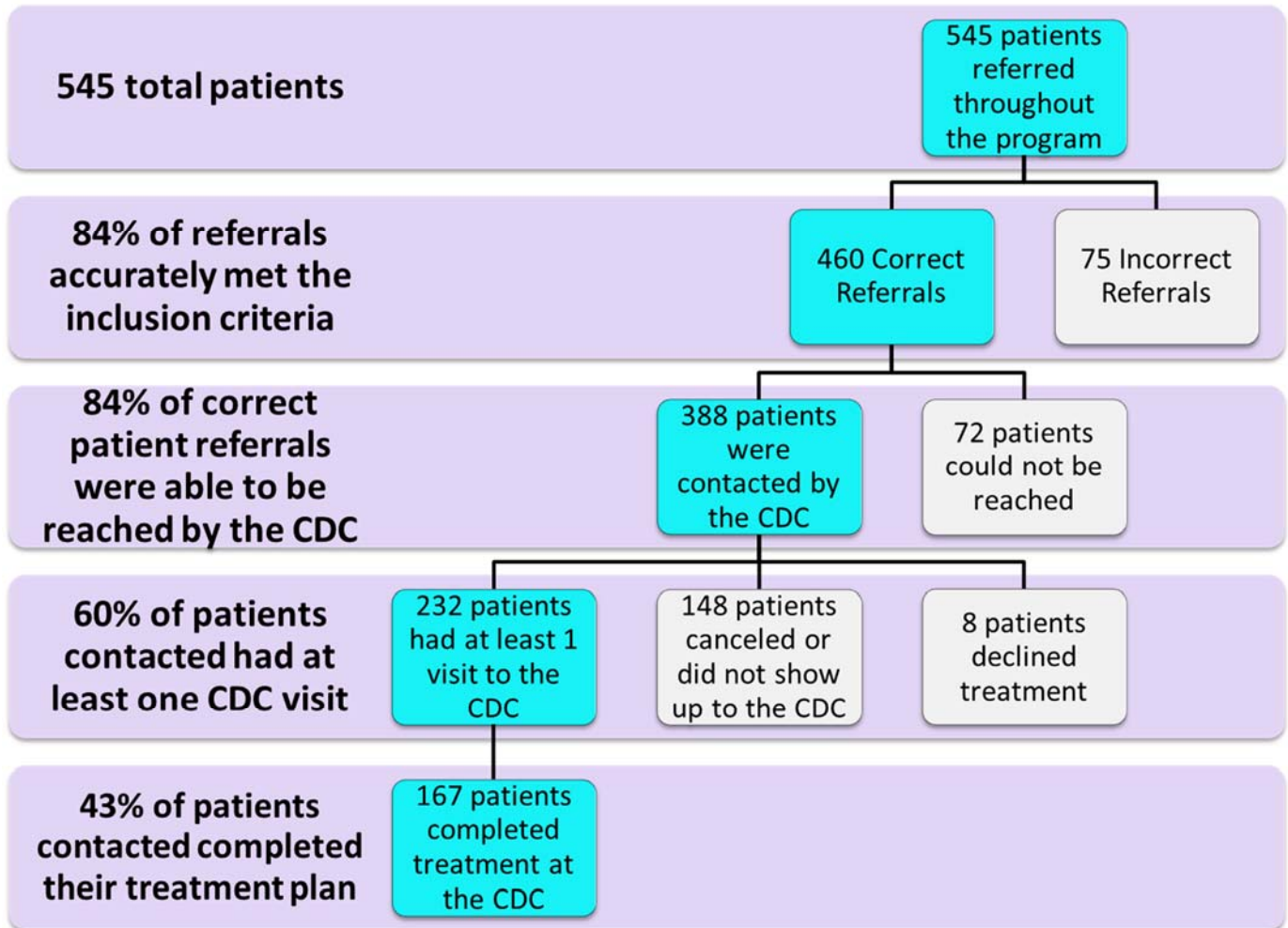
During the program period, there were 1,491 visits to SJMHS ED by patients presenting with dental care needs³. Of the 1,491 visits, 234 (16%) were repeat visits. Comparatively, during the year prior to Acute Dental Care Initiative, (October 2012-September 2013) there were 821 visits to SJMHS by patients with dental issues, with 131 (16%) of those representing repeat visits. Due to limitations in data accessibility, the evaluation team was unable to confirm whether the repeat visits were made by patients who had been referred to the CDC.

	Year Prior (Oct 2012-Sept 2013)	Program Period (Oct 2013-Sept 2015)
	SJMHS	SJMHS
# of ED dental visits	821	1,491
# of repeat ED dental visits	131	234
% of repeat visits	16%	16%

³ Comparable data from UMHS ED was unavailable.

Referral Outcomes

Of the 545 referrals to the CDC, 84% accurately met the referral criteria, suggesting ED staff had a high understanding of inclusion criteria. Eight-four percent of the correct referrals were able to be reached by the CDC, while 16% were unable to be reached. Sixty percent of patients contacted had at least one visit to the CDC, and 43% of the patients contacted by the CDC completed their prescribed treatment plan. Patients were defined as completing treatment if a CDC dentist stabilized the patient's initial oral health need presented in the ED.



Profile of Patients Seen at the CDC

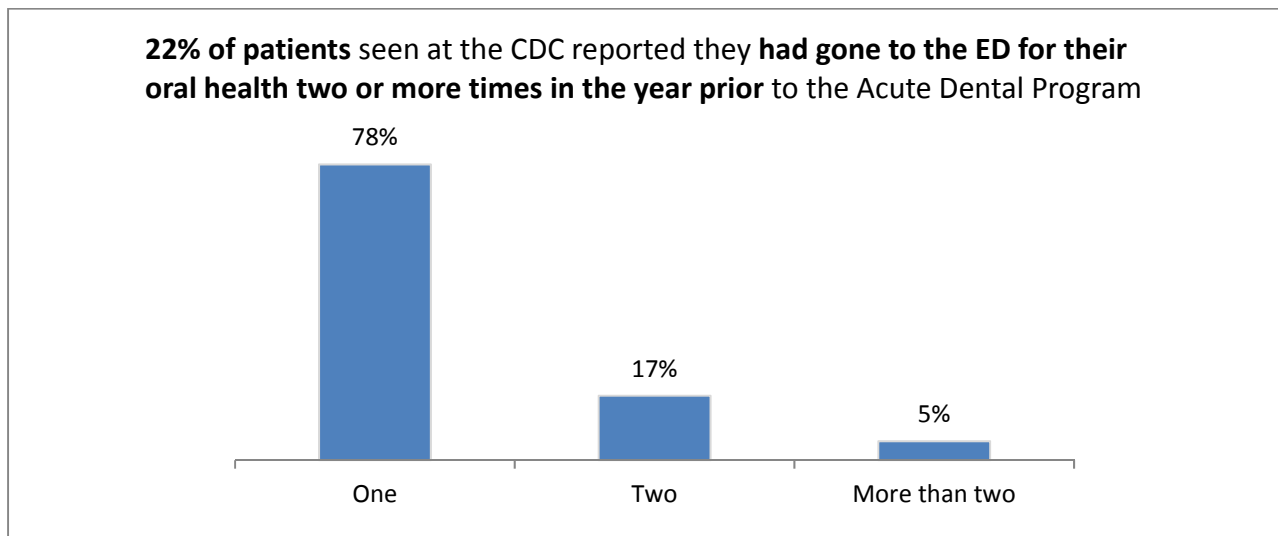
Patient Demographics

Demographics of patients who received treatment at the CDC were similar to the demographics of all patients referred through the program. Of the 460 correct patient referrals, 232 patients had at least 1 visit to the CDC. Patients who visited the CDC at least once had an average age of 38, with ages ranging from 13-75 years old. Although the referrals were evenly split between males and females, 52% of patients who visited the CDC at least

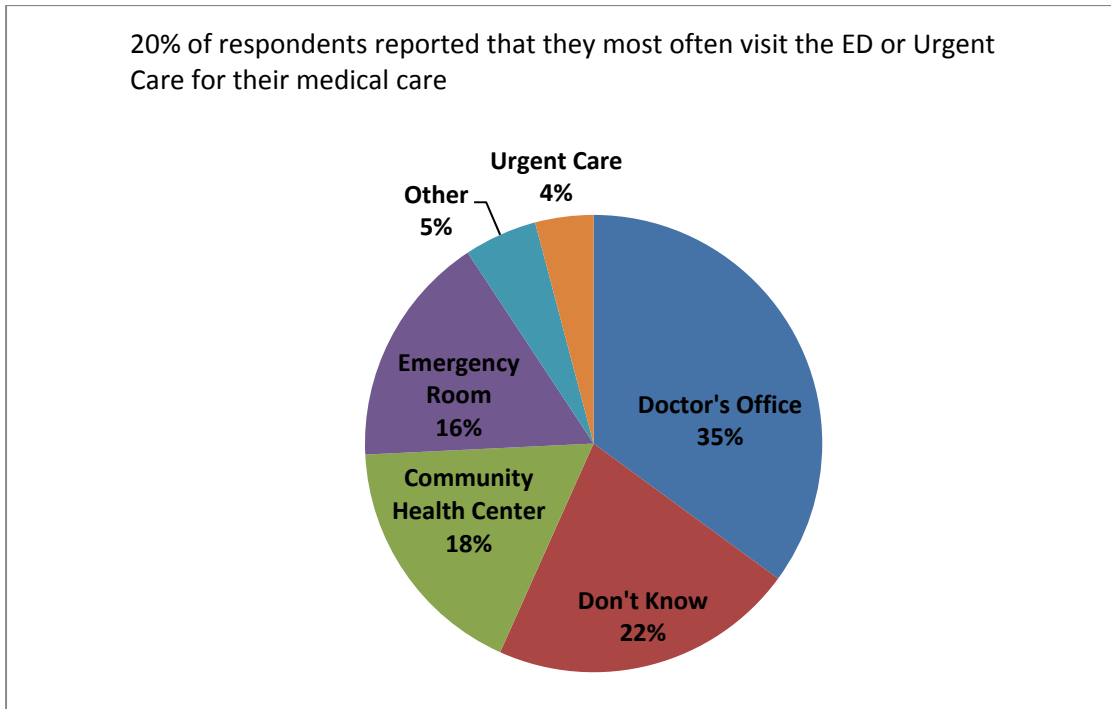
once were females and 48% were males. Ninety-three percent of patients who visited the CDC were either White or Black and 75% of these patients relied on WHI funds to compensate their care.

Usual Source of Care

The Acute Dental Initiative aimed to reach low income Washtenaw County residents who did not have a usual source of dental care and utilized the ED as a result. Patients treated at the CDC were asked to complete a patient survey following treatment⁴. The survey asked about the number of times patients had visited an ED due to their oral health in the past 12 months. Twenty-two percent of respondents reported that in the past 12 months they had been to emergency room more than twice due to their oral health. Additionally, 51% of respondents to the patient survey reported that they did not have a usual source of care and 20% of respondents identified that they most often visit the ED or an urgent care for their medical care.

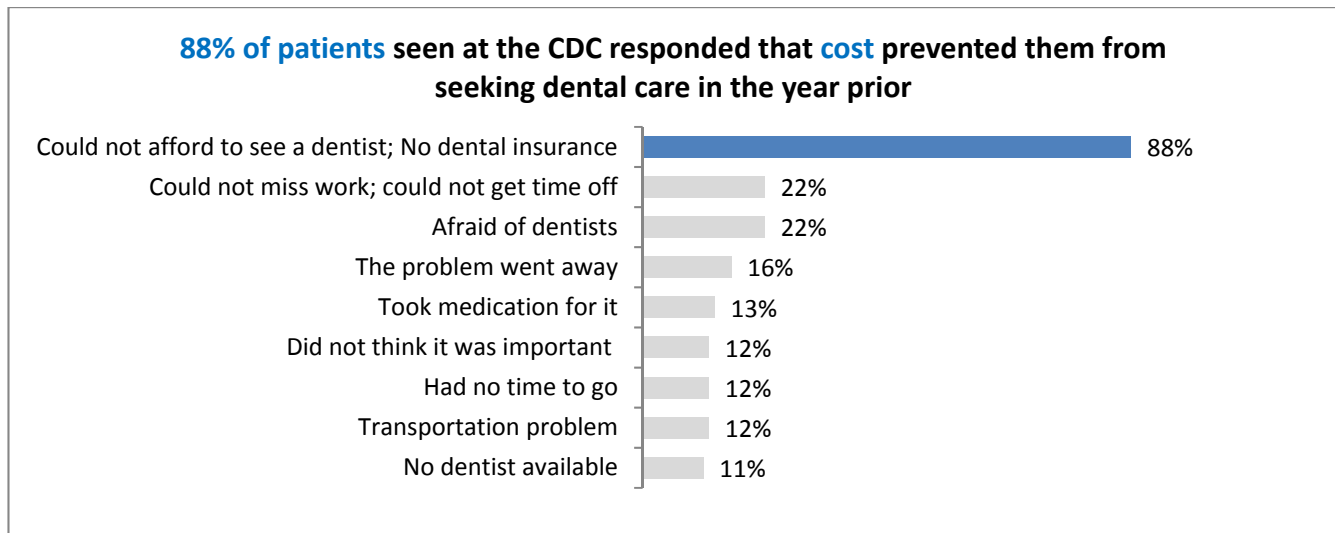


⁴ Additional results of CDC Patient Survey in Appendix.



Patient Barriers

The CDC patient survey also asked patients about factors that made it difficult for them to seek dental care. Patients identified issues such as lack of time, fear, and transportation as barriers to receiving care. Although the patients who visited the CDC were able to overcome these barriers in order to treatments, these barriers may have been more significant for the patients who were not seen at the CDC.



Program Costs

The Acute Dental Care Subcommittee sought \$100,200 in total funding for the program. The University of Michigan School of Dentistry contributed a \$5,000 in-kind donation for the pilot’s operation, and the remaining funding was provided by the Washtenaw Health Plan. This funding covered direct expenses to treat uninsured

patients participating in the pilot program and was calculated based on a capitated treatment cost of \$400 per patient, per episode of care. This amount was determined after a review of past treatment data to identify the average amount needed to stabilize patients. Program data also monitored the actual charges per patient, allowing for a comparison of actual program costs to capitated costs.

Program costs of patients treated at the CDC				
Number of Appointments	Total # of pts	Capitated Cost	Actual Cost	Capitated Cost-Actual Cost
1	118	\$47,200.00	\$22,362.00	\$24,838.00
2	47	\$18,800.00	\$20,286.00	-\$1,486.00
3	29	\$11,600.00	\$16,152.67	-\$4,552.67
4	16	\$6,400.00	\$12,743.00	-\$6,343.00
5	6	\$2,400.00	\$5,827.00	-\$3,427.00
6	6	\$2,400.00	\$9,962.00	-\$7,562.00
7+	10	\$4,000.00	\$32,538.00	-\$28,538.00
Total	232	\$92,800.00	\$119,870.67	-\$27,070.67

Overall, 232 patients received treatment at the CDC and resulted in \$119,870.67 in charges. Patients who visited the CDC had an average of 2 visits and resulted in an average charge of \$517. The median charge of all patient visits was \$207. The patient with the most visits had 21 visits and a program charge of \$6390.

Patients who completed treatment

Patients were defined as completing treatment if a CDC dentist stabilized the patient's initial oral health need they presented with in the ED. Among patients who visited at the CDC, the majority of patients (N=75) completed their treatment within one visit. By comparison, only 5% of patients needed 7 or more appointments at the CDC to complete treatment. This suggests that programs looking to divert patients presenting with dental care issues from the ED can treat the majority of the patients with minimal visits.

Program Satisfaction

The Acute Dental Care Initiative generated high levels of satisfaction from UMHS and SJMHS staff as well patients referred through the program. Many suggested that the program should be permanently supported:

- *Overwhelming support from my staff regarding the program...Greatest strengths of the program include ability to have low income patients receive urgent dental care that they would otherwise not receive. No problems identified other than the distance involved in getting [to the CDC]. Physician, SJMHS*
- *From [our] standpoint, the program was a success. Many of the patients were extremely happy to be able to get their dental issues cared for without a bill that would have been very difficult to pay. Some were not able to go back to the Dental School due to outstanding debts still owed...We would be very happy if the project was extended. We cannot think of any improvements that need to be made at this time. We were*

able to work very well with the staff at the CDC and schedule a great number of patients. Thank you for including us in your program! -Representative from Emergency Medicine Consult/Referral Service

- *I really enjoyed my visit, and I would love to make this my primary dentist.-Patient*
- *They were amazing, caring, and kept me assured the whole time.-Patient*

Actual vs Expected Outcomes

The actual program referrals were similar to the expected outcomes of the program. More patients were referred through the program than were originally expected and CDC staff followed up with 100% of patients referred through the program. Program data does show a lower percentage of referred patients treated at the CDC, and a lower referral accuracy than was expected.

Expected	Actual
1. 255 patients referred to the CDC a. 163 uninsured b. 92 Medicaid	1. 545 patients referred to the CDC ⁵ a. 339 uninsured b. 108 Medicaid
2. 100% CDC follow-up with patients who don't initiate contact	2. 100% follow up with patients who don't initiate contact
3. 85% of patients referred treated at the CDC	3. 60% of patients referred treated at the CDC
4. 95% referral accuracy	4. 84% referral accuracy

⁵ Program period was extended beyond pilot year.

Discussion

Program Setting: The majority of program referrals came from SJMHS. The difference in number of referrals could have resulted in the differences of the referring institutions. While UMHS is an academic medical center that receives complex patients from across the state, SJMHS is a tertiary medical center who sees more county residents and therefore likely saw a greater pool of patients who were eligible for referral in comparison to UMHS.

Patient Barriers: The majority of referred patients who received treatment at the CDC indicated that cost had previously been the most significant barrier to receiving dental care. This finding is supported by previous literature that has suggested that most barriers to receiving dental care are financial⁶. Although the Acute Dental program successfully removed the cost barrier for a large number of individuals, 40% of referred patients that were contacted by the CDC still did not receive treatment. This suggests that cost was not the only, or the most significant barrier to receiving dental care faced by patients who did not receive care at the CDC. Literature suggests that dental anxiety and dental phobia prevents an estimated 9% to 15% of Americans from seeing the dentist. Other factors that have been identified as barriers to accessing dental care include lack of time, lack of transportation, and poor oral health literacy⁷.

Target Population: The profile of patients treated at the CDC suggests that the Acute Dental Initiative was effective in reaching its target population of low income adults who typically relied on the ED to address their oral health needs. Program data showed that 22% of patients who were treated at the CDC had visited the ED two or more times in the year prior to the Acute Dental program. More than half of patients treated at the CDC also reported that they did not have a usual source of primary care, and 20% identified the ED and urgent care settings as their primary source of care.

Repeat ED visits: Due to limitations in accessing hospital data, the evaluation team was not able to determine whether patients referred patients returned to the ED with dental needs. As a result, including the number of repeat ED visits as an indicator may not be an accurate indicator of program effectiveness.

System Touch Point: Although the Acute Dental program's primary intention was to treat patients' acute issues that brought them to the ED, dentists at the CDC often identified and treated dental issues beyond the original referral reason. Additionally, the CDC staff also identified referred patients who were eligible for Medicaid and assisted them with Medicaid enrollment. This suggests that Acute Dental program was a helpful way to get patients more ingrained within the medical system.

⁶ Most Important Barriers to Dental Care are Financial, Not Supply Related.

http://www.ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_1014_2.pdf?la=en

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Conclusions and Recommendations

Overall, the Acute Dental Care Initiative was an effective program. Patient referrals through the program were highly accurate, more than half of patients contacted by CDC staff visited the CDC at least once, and 72% of patients who had at least one visit at the CDC completed treatment. Additionally, the program generated overall patient and provider satisfaction, with many advocating for the program to be extended.

Recommendations

- 1. Identify opportunities to address other barriers other than cost that may have prevented patients from being treated at the CDC.** Despite the effectiveness of the program, approximately 40% of the patients contacted by the CDC did not receive care at the CDC. This suggests that those patients faced barriers other than cost that prevented them from receiving care at the CDC. Future program implementations might explore alternative methods of alleviating barriers to receiving care in addition to cost such as transportation, childcare, or fear of dentists. Literature suggests that other barriers to patients receiving dental care include dental phobia, dental anxiety, and lack of transportation.
- 2. Implement future programs in emergency settings that see a high volume of eligible patients.** The majority of program referrals came from SJMHS, likely due to the higher number of eligible patients seen at SJMHS in comparison to UMHS. While UMHS is an academic medical center that receives complex patients from across the state, SJMHS is a tertiary medical center who sees more less complex, county residents that were eligible for referral. Future program implementations should target medical settings that will capture the highest number of eligible patients.
- 3. Explore alternative ways to catch patients at a teachable moment.** Patients referred through the program were stabilized at the ED before being referred. It is possible that once some referred patients were stabilized at the ED and no longer in pain, they no longer saw the need to visit the CDC. Future implementations might benefit by incorporating an educational component into the program to increase awareness and importance of appropriate dental care.
- 4. Track whether patients referred to the CDC returned to the ED.** The evaluation team was unable to determine whether referred patients who were not treated at the CDC ultimately returned to the ED with a dental need. Future program implementations should consider obtaining IRB approval in order to identify whether referred patients returned to the ED.

Appendix

Program Inclusion Criteria

ACUTE DENTAL PILOT

This project is a collaboration between the University of Michigan Medical System, Saint Joseph Hospital, Washtenaw Health Plan, and the University of Michigan School of Dentistry Community Dental Center, all under the umbrella of the Washtenaw Health Initiative. The goal of the Acute Dental Care Initiative is to create an effective referral process to community-based settings for patients presenting with abscess-related diagnoses at the University of Michigan Health System (UMHS) and St. Joseph Mercy Health System (SJMHS) emergency rooms.

Inclusion Criteria

- Washtenaw County Resident
- Medicaid and uninsured (for dental) accepted; people with private dental insurance may be referred and will be treated, but will not be part of the research project
- Even if a patient has a previous bad debt from the dental school they will be eligible for this program. Patients with a dental abscess/infection
- Tooth causing spontaneous pain and/or exaggerated response to hot or cold which lingers when the stimulus is removed
- Patient can be afebrile
- Patient does not have to have facial or intra-oral edema
- Once you have determined that a patient is appropriate for this program fax the discharge summary to Community Dental Center, Attn: Dr. Bonita Neighbors, Fax # 734-998-9647
- Instruct patient to call for an appointment, however front desk staff will follow-up with patient if they do not call in 48 hours.

Exclusion Criteria

- Dental school record locked (patient dismissed for behavior)
- Dental concern direct result of facial trauma
- Does not meet the clinical sign and symptoms listed under inclusion criteria

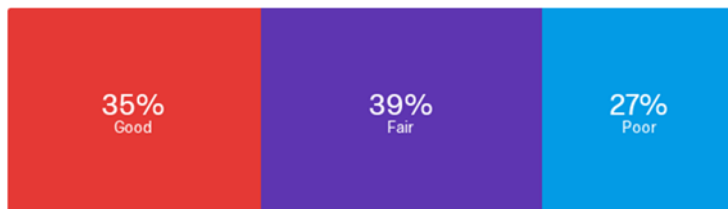
This project works directly with the Community Dental Center, a program of the UM Dental School. In the unlikely event that a patient needs to be referred for specialty care at the dental school or to a private dental specialist, other funds will need to be found for the work.

CDC Patient Survey Additional Results

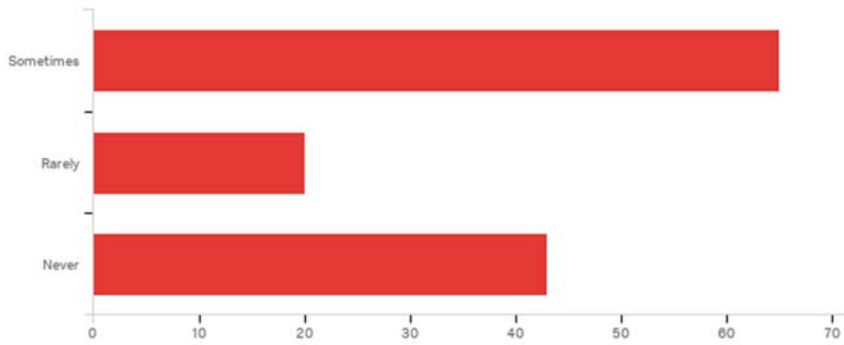
Patients treated at the CDC were asked to complete a patient survey following treatment. Below are the complete results of the CDC Patient Survey

Demographics		
Gender	Female	59% (N=74)
	Male	41% (N=52)
Ethnicity	White	52% (N=63)
	Black	42% (N=51)
	Native American	4% (N=5)
	Asian	2% (N=2)
	Native Hawaiian/Pacific Islander	1% (N=1)
Age	18-25	16% (N=20)
	26-35	29% (N=37)
	36-45	18% (N=23)
	46-55	17% (N=21)
	56-65	17% (N=22)
	66-75	3% (N=4)
Education	8 years of grade school or less	10% (N=13)
	High School Diploma/GED	58% (N=74)
	Some College	24% (N=30)
	College Degree	7% (N=9)
	Graduate Degree	1% (N=1)
Household Income	\$0-\$15,000	100% (N=79)

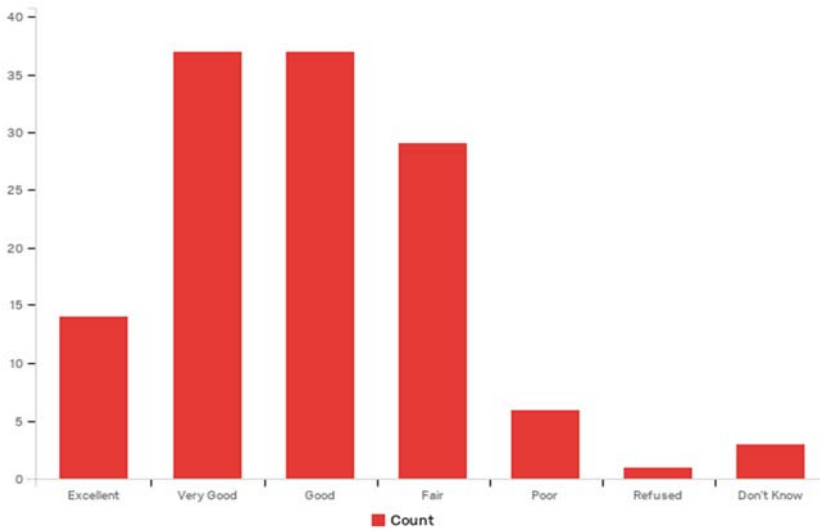
Overall, how would you rate the health of your mouth, teeth, and gums?

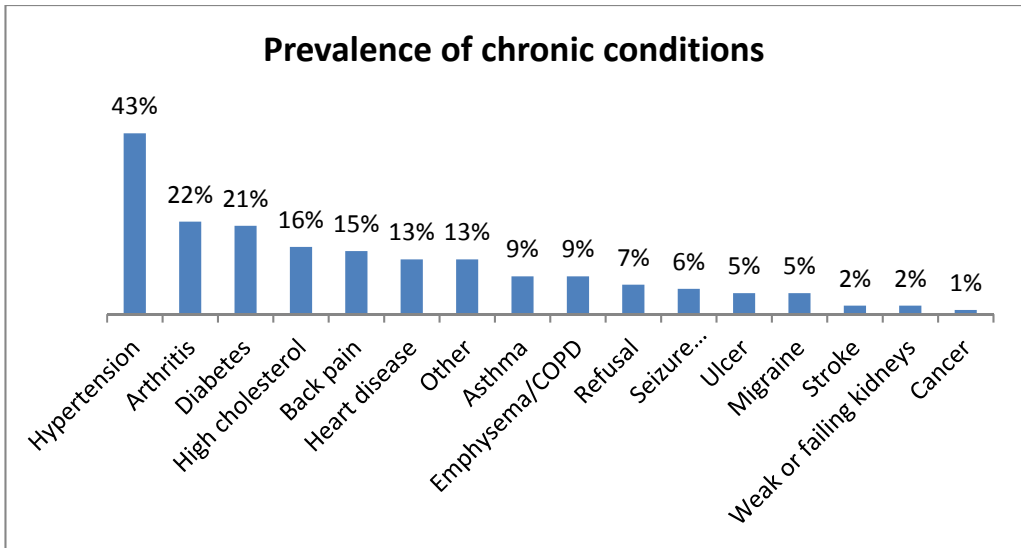


During the past 12 months how often have you been self-conscious or embarrassed because of teeth, mouth or dentures?

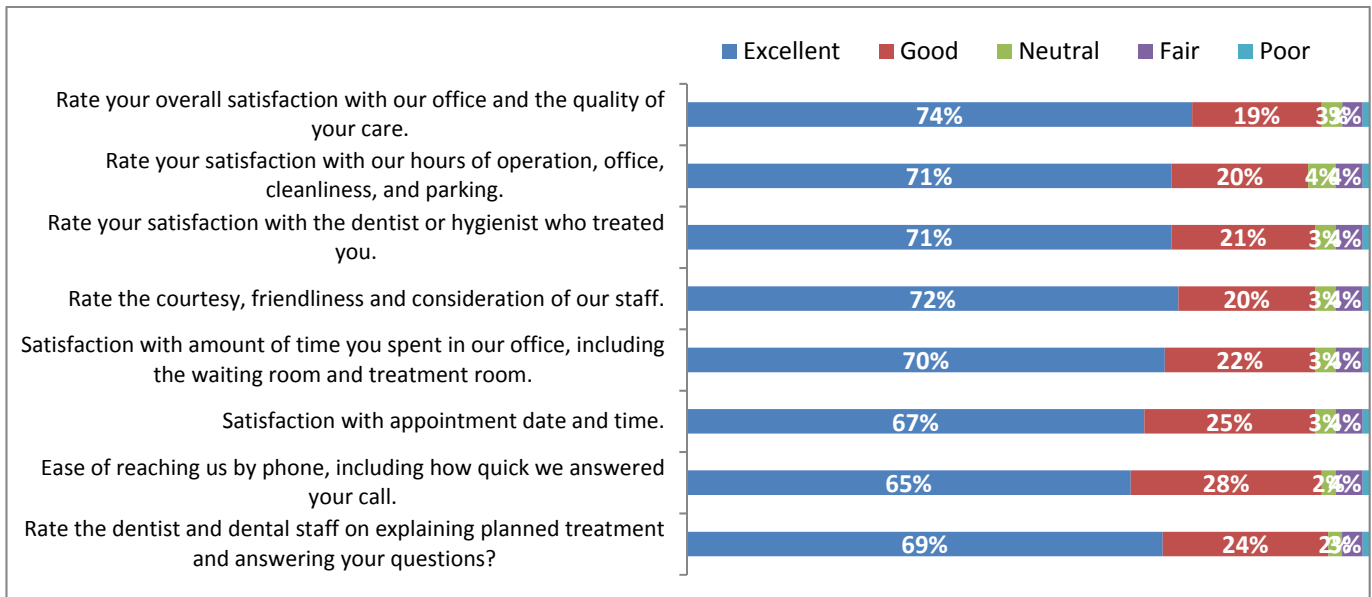


In general, would you say your health is:





Please evaluate our dental office:



Emergency Department Data Request Parameters

Data was requested for the following ED patient population:

- All ED patients for the time periods who were residents of Washtenaw County, as defined by the following zip codes: 48103, 48104, 48105, 48108, 48109, 48118, 48130, 48158, 48176, 48197, 48198.
- ICD-9-CM Codes 520-529 only for First Listed Diagnosis
- Exclude patients <1yr old