Improving System-Based Tobacco Cessation in a Community Health Clinic

Iqra Ahmad, BS; Janine Bera, MD; Neal D. Kohatsu, MD; Julia E. Fleuret, MPH; Erin L. Winter, BS; Jeffrey S. Hoch, PhD; and Desiree R. Backman, DrPH

ABSTRACT

Tobacco use rates remain high in many subpopulations (eg, low-income individuals) who experience several addressable health inequities. Community clinics are ideal sites to address these inequities because of their traditional service populations, commitment to prevention, and links to their communities. We present a case study of one such clinic's strategies to improve system-based tobacco cessation and discuss observed gains in relevant quality improvement metrics.

TOBACCO USE, particularly smoking, remains the leading preventable cause of mortality in the US.[1] Although smoking rates have been declining for decades, they remain higher among men, rural populations, certain race/ethnicity groups, and low-income individuals.[2] Community clinics that serve these groups present an important setting for advancing tobacco cessation among patients and the community. Unfortunately, system-based cessation has often been suboptimal in practice despite clear consensus guidelines outlining best practices.[3-5] These best practices include use of the Ask-Advise-Act model,[4] clinician advice to quit tobacco using Very Brief Advice messaging,[6] and ongoing follow-up with patients initiating cessation.[5]

We report on a case study of WellSpace Health (WSH), a community clinic that launched a quality improvement (QI) project targeting improved adherence to evidence-based guidelines for system-based tobacco cessation. WSH was 1 of 10 community clinics funded by the California Department of Public Health's California Tobacco Prevention Program (CTPP) to conduct tobacco cessation with 18-month awards of $79,000 per clinic. The contract period was August 1, 2022, through February 29, 2024. In addition, the CTPP funded the Healthy Living Clinic Initiative (HLCI) to provide technical assistance in tobacco cessation and QI. The HLCI was designed and implemented by the Prevention Policy & Practice Group in the Center for Healthcare Policy and Research at the University of California, Davis. WSH was the largest community clinic system of the 10 funded clinics, and its leadership expressed a strong interest in broad dissemination of effective cessation strategies across WSH's primary care sites.

METHODS

WELLSPACE HEALTH

WSH is a nonprofit community health system that provides comprehensive medical, dental, behavioral health, and supportive services to underserved communities. WSH serves more than 1400 patients per day through a network of 31 health centers and supportive sites across Amador, Placer,

and Sacramento counties in California. Primary care staffing includes 14 physicians and 34 nurse practitioners/physician assistants.

This case study confirmed several challenges to tobacco cessation that have been documented in the literature, including insufficient training in system-based cessation, lack of time, low clinician self-efficacy in addressing cessation with patients, and inadequate practice support.

QUALITY IMPROVEMENT ACTIVITIES

With support from the HLCI, WSH established a QI plan (QIP) to advance system-based tobacco cessation. The QIP was developed after an examination of WSH's approach to tobacco cessation at baseline and comparison with evidence-based guidelines based on the Ask-Advise-Act model.[4,5] The multidisciplinary HLCI team (including 2 of the coauthors [N.D.K., D.R.B.] with extensive experience in clinical QI) assisted with the assessment and analysis of workflow based on best practices and provided recommendations for process improvement. These recommendations were based on the scientific literature[3-5] and initial key respondent interviews that the HLCI team conducted with key clinic staff and tobacco-using patients at the beginning of the project period. Through this QI-based workflow analysis, several system limitations were identified, including lack of a standardized, documented tobacco-cessation workflow; limited follow-up with patients attempting to quit tobacco use; and the absence of a standardized process for referral to cessation counseling. WSH staff, in collaboration with the HLCI team, selected 6 strategies (detailed in the following paragraphs) to employ in the QIP. WSH piloted QIP activities at an initial primary care site and then disseminated strategies that proved effective across 14 primary care sites in the WSH organization.

Tobacco-cessation project coordinator (PC). A PC developed the QIP and provided day-to-day implementation and management of the tobacco-cessation project. The PC was supervised by the WSH chief medical officer (CMO). Although QIP implementation began at an initial primary care site, the intervention learnings were quickly disseminated to WSH's 13 other primary care sites over approximately 4 months through the direct efforts of the PC, in consultation with the CMO. Dissemination was woven into existing workloads, program demands, and staff availability at each clinical site. The CMO took these factors into consideration in guiding the PC's dissemination efforts.

The PC played a pivotal role in ensuring the seamless implementation of the cessation program across all health centers. Serving as the primary point of contact, the PC monitored progress, provided support where necessary, and worked to ensure that each health center was effectively working toward meeting the established goals of the cessation program. The PC presented updates and shared metrics, such as the number of patients screened for tobacco use and referred to Kick It California (KIC), the state's tobacco quitline that was established in 1992,[7] at monthly and quarterly health center meetings.

Electronic health record (EHR) modifications. The WSH EHR, NextGen,[8] was modified to capture comprehensive documentation on tobacco use, integrate screening and counseling templates into the providers' patient notes, generate reminders for clinicians to screen and provide cessation intervention, and autopopulate discharge instructions, including information supporting quitting and directions for connecting with KIC.[7]

EHR referrals to KIC. Based on its proven impact of doubling quit rates,[9] KIC was designated as the preferred primary referral source for cessation counseling. In addition to other resources, KIC provided telephone counseling services in English and Spanish, as well as in Cantonese, Korean, Mandarin, and Vietnamese, through the Asian Smokers' Quitline (ASQ). Individuals self-enrolled in KIC or the ASQ via a webform or phone call. KIC also enabled providers to refer patients via webform or EHR. WSH focused on EHR referrals, which became operational in February 2023. For simplicity, WSH developed a protocol whereby providers would send an internal referral for every patient who used tobacco to the PC, who would complete the EHR referral to KIC after engaging with the patient.

Postvisit follow-up. After receiving an internal referral, the PC contacted the patient via a phone call

to offer a referral to KIC and determine if any support was needed for access to nicotine replacement therapy or prescription medication for tobacco cessation (eg, varenicline, bupropion); if necessary, the PC scheduled a visit with the patient's primary care provider.

Clinician training and support. Clinicians (including physicians, nurse practitioners, physician assistants, medical assistants, case managers, and health educators) received in-person one-on-one training from the PC on how to use the EHR to optimize tobacco cessation. Training topics included: (1) consistent screening and documentation of tobacco use history at every visit, (2) referrals to cessation counseling, (3) clinical guidelines for prescribing pharmacotherapy for tobacco cessation, and (4) follow-up to support cessation. Clinician training also addressed how to advise patients to quit tobacco using Very Brief Advice messaging.[9] Existing and new employees were trained on these tobacco-cessation methods. WSH had an internal dashboard system that displayed predefined performance metrics based on live EHR data; for tobacco, those metrics included screening and internal referrals to the PC. Having access to these metrics gave the project team and clinicians the ability to track the intervention's progress and how to further improve performance. Progress on the metrics was shared at monthly health center meetings to update clinics on the system and reinforce the QIP cessation workflows.

Patient education outreach. Patient education on tobacco cessation was conducted by disseminating information via flyers, posters, pamphlets, WSH's social media platforms (ie, Instagram and Facebook), text messaging, and a direct mail campaign to all adult patients who use tobacco.

MEASUREMENT

INITIAL CLINIC SITE PATIENT METRICS

A performance measurement for the QIP was developed with consideration of existing federal reporting requirements of the Health Resources and Services Administration, contractual and reporting requirements of the state funder, and clinical informatics capacity within WSH. An EHR-based report for the first quarter of the grant (September 2022-November 2022), which preceded any QI activities, served as the baseline to assess tobacco-use screening rates and clinician advice-to-quit rates. Screening and clinician advice-to-quit rates were assessed again during a 12-month follow-up period to measure changes over time (September 1, 2022-August 31, 2023).

KIC REFERRALS

From January 2023 to February 2024, KIC provided monthly reports on the number of counseling referrals received from each clinic in the first cohort. WSH began systematically referring patients to KIC in February 2023; prior to this, WSH did not have documented referrals to KIC.

RESULTS

PATIENT DEMOGRAPHICS

The **Table** shows the demographic features of the adult clinic population of patients served within WSH's initial clinic site. Nearly two-thirds of patients (64.3%) were women, 25.3% identified their ethnicity as Hispanic/Latinx, and 21.5% had a "not disclosed or unknown" ethnicity. In total, 15.2% were Asian, 13.0% were Black, 22.9% were White, 45.9% had a race "not disclosed or unknown," and 3.0% were Native Hawaiian, other Pacific Islander, American Indian/

TABLE. Demographics of Patients at Initial Clinic Site

Characteristic	General patient population[a] (N = 5965)		Patients who use tobacco[b] (n = 930)	
	%	n	%	n
Age on September 1, 2022 (years)				
18-24	8.4%	501	3.5%	33
25-34	18.7%	1115	15.7%	146
35-44	20.6%	1228	23.3%	217
45-54	19.6%	1171	21.4%	199
55-64	20.6%	1226	26.7%	248
65-74	9.0%	537	8.6%	80
75 or older	3.1%	187	0.8%	7

TABLE. (*Continued*) Demographics of Patients at Initial Clinic Site

Characteristic	General patient population[a] (N = 5965)		Patients who use tobacco[b] (n = 930)	
	%	n	%	n
Gender identity[c]				
Male	35.7%	2130	51.9%	483
Female	64.3%	3835	48.1%	447
Sexual orientation[c]				
Heterosexual/straight	64.5%	3850	67.2%	625
Lesbian, gay, bisexual, or other	2.1%	128	3.7%	34
Not disclosed or unknown	32.3%	1926	29.1%	271
Ethnicity[c]				
Hispanic/Latinx	25.3%	1511	15.2%	141
Not Hispanic/Latinx	53.2%	3172	60.5%	563
Not disclosed or unknown	21.5%	1282	24.3%	226
Race[c]				
Asian	15.2%	908	7.5%	70
Black/African American	13.0%	776	21.5%	200
White	22.9%	1367	30.5%	284
Native Hawaiian, other Pacific Islander, American Indian/Alaska Native, or more than 1 race	3.0%	176	2.7%	25
Not disclosed or unknown	45.9%	2738	37.7%	351
Insurance[d]				
None/uninsured	1.4%	81	0.5%	5
Medi-Cal	77.9%	4646	73.4%	683
Medicare[e]	9.4%	560	9.5%	88
Other public insurance[f]	1.4%	81	4.3%	40
Private insurance	2.4%	144	2.2%	20
Unknown	7.6%	453	10.1%	94
Other characteristics[c]				
Best served in a language other than English	25.3%	1512	9.9%	92
Homeless	2.2%	131	3.0%	28

CHIP, Children's Health Insurance Program; HRSA UDS, Health Resources and Services Administration Uniform Data System; QI, quality improvement.

[a]Patients 18 years or older who made at least 2 medical visits or at least 1 preventive visit to the QI project focus site in the 12-month follow-up period (September 1, 2022-August 31, 2023).

[b]Among patients[a] who were screened in the 12-month follow-up period, those who screened positive for tobacco use at least once.

[c]Categories from HRSA UDS Table 3B.

[d]Categories from HRSA UDS Table 4.

[e]Inclusive of dually eligible and other Title XVIII beneficiaries.

[f]CHIP or non-CHIP.

Alaska Native, or more than 1 race. Nearly 8 in 10 (77.9%) used Medi-Cal, California's Medicaid program, and 25.3% were best served in a language other than English.

SCREENING FOR TOBACCO USE

In the initial 3 months of the project, 24.3% of adult patients at the WSH initial clinic site were screened for tobacco use. Because of limitations in the EHR,

cigarette use was captured consistently, but use of other tobacco products was not. In the 12-month follow-up period, the proportion screened increased to 82.9%. In addition, prevalence of tobacco use in the clinic population at follow-up was 18.8% vs 2022 adult use rates in California of 6.0% for cigarette smoking and 5.2% for vaping.[10]

ADVICE TO QUIT TOBACCO USE

In the initial 3 months of the project, 29.8% of patients at the initial clinic site who used tobacco were documented as having received advice to quit from their providers. In the 12-month follow-up period, the proportion increased to 93.0%.

REFERRAL TO TOBACCO CESSATION COUNSELING

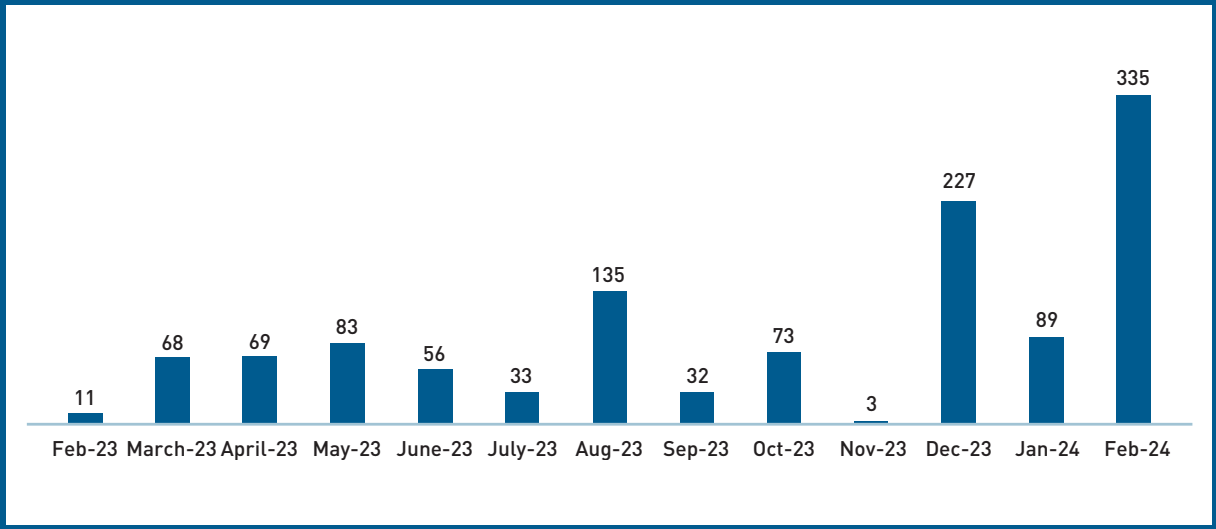
The **Figure** shows the number of patients using tobacco who were referred to KIC for tobacco cessation counseling between the debut of WSH's systematic referrals and the end of the grant in February 2024 for 14 WSH primary care clinics. Cumulatively, 1214 patients were referred over 13 months. Statewide, KIC received 11,843 referrals from health care sources in that period, 10.3% of which came from WSH. Referral data from KIC were provided to WSH. KIC collects information on referrals as part of their contract with the California Department of Public Health.

DISCUSSION

The WSH QI activities demonstrated that system-based tobacco cessation could be meaningfully improved using a multipronged intervention strategy. Significant improvements in tobacco use screening, clinician advice to quit, and referral to counseling were observed. Referrals from WSH increased so substantially that in approximately 1 year, WSH-generated referrals represented 10.3% of health care–based referrals to KIC.

This case study confirmed several challenges to tobacco cessation that have been documented in the literature, including insufficient training in system-based cessation, lack of time, low clinician self-efficacy in addressing cessation with patients, and inadequate practice support.[4,11] In particular, the study revealed the need for ongoing, in-depth training to expand learnings to other clinical sites and to maintain new workflow changes that support cessation.

FIGURE. WSH Patients Referred to KIC[a]



KIC, Kick It California; WSH, WellSpace Health.

[a]This figure displays referrals from the WSH system, tracked and reported by KIC. A data transmission problem was identified in November, which led to underreporting. This problem was resolved in December, and most of the November referrals were subsequently recorded in December. Systematic referrals to KIC began in February 2023. Referrals were not documented prior to this date.

LIMITATIONS AND STRENGTHS

There were several limitations to the study, such as the need for multiple data collection methods (some developed de novo, by necessity). Some metrics were unavailable, such as prescribing rates for cessation medications. Other limitations were the generalizability of the experiences of a single community clinic system and the relatively short time frame that prevented tracking tobacco cessation to the point of quitting for at least 6 months (equivalent to long-term abstinence).[12] In addition, it was not feasible to determine the relative importance of the different intervention components from the collected data.

Strengths of the case study include the use of real-world QI interventions to systematize tobacco cessation in primary care; the dissemination of effective strategies, starting in 1 and increasing to 14 clinic sites; and the clinic staff remaining engaged and supportive over the intervention period.

CONCLUSION

Substantial improvements in system-based tobacco cessation were achieved in this community clinic network, associated with a multipronged intervention strategy, strong leadership support, and a highly engaged and motivated PC. Community clinics wishing to increase the effectiveness of tobacco cessation in the primary care setting can use the findings from this case study to support their own QI efforts. They will, however, need to consider their unique patient populations, resources, clinic culture, and competing clinical demands.

Author Affiliations: WellSpace Health (IA, JB), Sacramento, CA; Center for Healthcare Policy and Research, University of California, Davis (NDK, JEF, ELW, JSH, DRB), Davis, CA; Division of Health Policy and Management, Department of Public Health Sciences, University of California, Davis (JSH), Davis, CA.
Source of Funding: This work was supported by the California Tobacco Prevention Program, California Department of Public Health.
***Author Disclosures*:** The authors report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.
Authorship Information: Concept and design (IA, JB, NDK, DRB); acquisition of data (IA, JB, NDK, JEF); analysis and interpretation of data (IA, JB, NDK, JEF, JSH, DRB); drafting of the manuscript (IA, NDK, JEF, ELW, DRB); critical revision of the manuscript for important intellectual content (IA, NDK, ELW, JSH, DRB); statistical analysis (IA, JSH); provision of study materials or patients (IAM JB); obtaining funding (JB, NDK); administrative, technical, or logistic support (IA, JB, NDK, ELW); and supervision (IA, JB, NDK, JSH, DRB).
Send Correspondence to: Neal D. Kohatsu, MD, University of California, Davis, 4900 Broadway, Ste 1760, Sacramento, CA 95820. Email: ndkohatsu@ucdavis.edu.

REFERENCES

1. Smoking cessation: a report of the Surgeon General. HHS. Accessed May 29, 2024. https://www.hhs.gov/surgeongeneral/reports-and-publications/tobacco/2020-cessation-sgr-fact-sheet-key-findings/index.html
2. Cornelius ME, Loretan CG, Wang TW, Jamal A, Homa DM. Tobacco product use among adults - United States, 2020. *MMWR Morb Mortal Wkly Rep*. 2022;71(11):397-405. doi:10.15585/mmwr.mm7111a1
3. Flocke SA, Vanderpool R, Birkby G, et al. Addressing tobacco cessation at federally qualified health centers: current practices & resources. *J Health Care Poor Underserved*. 2019;30(3):1024-1036. doi:10.1353/hpu.2019.0071
4. Pipe AL, Evans W, Papadakis S. Smoking cessation: health system challenges and opportunities. *Tob Control*. 2022;31(2):340-347. doi:10.1136/tobaccocontrol-2021-056575
5. Rigotti NA, Kruse GR, Livingstone-Banks J, Hartmann-Boyce J. Treatment of tobacco smoking: a review. *JAMA*. 2022;327(6):566-577. doi:10.1001/jama.2022.0395
6. Papadakis S, Anastasaki M, Papadakaki M, et al. 'Very brief advice' (VBA) on smoking in family practice: a qualitative evaluation of the tobacco user's perspective. *BMC Fam Pract*. 2020;21(1):121. doi:10.1186/s12875-020-01195-w
7. Zhu SH. Kick It California. University of California, San Diego. Accessed May 29, 2024. https://kickitca.org/quit-now
8. NextGen electronic health record. NextGen Healthcare. Accessed May 29, 2024. https://www.nextgen.com/solutions/electronic-health-records/mid-size-to-enterprise-practices
9. Zhu SH, Anderson CM, Tedeschi GJ, et al. Evidence of real-world effectiveness of a telephone quitline for smokers. *N Engl J Med*. 2002;347(14):1087-1093. doi:10.1056/NEJMsa020660
10. California Tobacco Facts and Figures. California Department of Public Health. May 2024. Accessed May 29, 2024. https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CTCB/CDPH%20Document%20Library/ResearchandEvaluation/FactsandFigures/CaliforniaTobaccoFactsAndFigures_2024.pdf
11. Manolios E, Sibeoni J, Teixeira M, Révah-Levy A, Verneuil L, Jovic L. When primary care providers and smokers meet: a systematic review and metasynthesis. *NPJ Prim Care Respir Med*. 2021;31(1):31. doi:10.1038/s41533-021-00245-9
12. Piper ME, Bullen C, Krishnan-Sarin S, et al. Defining and measuring abstinence in clinical trials of smoking cessation interventions: an updated review. *Nicotine Tob Res*. 2020;22(7):1098-1106. doi:10.1093/ntr/ntz110