



“The tooth,
the whole tooth and
nothing but the tooth”

Part 2

Oral Health of Drug Users:
A Review of Oro-Dental
Health Effects and Oral
Health Care Approaches

**Drs. Chetan Mehta and
Sam Frydman**

Substance use and oral health

- Substance use has both direct and indirect serious consequences to oral health
- Published data about epidemiology, pathological time course, clinical presentation, and effective treatment and preventive strategies regarding oral health among drug substance users worldwide are lacking

Laslett AM, Dietze P, Dwyer R (2008). The oral health of street-recruited injecting drug users: prevalence and correlates of problems. *Addiction*, 103 (11): 1821-5.

Robinson PG, Acquah S, Gibson B (2005). Drug users: oral health-related attitudes and behaviours. *Br Dent J*, 198 (4): 219-24.

Oral health consequences of illicit drug use

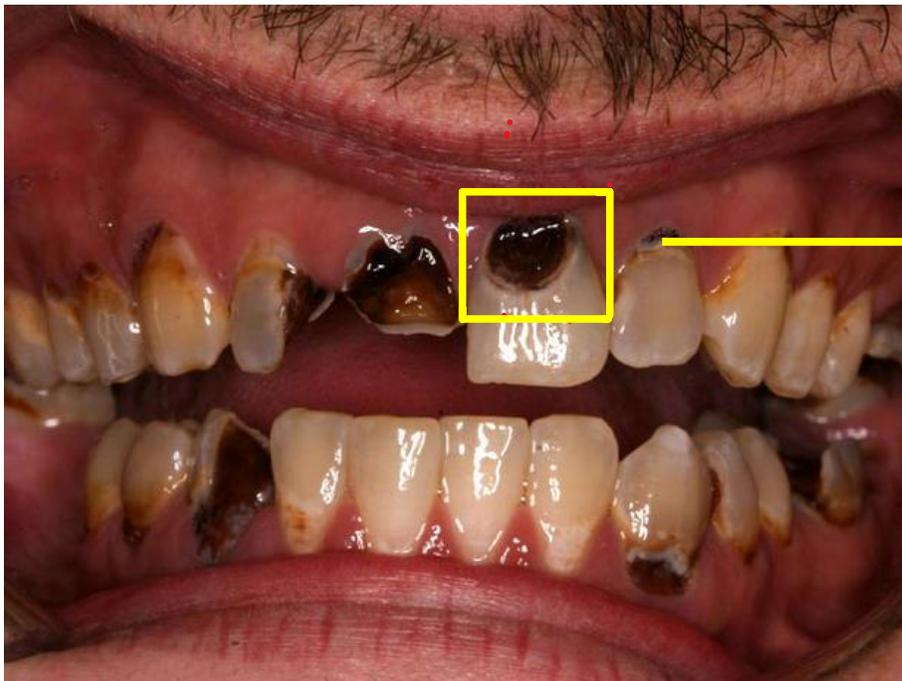
- Direct exposure of oral tissues to drugs during smoking or ingestion produce a chemo-biologic interaction, perturbing normal physiology of the oral cavity
- Effects of drugs on brain function result in a spectrum of addictive behaviors such as risk-taking behavior, poor hygiene, aggression, altered self-esteem and carelessness

Hajar SHEKARCHIZADEH, Mohammad R. KHAMI, Simin Z. MOHEBBI, Hamed EKHTIARI, Jorma I. VIRTANEN (2013)
Oral Health of Drug Abusers: A Review of Health Effects and Care *Iranian J Publ Health*, Vol. 42, No. 9, Sep 2013, pp.929-940

Oral health problems associated with opiates

- In opiate drug users: tooth loss, tooth extractions, and generalized tooth decay especially on smooth surfaces and along the gumline are common

Rees TD (1992). Oral effects of drug abuse. *Crit Rev Oral Biol Med*, 3(3):163-84.



Oral health problems associated with opiates

- In opiate drug users: salivary hypofunction among these patients leads to xerostomia, burning mouth, taste impairment, eating difficulties, mucosal infections, and periodontal diseases

Titsas A, Ferguson MM (2002). Impact of opioid use on dentistry. *Aust Dent J*, 47 (2): 94-8.



Oral health problems associated with opiates

- In heroin users: a study on heroin injectors reported that **regardless of their oral hygiene**, these patients suffer from progressive dental caries. Caries (decay/cavity) in these patients is darker and usually limited to buccal and labial surfaces. This pattern is pathognomonic for heroin abuse

Ma H, Shi XC, Hu DY, Li X (2012). The poor oral health status of former heroin users treated with methadone in a Chinese city. *Med Sci Monit*, 18 (4): PH51-5.

Picozzi A, Dworkin SF, Leeds JG, Nash J (1972). Dental and associated attitudinal aspects of heroin addiction: a pilot study. *J Dent Res*, 51 (3): 869.

Madinier I, Harrosch J, Dugourd M, Giraud-Morin C, Fosse T (2003). The buccal-dental health of drug addicts treated in the University hospital centre in Nice. *Presse Med*, 32 (20):919-23.

Lowenthal AH (1967). Atypical caries of the narcotics addict. *Dent Surv*, 43 (12): 44-7.



Oral health problems associated with opioids

- In opioid users: bruxism, candidiasis is seen.

Titsas A, Ferguson MM (2002). Impact of opioid use on dentistry. Aust Dent J, 47 (2): 94-8



Oral health problems associated with opioids

- In opioid users: mucosal dysplasia is also seen. However, insufficient evidence exists to support a theory of a higher prevalence of oral cancer specifically in opioid users

Llewelyn J, Mitchell R (1994). Smoking, alcohol and oral cancer in south east Scotland: a 10-year experience. *Br J Oral Maxillofac Surg*, 32 (3):146-52.



Oral health problems associated with cannabis

- Cannabis use, mainly hashish and marijuana, leads to increased risk of oral cancer, dry mouth, and periodontitis, leukoedema

Thomson WM, Poulton R, Broadbent JM, Moffitt TE, Caspi A, Beck JD, Welch D, Hancox RJ (2008). Cannabis smoking and periodontal disease among young adults. *JAMA*, 299 (5):525-31.

Ahrens AGMS, Bressi T (2007). Marijuana as promoter for oral cancer? More than a suspect. *Addictive Disorders & Their Treatment*, 6 (3): 117.

Fazzi M, Vescovi P, Savi A, Manfredi M, Peracchia M (1999). The effects of drugs on the oral cavity. *Minerva Stomatol*, 48 (10): 485.

Di Cugno F, Percec CJ, Tocci AA (1981). Salivary secretion and dental caries experience in drug addicts. *Arch Oral Biol*, 26 (5): 363-7.

Oral health problems associated with stimulants

- Stimulants including amphetamine, methamphetamine, cocaine, and crack-cocaine have significant adverse effects on oral and dental health
- Oral administration of cocaine may result in gingival lesions, gingival recession, and bruxism
- Methamphetamine users show bruxism, excessive tooth wear, xerostomia, and rampant caries (**so-called meth mouth**), and TMJ pain

ADA Division of Communications; JADA; ADA Division of Scientific Affairs (2005). For the dental patient ... methamphetamine use and oral health. J Am Dent Assoc, 136 (10): 1491.

Hamamoto DT, Rhodus NL (2009). Methamphetamine abuse and dentistry. Oral Dis, 15 (1):27-37.

Morio KA, Marshall TA, Qian F, Morgan TA (2008). Comparing diet, oral hygiene and caries status of adult methamphetamine users and nonusers: a pilot study. J Am Dent Assoc, 139(2): 171-6.

Blanksma CJ, Brand HS (2005). Cocaine abuse: orofacial manifestations and implications for dental treatment. Int Dent J, 55 (6): 365-9.

Kapila YL, Kashani H (1997). Cocaine-associated rapid gingival recession and dental erosion. A case report. J Periodontol, 68 (5): 485-8.

Oral health problems associated with hallucinogens

- Hallucinogens such as MDMA (ecstasy) and LSD result in several oral complications including dry mouth, bruxism, and problems associated with malnutrition caused by drug-induced anorexia
- Chewing, grinding, and temporomandibular joint (TMJ) tenderness are frequently reported by ecstasy users
- Topical use of ecstasy may result in oral-tissue necrosis and mucosal fenestration

Brazier WJ, Dhariwal DK, Patton DW, Bishop K (2003). Ecstasy related periodontitis and mucosal ulceration -- a case report. *Br Dent J*, 194 (4): 197-9.

Brand HS, Dun SN, Nieuw Amerongen AV (2008). Ecstasy (MDMA) and oral health. *Br Dent J*, 204 (2): 77-81

Fazzi M, Vescovi P, Savi A, Manfredi M, Peracchia M (1999). The effects of drugs on the oral cavity. *Minerva Stomatol*, 48 (10): 485.

Indirect effects of drugs on oral health

- Poor oral hygiene, increased sugar intake, and inappropriate nutrition are examples. Furthermore, a low priority set on oral health associated with a need to obtain drugs, fear of dentists, dental service accessibility, needle-phobia, self-medication, low socioeconomic status, limited education and structural factors in their life style lead to low use of dental services
- A documented higher rate of traumatic orofacial injuries occurs among drug users; such as fractured teeth or tooth loss and fractures of the maxilla and mandible following accidents or fights

Zador D, Lyons Wall PM, Webster I (1996). High sugar intake in a group of women on methadone maintenance in south western Sydney, Australia. *Addiction*, 91 (7): 1053-61.

Scheutz F (1984). Dental health in a group of drug addicts attending an addiction-clinic. *Community Dent Oral Epidemiol*, 12 (1): 23-8.

Reece AS (2007). Dentition of addiction in Queensland: poor dental status and major contributing drugs. *Aust Dent J*, 52 (2): 144-9.

Robinson PG, Acquah S, Gibson B (2005). Drug users: oral health-related attitudes and behaviours. *Br Dent J*, 198 (4): 219-24.

Negative effects of opiate treatment on oral health

- Methadone—has several possible side-effects on oral health. High sugar content of an acidic nature, along with suppression of salivary secretion results in dental caries, erosion, and xerostomia. The status turns even more severe when patients hold this sugary syrup in their mouth to increase absorption time or to regurgitate it for later injection or sale.
POSSIBLE INTERVENTIONS — Sugar-free solutions (without Tang), however, may reduce the risk of dental caries. (*study unproven*) Consumption through straws (*study unproven*); combined with thorough rinsing with water or Peridex after consumption may reduce dental decay (*study unproven*). Brush (disposable), after consumption, with 0.2% fluoride rinse (*study unproven*)

Nathwani NS, Gallagher JE (2008). Methadone: dental risks and preventive action. Dent Update, 35 (8): 542-4, 547-8.

Charnock S, Owen S, Brookes V, Williams M (2004). A community based programme to improve access to dental services for drug users. Br Dent J, 196 (7): 385-8.

Negative effects of opiate treatment on oral health

- Buprenorphine (Suboxone)—Patients in a case series reported taking the medication approximately 3 times a day, each tablet taking about 9 minutes to completely dissolve. The prolonged contact between tooth surfaces with buprenorphine/naloxone, therefore, may be a contributing factor in the alteration of tooth surface microbial profile and/or the pH to promote dental caries, similar to what has been previously reported in patients who use methamphetamine
- The majority (> 90%) of the case series patients had a low or moderate salivary buffering capacity. Less than 50% of the general population (aged 18-65 years) are thought to have a low or moderate buffering capacity

Joji Suzuki, MD; Leena Mittal, MD; and Sook-Bin Woo, DMD, MMSc (2013) Sublingual Buprenorphine and Dental Problems: A Case Series *Prim Care Companion CNS Disord* 2013;15(5)

Hamamoto DT, Rhodus NL. (2009) Methamphetamine abuse and dentistry. *Oral Dis.*2009;15(1):27-37

Negative effects of opiate treatment on oral health

- Morphine [extended release] (Kadian)—Capsule must be swallowed whole, or contents must be sprinkled on applesauce and immediately swallowed; must not be chewed, crushed, or dissolved. Swallowed capsule has no reported dental effects, except xerostomia (5-10%). Applesauce approach has not been studied but presumptions of comparable issues as methadone mixed with Tang.
- Meta-analysis of existing randomised trials (Klimas) suggests SROM may be generally equal to methadone in retaining patients in treatment and reducing heroin use while potentially resulting in less craving. If this is considered valid; the swallowed capsule method may be the least impactful to oro-dental health and **a response to objections by users to OAT**

Jan Klimas, Lauren Gorfinkel, Salvatore M Giacomuzzi, Christian Ruckes, M Eugenia Socías, Nadia Fairbairn, Evan Wood (2019) *BMJ Open* 2019;9
Medscape.com — **morphine (Rx)**

Investigating oral health conditions in drug users

- Evaluating the status of oral health among drug substance users would be possible by either objective or subjective methods.
- Objective evaluation via clinical examination may serve to identify specific patterns of oral conditions related to drugs, to determine appropriate dental indices in order to investigate substance users' oral health, and to identify effects of substance use treatment protocols on their oral condition.
- Subjective evaluation via questionnaire or interview provides information on the self-perception of participants, including self-perceived oral health and its association with occurrence and relapse of substance use, self-perceived barriers against dental service utilization, oral health behavior, and oral health-related quality of life.

The role of oral health care in substance use rehabilitation

- Drug withdrawal may result in dental pain which interferes with OAT treatment procedure and may lead to relapse
- French case-control study of the impact of illicit drugs on oral health and the use of drugs for toothache, 52% of intravenous heroin users and 21% of other illicit drug users admitted using drugs as pain-killers
- Those substance use treatment centers which provide Oral Health Care seem to be more successful in promoting both the oral and general health of their patients

Fan J, Hser YI, Herbeck D (2006). Tooth retention, tooth loss and use of dental care among long-term narcotics abusers. *Subst Abus*, 27 (1-2): 25-32.

Bullock K (1999). Dental care of patients with substance abuse. *Dent Clin North Am*, 43 (3):513-26.

Madinier I, Harrosch J, Dugourd M, Giraud-Morin C, Fosse T (2003). The buccal-dental health of drug addicts treated in the University hospital centre in Nice. *Presse Med*, 32 (20):919-23.

Challenges to provision of an evidence-based picture of the oral health situation

- Problems with drug users' cooperation with and compliance in oral health studies, problems with their long-term follow-up are common
- The complex and chaotic nature of drug use makes it difficult to provide comprehensive dental care

Ribeiro Edel P, Oliveira JA, Zambolin AP, Lauris JR, Tomita NE (2002). Integrated approach to the oral health of drug-addicted undergoing rehabilitation. *Pesqui Odontol Bras*, 16 (3): 239.

Reece AS (2007). Dentition of addiction in Queensland: poor dental status and major contributing drugs. *Aust Dent J*, 52 (2): 144-9.

Robinson PG, Acquah S, Gibson B (2005). Drug users: oral health-related attitudes and behaviours. *Br Dent J*, 198 (4): 219-24

Challenges in providing and implementing effective treatments/interventions

- Dental professionals usually have negative attitudes toward and unwillingness to treat substance use dental patients
- Substance users have many barriers to accessing and adhering to preventive dental health care, including a low demand for non-emergency dental, resulting in poor compliance
- Lack of appropriate policies to improve access to oral health services
- Poor collaboration between dental and general health care sectors

Metsch LR, Crandall L, Wohler-Torres B, Miles CC, Chitwood DD, McCoy CB (2002). Met and unmet need for dental services among active drug users in Miami, Florida. *J Behav Health Serv Res*, 29 (2): 176-88.

Sheridan J, Aggleton M, Carson T (2001). Dental health and access to dental treatment: a comparison of drug users and non-drug users attending community pharmacies. *Br Dent J*, 191(8): 453-7.

Dawkes M, Sparkes S, Smith M (1995). Dentists' responses to drug misusers. *Health Trends*, 27(1): 12-4.

Robbins JL, Wenger L, Lorvick J, Shiboski C, Kral AH (2010). Health and oral health care needs and health care-seeking behavior among homeless injection drug users in San Francisco. *J Urban Health*, 87 (6): 920-30.

Oral health care interventions for drug users

- Collaboration with local general dentists, and independent dental hygienists, willing to accept dental plans offered by ODSP and OW would benefit OAT patients
- Dental services should be established in substance use rehabilitation centers to improve access to dental treatment
- Dentists should be empowered in the following domains to provide treatment services for substance users:
 - Diagnosis and management of oral problems in substance users
 - Management of systemic disorders related to substance use during dental treatments
 - Behavioral and psychological management of substance users during dental care
 - Encouraging dentists' positive attitude toward drug users
 - Cross-infection control of blood-borne diseases

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Oral health care interventions for drug users

- Managing non-dental/non-periodontal problems (i.e. peri-oral/intra-oral lesions)
 - Refer to Oral Surgeon/Oral Medicine specialist
- Managing xerostomia
 - Sialogogues can be given: sugar-free chewing gum containing xylitol or sugar free menthol or lemon candies stimulate salivary flow. Salivary flow can be restored through the use of parasympathomimetics, such as pilocarpine
- Managing periodontal problems
 - Oral evaluation and care program designed and delivered general dentist or independent hygienist
- Managing caries, fractured, missing teeth
 - Remineralizing and desensitising agents, such as fluoride and potassium nitrate, respectively, could be applied in conjunction with restorative and other preventive measures by general dentist.

Conclusion

- It is difficult to identify and isolate the root causes of oral diseases among substance users, since they show a variety of unhealthy behaviors
- Provision of effective Oral Health Care for drug users, with or w/o OAT, seems to face challenges including
 - difficulty to access substance users as a target population,
 - lack of appropriate settings to conduct oral health studies,
 - lack of valid inventories and assessment protocols to detect common oro-dental pathologies among drug users,
 - poor collaboration between dental and general health care sectors serving drug users,
 - lack of appropriate policies to improve access to dental services by these patients,
 - lack of comprehensive knowledge of and interest among dental professionals in treating substance users,
 - and low demand for non-emergency dental care among these patients
- ***Notwithstanding above***, Oral Health Care programs should be integrated into general care services already available for drug users (e.g. CAMH, Queen West Community Centre). Consider arrangements with **independent dental hygienists** in your area
- Dental services should be established in OAT centers to improve access to dental treatment
- **Share this slide deck with fellow medical and dental professionals**

Resources – embedded pdfs



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22.01.24 A Call for the FDA to
Retract its 1.12.2022 Safety
Communication Regarding
Buprenorphine



Adobe Acrobat
Document

22.01.12 FDA warns about
dental problems with
buprenorphine medicines
dissolved in the mouth



Adobe Acrobat
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Free or Low Cost Dental
Resources in the Toronto Region
Updated Oct 2021



Adobe Acrobat
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Methadone Fact Sheet FINAL
Ont Dental Hygiene Assoc 2016



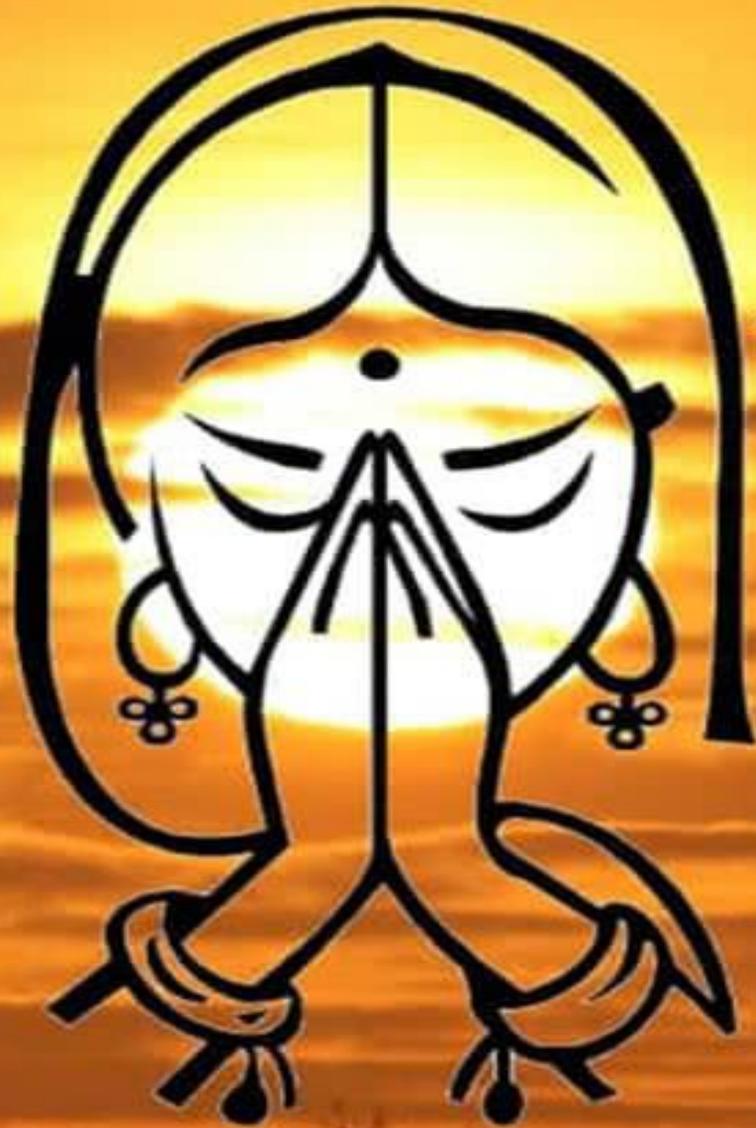
Adobe Acrobat
Document

Methadone and Oral Health
A Brief Review - Mar 2011
Am Dental Hygienists Assoc



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Document

[https://odha.on.ca/independent
-dental-hygienists-toronto/](https://odha.on.ca/independent-dental-hygienists-toronto/)
Ont Dental Hygiene Assoc 2022



Namaste



Questions???

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