Published in final edited form as:

Addiction. 2015 September ; 110(9): 1516–1523. doi:10.1111/add.13004.

Screening for substance misuse in the dental care setting: findings from a nationally representative survey of dentists

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Abstract

Aims—The dental setting is a potentially valuable venue for screening for substance misuse. Therefore, we assessed dentists' inquiry of substance misuse through their patient medical history forms and their agreement with the compatibility of screening as part of the dentists' professional role.

Design—A nationally representative survey of general dentists using a sampling frame obtained from the American Dental Association Survey Center (November 2010 – November 2011).

Setting—United States of America

Participants—1,802 general dentists

Measurements—A 38 item survey instrument assessing the relationship between dentists' practice, knowledge, behaviors, and attitudes with their query about substance misuse and their belief that such screening is part of their professional role.

Findings—Dentists who accepted substance misuse screening as part of their professional role were more likely to query about misuse with their patients (85.8%) compared with those who did not accept such screening as part of their role (68.2%) ($p < 0.001$). Prior experience and knowledge about substance misuse were the strongest predictors of dentists' inquiry about patient substance use/misuse and acceptance of screening as part of their role in their clinical practice ($p < 0.05$).

Conclusion—While more than three quarters of U.S. dentists-report that they ask their patients about substance misuse, two-thirds do not agree that such screening is compatible with their professional role.

Introduction

Of the approximate 24 million Americans who experience some form of substance use disorders, it is estimated that only 2.5 million are identified and receive treatment in our current substance use treatment system.^{1,2} Although the majority of adults and adolescents in the U.S. visit a health care provider on an annual basis,³ there are a sizeable number of people whose visit to a dentist represents their sole interaction with the health care system, highlighting the significance of the dental visit as a key opportunity to identify individuals living with substance use disorders.⁴

The dental setting is increasingly recognized as an untapped venue for the delivery of medical screenings, given the long-term nature and frequent contacts associated with the patient-dentist relationship.⁴⁻⁷ Previous research has shown that substance misuse was common in adults seeking dental treatment and that dental practitioners do provide care to a significant number of misusers.^{8,9} Patterns of oral health pathology attributed to methamphetamine use are notably distinct from common pathologies in non-users, especially in young adults and teenagers, and include rampant tooth decay, accelerated tooth wear, and unexplained dry mouth.¹⁰⁻¹² Other common oral findings associated with substance use include unexplained advanced gum disease, dental trauma, missing multiple teeth, the presence of dental problems at increasingly younger ages, and overall detrimental dental effects that are rapid, accelerated and severe.^{13,14} Such patients also often seek cosmetic dental treatment, such as veneers and whitening, due to these unaesthetic dental complications; this represents another opportunity for the dentist to discuss suspected substance misuse, provide appropriate referrals for treatment, and encourage cessation of use as part of the treatment process prior to initiating any cosmetic treatments that may otherwise fail.¹⁵

The issue of polypharmacy compounded by substance misuse should be of particular dental concern, given that dentists frequently prescribe opioid medications, antibiotics, and other medications that may potentially lead to adverse pharmacological interactions, overdose and increased tolerance/resistance to pain medications.^{16,17} Compounding the physical and chemical effects of the substances themselves are the effects of social and behavioral factors associated with substance misuse or dependence, including high tolerance to prescribed pain medications, neglected oral hygiene, malnutrition, irregular eating patterns, smoking, high sugar diets, and sporadic dental visits.¹⁸⁻²¹ Because dental care routinely involves managing and treating pain or emergencies, dentists may also encounter substance-seeking patients who may complain of pain more severe than anticipated based on the nature of their dental condition, who report lost prescriptions for opioid pain medications, or who only seek dental treatment on a sporadic, emergency basis.^{22,23} The role of dentists in enabling the prescription drug epidemic and the prevalence of opioid misuse among patients in the dental setting remain unclear, despite dentists being the second-largest group of prescribers of such medications.²⁴

Little is known about dentists' practices and attitudes when it comes to substance misuse screening in the dental setting. A 2010 survey of 210 select dentists within a practice-based research network indicated that most respondents conducted screening, where screening was defined as asking through written health history forms and/or verbally, about substance misuse in their clinical practice, but reported far lower rates of follow-up counseling and/or referrals.²⁵ A separate 2010 local survey of dentists showed that over one-third (36%) did not inquire about substance misuse among new patients, even though more than three-fourths of responding dentists believed that their practices included patients who were engaged in substance misuse.²⁶

Less is known about whether dentists perceive screening for substance misuse to be a major component of their professional role. While research has shown that dentists value the importance of medical preventive screening and their incorporation into dental practice, they also perceive potential barriers to actual implementation, including patient acceptance.²⁷ Furthermore, the concept of "screening" can vary widely, with numerous validated screening instruments available to practitioners, and there is no professional guidance available to dentists aside from a substance use question on the standard American Dental Association (ADA) patient history template.^{3,26,28} Yet, it has been noted that the first step in the dentist's management of a patient's health status and provision of comprehensive treatment is collecting an accurate and reliable patient health history.²⁹

Within this context, our analysis sought to examine the relationship between dentists' practices, knowledge, and attitudes with routinely inquiring about patients' substance misuse through medical history query, as well as to examine dentists' perception of substance misuse screening being compatible with their professional roles.

Methods

To address the specified aims, we conducted a nationally representative survey of dentists to examine their practices and attitudes regarding the provision of medical screenings in the dental setting, as well as their perceptions regarding the suitability of these screenings as within their dental professional role. The design of our study has been reported previously in more detail.⁵ The American Dental Association Survey Center (ADASC) provided a sampling frame from which a random stratified sample was drawn (see "Sample Strata" in Table 1). Because the main objective of the parent study was to investigate the perceived compatibility of HIV screening in the dental setting, 75% of our sample was drawn from Ryan White CARE Act eligible metropolitan areas (areas with high HIV prevalence) while the remaining 25% was taken from outside these areas.⁵ The practice setting dichotomy included private practice and public health settings. Dentists who self-identified themselves as "public health dentists" were oversampled (80% of the 383 U.S. public health dentists in the ADASC database), as dentists who work in the public sector are likely more amenable to preventive screenings in the dental screening than those in private practice.

^aQuestion: "Do you use controlled substances (drugs)?" Answer options: "Yes," "No," "Don't know".

The survey was conducted by the National Opinion Research Center (NORC) at the University of Chicago using multiple contacts, including pre-notification letters, initial and signature-confirmed replacement questionnaires, and repeated reminders and follow-up correspondences via email, fax, and telephone. Participants had the option of completing the survey via a password-protected website or questionnaire mailing. Remuneration was provided with the initial survey mailing (\$10) and upon successful completion of the survey (\$20). To increase the response rate, bonus incentives were offered to chronic non-responders (\$50 – 100 over time). On some items, this latter group offered systematically different responses.⁵ The survey response period was November 2010 through November 2011.

The 38-question instrument assessed respondents' screening practices, attitudes, background, demographics, dental practice information, patient population information, and system/structural factors. The demographic variables used in the present analysis were age, gender, and race/ethnicity (White, Black/African American, Asian, Other) of the participating dentist. The education/knowledge variables consisted of the participating dentist's year of graduation from dental school, the amount of prior training he/she received in alcohol and illicit drug use, and self-reported clinical knowledge about substance misuse ("none/limited," "moderate," "good" or "excellent"). The practice variables were type of practice setting and treatment of Medicaid patients.

For the present analysis, the two main outcomes of interest were: (1) whether the dentist agrees that screening for illicit drug use should be part of the dentist's role as a health care professional (a Likert 4-point response from "strongly disagree" to "strongly agree", then dichotomized into two categories, "agree" or "disagree", for analysis),³⁰ and (2) whether the patient health history form used by the dentist includes questions about illicit drug use (yes/no).

Statistical Analysis

Weighted percentages for frequencies and two-way tables were calculated with the svy: tabulate command in Stata, version 12, accounting for weighting and stratification and producing Pearson chi-squared statistics corrected for the survey design. Multivariable analyses were performed unweighted, incorporating variables used for stratification and weighting as covariates. We estimated risk ratios by using a Poisson regression model with a robust error variance using Stata, version 12.³¹ Bivariate analyses informed model specification and final models retained variables significant at the .05 level; sample stratum, age, and race were included in the models regardless of statistical significance.

Results

Sample Characteristics

NORC contacted 2,876 dentists nationally, of whom 328 (11.4%) were deemed ineligible due to practice type or licensure issues. The total number of dentists who completed the survey was 1,802, equating to an overall response rate of 70.7%.

The majority of respondents were male (78.3%) and 53% were age 53 years or older (median) (Table 1). White dentists (78.6%) were the most represented race/ethnicity. Dentists most commonly practiced in private practice settings (95.4%, with 65.4% in solo private practice) and did not accept Medicaid (71.6%). Approximately one-third of respondents graduated from dental school in the 1980s (33.6%), while similar percentages of respondents graduated before 1980 (32.3%) or after 1989 (34.1%). More than a third of sampled dentists had no prior training in substance misuse (34.9%). Self-reported clinical knowledge of illicit drug use was low over one-fifth of dentists cited “none/limited” and over 42% cited “moderate” knowledge of illicit drug use. More than three-fourths of responding dentists stated that the patient health history form used in their practice includes questions about illicit drug use (77.2%). Yet, just over one-half of dentists (53.9%) agreed that such screening should be part of their professional role.

Variables associated with dentists’ attitude towards their role in screening and health history form screening

Dentists younger than the median age of 53 were more likely than their older counterparts to agree that illicit drug use screening should be part of the dentist's role (61.9% vs. 46.9%) and to report having illicit drug use questions on their health history forms (83.7% vs. 71.7%) (Table 1). Gender was associated with dentists’ attitude toward their role in screening but not with health history form screening, with female dentists more likely to agree that illicit drug use screening should be part of the dentist's role (61.2%) than male dentists (52.0%).

Practice setting was associated with health history form screening; dentists working in private group practices and “other” settings were more likely to use these forms (more than 80%) than those in solo private or public health practices (74.4% and 76.6%, respectively). As with age, agreement with screening as part of dentists' role and health history form screening increases markedly with recency of graduation.

Prior training in substance misuse and self-reported clinical knowledge were also associated with attitude to screening and health history form screening. In general, both agreement and use of health history form increased with the amount of prior training and with the level of prior knowledge regarding substance use. Only 33.9% of dentists with no prior training, compared to approximately 70% of those with five or more hours, agreed that substance misuse screening should be part of the dentist's professional role. Similarly, 67.1% of dentists with no prior training had forms with substance misuse query, while more than 80% of dentists with some training used a health history form with substance misuse questions. Agreement with dentists' role ranged from 30.4% among dentists reporting “none/limited” knowledge to almost 80% among those reporting “excellent” knowledge. Similarly, health history form screening ranged from 61.3% to 94.3% as knowledge increased. Finally, dentists’ agreement that substance misuse screening should be part of the dentist's role and health history form screening were positively associated.

Multivariable regression models of dentists' attitude to role in screening and health history form screening

Multivariable analysis shows that dentists in rural areas were the least likely to agree that substance misuse screening should be part of the dentist's role (aRR=0.670, 95% CI = 0.524 – 0.856) (Table 2). Asian dentists, compared to white dentists, were more likely to agree with screening as part of the dentist's role (aRR=1.170, 95% CI = 1.050 – 1.304). Dentists reporting more training in substance misuse were also more likely to agree with screening as part of the dentist's role compared to dentists without such prior training (aRR ranging from 1.280 to 1.389 for different amounts of training). Similarly, dentists reporting better clinical knowledge about substance misuse were more likely to agree with screening as part of the dentist's role (aRR ranging from 1.334 to 1.980 for increasing levels of knowledge). Older dentists were less likely to report that their health history form included questions about substance misuse than younger dentists (aRR = 0.996 for every additional year of age, 95% CI = 0.993 – 0.998). (Since age and year of graduation were highly correlated, the latter was omitted from multivariable analyses). The amount of training reported was associated with substance misuse query on forms (aRR ranging from 1.095 to 1.122 as amount of training increased). All self-reported levels of clinical knowledge were associated with increased likelihood of substance misuse query on forms (aRR ranging from 1.203 to 1.394 as level of knowledge increases).

Discussion

The results of our national representative survey of U.S. dentists indicate that the majority use patient health history forms that include questions about substance misuse. Yet, almost one-half of dentists did not agree that such screening should be part of their professional role. These findings underscore a significant barrier in dentists' attitudes that may limit the potential of the dental venue to play a role in screening for substance misuse.

Experience and knowledge about this sensitive subject matter proved to be the most influential characteristics associated with dentists' use of a health history form that inquires about patient substance misuse and their acceptance of such screening within their clinical practice. These findings suggest the need to educate dentists in the clinical management of substance misusers and to increase their awareness, comfort and knowledge in this subject matter. Similarly, training that leads to increased confidence and communication skills should be extended beyond just illicit substance misuse to include training in prescription substance misuse query, since dentists are leading prescribers of such medications.^{23,24,32}

Given that dentists may encounter patients with substance use disorders, dentists are well situated to make appropriate referrals to treatment centers if instilled with the proper training and supports. Such trainings should include an introduction to the standardized screening measures that have been validated and published for use in healthcare settings. Such measures, including the National Institute on Drug Abuse (NIDA) Quick Screen and the Drug Abuse Screening Test (DAST), provide dialogues that dentists can use to introduce the sensitive topic of substance misuse to patients and provide clinical screenings and referrals accordingly.^{28,33}

Training programs for dentists and dental students have been implemented to include evidence-based techniques in such areas as motivational interviewing, smoking cessation counseling, dental treatment of HIV+ patients, and early detection of child abuse and neglect. These have been accompanied by documented changes in dentists' confidence, behaviors, and practices.³⁴⁻³⁹ Within the medical community, brief trainings for medical residents in the management of substance misuse have shown improvements in substance misuse inquiry, notably due to increased provider confidence and treatment optimism.⁴⁰ To our knowledge, training programs for dentists in the area of substance misuse have not been systematically investigated. Little is also known about the implementation of substance misuse education in dental schools; only one study since 1986 has evaluated the extent of substance misuse in pre-doctoral curricula. In this 2011 study of U.S. and Canadian dental schools, the authors noted that substance misuse and dependence received less coverage in the four year curricula, compared to coverage on tobacco and alcohol misuse.⁴¹ Older dentists were less likely to report that their patient health history forms included questions about substance misuse. It is possible that younger dentists are exposed to different normative messages that are more progressive and non-traditional about the role of the dentist during their clinical training, making them more willing to view the dentist as an 'oral health physician.'⁴² However, until substance misuse training becomes a more mainstream component of the dental curricula, dentists may not have the proper guidance to effectively engage and query patients about such sensitive issues.

For those substance misusers who do utilize dental services, available studies suggest a strong reluctance to divulge information about substance use behaviors due to fears of prosecution, legal implications, stigma, being ostracized, and loss of privacy.^{10,29} In order for substance misuse screening to be compatible with the dental setting, two-way communication between patient and dentist needs to occur more openly. While this study did not assess patient attitudes directly, patient surveys have shown that patients are amenable to receiving medical screenings chairside in the dental setting for such conditions as HIV, heart disease, and diabetes.²⁷ Further studies directly addressing patient attitudes on substance misuse screening in the dental setting, especially if they were to coincide with improvements in dentists' training, attitudes, practices, and knowledge, would be beneficial in continuing to identify the determinants of patients' acceptance of such services.

The results of our study represent the only nationally representative survey of dentists that captures information on their practices and acceptance of routine substance misuse screening in the dental setting, to our knowledge. The high response rate (70.7%) of our sample helps ensure that we accurately captured a complete description of the dental workforce's responses to our study questions.

Despite these strengths, some limitations should be noted. A cross-sectional survey cannot fully explore causal relationships important to policy interventions. For example, dentists with the highest level of familiarity and concern may differentially seek further training in this area. Rigorous experimental trials would allow greater causal understanding in this area. Furthermore, while the patient health history form used in the practice setting may include questions about substance misuse, this does not indicate that the dentist addresses this issue with all or some of his/her patients. Also, we only inquired about basic screening, as

opposed to evidence-based screening or administration of standardized measures, and it is also possible that screening may differ by different demographics. There also lies a clear distinction between simply screening patients versus referring patients and engaging in long-term follow-up, which may require additional training and resources. It is therefore important that future studies utilize research-based principles to inform and assess instruments used in the dental setting to most effectively support and guide routine screening in given populations and assess dentists' experience with providing such assessments and referrals. Additionally, the recency of training with regard to substance use in the clinical setting is unknown, making it difficult to evaluate the effectiveness of training on screening. Finally, survey responses may reflect social desirability bias, and dentists' knowledge and training in substance misuse may actually be lower than our estimates suggest.

In our current healthcare system, only about ten percent of substance misusers are able to access available specialty substance use treatment programs, prompting the White House's 2014 National Drug Control Strategy to raise efforts to reduce substance use disorders by expanding access to treatment.^{1,2,43} Given that the dental setting is potentially well-suited to identify and intervene with such misusers, supplementary research assessing other related issues that may influence dental providers' acceptance of substance use screenings, such as the capacity of financial incentives to influence providers' attitudes and practices, would be useful in continuing to identify the feasibility and adoption of substance misuse screening as part of the mainstream dental visit.

Acknowledgements

Not applicable

Conflict of Interest Declaration

Funding for this study was provided by the National Institute of Dental and Craniofacial Research [R01 DE019615].

References

1. Substance Abuse and Mental Health Services Administration (SAMHSA). Results from the 2012 National survey on drug use and health: Summary of national findings, NSDUH. Series H-46. 2013; HHS Publication No. (SMA) 13-4795
2. National Institute on Drug Abuse. [July 27, 2014] Drug facts: Treatment statistics. 2011. <http://www.drugabuse.gov/publications/drugfacts/treatment-statistics#sources>.
3. Centers for Disease Control National Center for Health Statistics. [July 27, 2014] Ambulatory care use and physician office visits. <http://www.cdc.gov/nchs/fastats/physician-visits.htm>.
4. Strauss SM, Alfano MC, Shelley D, Fulmer T. Identifying unaddressed systemic health conditions at dental visits: Patients who visited dental practices but not general health care providers in 2008. *Am J Public Health*. 2012; 102(2):253–255. [PubMed: 22390440]
5. Pollack HA, Pereyra M, Parish CL, et al. Dentists' willingness to provide expanded HIV screening in oral health care settings: Results from a nationally representative survey. *Am J Public Health*. 2014; 104(5):872–880. [PubMed: 24625163]
6. Greenberg BL, Glick M, Frantsve-Hawley J, Kantor ML. Dentists' attitudes toward chairside screening for medical conditions. *J Am Dent Assoc*. 2010; 141(1):52–62. [PubMed: 20045822]
7. Northridge ME, Glick M, Metcalf SS, Shelley D. Public health support for the health home model. *Am J Public Health*. 2011; 101(10):1818–1820. [PubMed: 21852649]

8. Ilgen M, Edwards P, Kleinberg F, Bohnert AS, Barry K, Blow FC. The prevalence of substance use among patients at a dental school clinic in Michigan. *J Am Dent Assoc.* 2012; 143(8):890–896. [PubMed: 22855903]
9. American Dental Association. [February, 2014] Downloadable ADA health history form, 2007. <http://catalog.ada.org/ProductCatalog/1158/Forms/Downloadable-ADA-Health-History-Form/S500D>. Updated 2007.
10. Wang P, Chen X, Zheng L, Guo L, Li X, Shen S. Comprehensive dental treatment for “meth mouth”: A case report and literature review 2012. *J Formos Med Assoc.* 2014; 113(11):867–71. [PubMed: 25443354]
11. Padilla R, Ritter AV. Meth mouth: Methamphetamine and oral health. *J Esthet Restor Dent.* 2008; 20(2):148–149. [PubMed: 18380848]
12. Hamamoto DT, Rhodus NL. Methamphetamine abuse and dentistry. *Oral Dis.* 2009; 15(1):27–37. [PubMed: 18992021]
13. Laslett AM, Dietze P, Dwyer R. The oral health of street-recruited injecting drug users: Prevalence and correlates of problems. *Addiction.* 2008; 103(11):1821–1825. [PubMed: 19032532]
14. Reece AS. Dentition of addiction in Queensland: Poor dental status and major contributing drugs. *Aust Dent J.* 2007; 52(2):144–149. [PubMed: 17687962]
15. Denisco RC, Kenna GA, O’Neil MG, et al. Prevention of prescription opioid abuse: The role of the dentist. *J Am Dent Assoc.* 2011; 142(7):800–810. [PubMed: 21719802]
16. Laslett AML, Crofts JN. “Meth mouth”. *Medical Journal of Australia.* 2007; 186:661. [PubMed: 17576191]
17. Hersh EV, Moore PA. Adverse drug interactions in dentistry. *Periodontology.* 2008; 46:109–142.
18. Shekarchizadeh H, Khami MR, Mohebbi SZ, Virtanen JI. Oral health behavior of drug addicts in withdrawal treatment. *BMC Oral Health.* 2013; 13:11–6831-13-11. [PubMed: 23368406]
19. Morio KA, Marshall TA, Qian F, Morgan TA. Comparing diet, oral hygiene and caries status of adult methamphetamine users and nonusers: A pilot study. *J Am Dent Assoc.* 2008; 139(2):171–176. [PubMed: 18245685]
20. Sheridan J, Aggleton M, Carson T. Dental health and access to dental treatment: A comparison of drug users and non-drug users attending community pharmacies. *Br Dent J.* 2001; 191(8):453–457. [PubMed: 11720019]
21. Donaldson M, Goodchild JH. Oral health of the methamphetamine abuser. *Am J Health Syst Pharm.* 2006; 63(21):2078–2082. [PubMed: 17057044]
22. Menegatos L. Why dental practitioners need to understand substance use and abuse. *Journal of the Arizona Dental Association.* 2011; 25(13):42–43.
23. Ashrafioun L, Edwards PC, Bohnert AS, Ilgen MA. Nonmedical use of pain medications in dental patients. *Am J Drug Alcohol Abuse.* 2014; 40(4):312–316. [PubMed: 24963730]
24. Rigoni, GC. [January 27, 2014] Drug utilization for immediate- and modified release opioids in the US. 2003. www.fda.gov/ohrms/DOCKETS/ac/03/slides/3978S1_05_Rigoni.ppt.
25. McNeely J, Wright S, Matthews AG, et al. Substance-use screening and interventions in dental practices: Survey of practice-based research network dentists regarding current practices, policies and barriers. *J Am Dent Assoc.* 2013; 144(6):627–638. [PubMed: 23729460]
26. Tufts Health Care Institute Program on Opioid Risk Management. The role of dentists in preventing opioid abuse. [Executive summary]. Mar.2010
27. Greenberg BL, Kantor ML, Jiang SS, Glick M. Patients’ attitudes toward screening for medical conditions in a dental setting. *J Public Health Dent.* 2012; 72(1):28–35. [PubMed: 22316147]
28. National Institute on Drug Abuse. [September 22, 2014] The NIDA quick screen. Resource guide: Screening for drug use in general medical settings. 2012. <http://www.drugabuse.gov/publications/resource-guide-screening-drug-use-in-general-medical-settings/nida-quick-screen>.
29. McDaniel TF, Miller D, Jones R, Davis M. Assessing patient willingness to reveal health history information. *J Am Dent Assoc.* 1995; 126(3):375–379. [PubMed: 7897107]
30. Likert R. A technique for the measurement of attitudes. *Archives of Psychology.* 1932; 140:1–55.
31. Zou G. A modified poisson regression approach to prospective studies with binary data. *Am J Epidemiol.* 2004; 159(7):702–706. [PubMed: 15033648]

32. Volkow ND, McLellan TA, Cotto JH, Karithanom M, Weiss SR. Characteristics of opioid prescriptions in 2009. *JAMA*. 2011; 305(13):1299–1301. [PubMed: 21467282]
33. Skinner HA. The drug abuse screening test. *Addict Behav*. 1982; 7(4):363–371. [PubMed: 7183189]
34. Rogers TC, Zaninovic P, Urankar YR, et al. An innovative HIV training program for dental students. *J Dent Educ*. 2011; 75(11):1426–1433. [PubMed: 22058391]
35. Hinz JG. Teaching dental students motivational interviewing techniques: Analysis of a third-year class assignment. *J Dent Educ*. 2010; 74(12):1351–1356. [PubMed: 21123502]
36. Warnakulasuriya S. Effectiveness of tobacco counseling in the dental office. *J Dent Educ*. 2002; 66(9):1079–1087. [PubMed: 12374269]
37. Koerber A, Crawford J, O'Connell K. The effects of teaching dental students brief motivational interviewing for smoking-cessation counseling: A pilot study. *J Dent Educ*. 2003; 67(4):439–447. [PubMed: 12749573]
38. Ivanoff CS, Hottel TL. Comprehensive training in suspected child abuse and neglect for dental students: A hybrid curriculum. *J Dent Educ*. 2013; 77(6):695–705. [PubMed: 23740906]
39. Mulligan R, Seirawan H, Galligan J, Lemme S. The effect of an HIV/AIDS educational program on the knowledge, attitudes, and behaviors of dental professionals. *J Dent Educ*. 2006; 70(8):857–868. [PubMed: 16899445]
40. Gunderson EW, Levin FR, Owen P. Impact of a brief training on medical resident screening for alcohol misuse and illicit drug use. *Am J Addict*. 2008; 17(2):149–154. [PubMed: 18393059]
41. Huggett KN, Westerman GH, Barone EJ, Lofgreen AS. Substance use and dependence education in predoctoral dental curricula: Results of a survey of U.S. and Canadian dental schools. *J Dent Educ*. 2011; 75(8):1003–1009. [PubMed: 21828293]
42. Giddon DB. Should dentists become 'oral physicians'? Yes, dentists should become 'oral physicians'. *J Am Dent Assoc*. 2004; 135(4):438–439. [PubMed: 15127865]
43. White House Office of National Drug Control Policy. [September 22, 2014] 2014 national drug control strategy. <http://www.whitehouse.gov/ondcp/national-drug-control-strategy>.

Table 1

Dentists' Attitude to Role in Screening and Health History Form Screening, by Dentists' Characteristics
(weighted proportions)

	Overall (N=1802) *		Agrees that screening for illicit drug use should be part of the dentist's role		Patient health history form includes questions about illicit drug use	
	No. *	%	%	p value	%	p value
Sample Stratum				0.320		0.434
Ryan White EMAs	1,168	41.8%	54.8%		76.1%	
Non-Ryan White Metropolitan Areas	212	46.6%	54.1%		79.2%	
Non-Ryan White Micropolitan Areas	112	7.5%	54.3%		74.0%	
Rural Areas	116	3.9%	40.9%		72.5%	
Public Health Dentists	194	0.3%	63.3%		76.6%	
Age				<0.001		<0.001
<=52 years	860	47.0%	61.9%		83.7%	
>=53 years	918	53.0%	46.9%		71.7%	
Gender				0.034		0.226
Female	439	21.7%	61.2%		80.7%	
Male	1,347	78.3%	52.0%		76.4%	
Race				0.063		0.107
White	1,298	78.6%	51.4%		76.6%	
Black/African American	93	3.5%	54.0%		79.4%	
Asian	252	13.7%	64.8%		83.4%	
Other	122	4.2%	58.4%		63.6%	
Primary Practice Setting				0.065		0.039
Private solo practice	1,063	65.4%	50.9%		74.4%	
Private group practice	465	30.0%	58.8%		82.8%	
Public Health	194	0.3%	63.3%		76.6%	
Other	80	4.3%	64.7%		80.7%	
Treats Medicaid Patients				0.575		0.153
No	1,236	71.6%	53.3%		78.8%	
Yes	528	28.4%	55.6%		73.9%	
Year graduated				0.002		<0.001
<1970	128	7.3%	43.0%		55.7%	
1970-1979	444	25.0%	45.9%		74.6%	
1980-1989	581	33.6%	52.3%		77.1%	
1990-1999	335	17.5%	60.8%		85.3%	
2000+	279	16.6%	65.5%		85.0%	
Amount of training received in alcohol and illicit drug use (hours)				<0.001		<0.001
none	607	34.9%	33.9%		67.1%	

	Overall (N=1802) *		Agrees that screening for illicit drug use should be part of the dentist's role		Patient health history form includes questions about illicit drug use	
	No. *	%	%	p value	%	p value
<1	333	17.8%	54.1%		80.0%	
1-4	460	24.6%	66.1%		80.9%	
5-8	184	12.1%	71.4%		88.0%	
> 8	191	10.7%	69.7%		85.1%	
Self-reported clinical knowledge about illicit drug use				<0.001		<0.001
None/Limited	382	21.7%	30.4%		61.3%	
Moderate	764	42.7%	48.9%		76.9%	
Good	543	30.5%	73.3%		86.9%	
Excellent	102	5.2%	79.5%		94.3%	
Patient health history form includes questions about illicit drug use				<0.001		
No	424	22.8%	34.1%			
Yes	1,361	77.2%	59.4%			
Agrees that screening for illicit drug use should be part of the dentist's role						<0.001
No	794	46.1%			68.2%	
Yes	983	53.9%			85.8%	

* unweighted

Table 2

Correlates of Agreement with Screening as Part of Dentist's Role and Health History Form Query on Illicit Drug Use: Risk Ratio Estimation by Poisson Regression with Robust Error Variance" (Adjusted rate ratios and 95% Confidence Intervals)

	Agrees that screening for illicit drug use should be part of the dentist's role (n=1706)		Patient health history form includes questions about illicit drug use (n=1693)	
	Adj. Rate Ratio	95% C.I.	Adj. Rate Ratio	95% C.I.
Stratum				
Ryan White EMAs	0.937	0.832 - 1.056	1.025	0.941 - 1.118
Non-Ryan White Metropolitan Areas	0.911	0.774 - 1.071	1.049	0.943 - 1.166
Non-Ryan White Micropolitan Areas	0.985	0.819 - 1.185	1.018	0.891 - 1.163
Rural Areas	0.670	0.524 - 0.856	0.982	0.854 - 1.130
Public Health Dentists	1.0		1.0	
Race				
White	1.0		1.0	
Black/African American	1.060	0.888 - 1.265	1.048	0.940 - 1.169
Asian	1.170	1.050 - 1.304	1.041	0.971 - 1.116
Other	1.142	0.998 - 1.307	0.916	0.819 - 1.025
Age (years)	0.998	0.994 - 1.001	0.996	0.993 - 0.998
Amount of training received in alcohol and illicit drug use (hours)				
none	1.0		1.0	
<1	1.280	1.103 - 1.487	1.095	1.006 - 1.192
1-4	1.542	1.353 - 1.759	1.116	1.033 - 1.205
5-8	1.517	1.310 - 1.758	1.209	1.117 - 1.310
> 8	1.389	1.191 - 1.621	1.122	1.024 - 1.228
Self-reported clinical knowledge about illicit drug use				
None/Limited	1.0		1.0	
Moderate	1.334	1.130 - 1.574	1.203	1.095 - 1.323
Good	1.798	1.523 - 2.123	1.297	1.177 - 1.428
Excellent	1.980	1.641 - 2.389	1.394	1.249 - 1.555