

## **The Stages of Dental CAR<sub>x</sub>E: a module for Tobacco Cessation**

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### **Abstract**

**Introduction:** With the rising numbers of fatality due to tobacco usage in the recent years, the era of health counseling is moving its focus towards comprehensive tobacco cessation counseling. Dentists constitute a large population of health workers and encounter such cases on a daily basis. They can apply their knowledge of the subject and habits, to provide effective counseling and motivation, contributing to a tobacco free world. However, till now there isn't a standard guideline that dentists can follow for the same Thus, there is a need a stepwise approach catering dental profession to aid in tobacco cessation.

**Methods:** The aim of this study was to develop a module for tobacco cessation activities, tailor-made for dental professionals. Thorough reading of related literature and professional interactions with those of the field was done.

The outcome was CAR<sub>x</sub>E which is a process for oral physicians worldwide to aid in curbing tobacco menace.

**Results:** The module has been applied and being tested and so far, more than 10 people have found to give encouraging results. More and more oral physicians should practice tobacco quit procedures and this module provides the steps to follow.

**Conclusion:** The following paper proposes a novel dental approach to practice tobacco quit counseling. This can be incorporated in dental workplaces, such as dental colleges, corporate set-ups, camps, hospitals and private dental clinics.

### **Introduction**

Tobacco use is a menace. It causes serious toll to health (dental as well) and resources of the nation. It is a global epidemic and poses substantial threat to health burden and costs<sup>1</sup>. According to GATS-India data, India ranks highest

in prevalence of usage of smokeless tobacco followed by smoking and dual use of tobacco among both males and females<sup>2</sup>. This essentially the need to approach the population and motivate them to terminate tobacco use. Though cigarette and bidi smoking are the commonest forms of tobacco smoked, other smokeless forms (like gutka, khaini, paan with chuna) are also equally deleterious for the human body.

Tobacco use owes its dependence to the addictive component 'nicotine' that is responsible for the release of neurotransmitters namely dopamine, serotonin, norepinephrine, stimulating the pleasure and mood areas of the brain<sup>3</sup>. Composed of about 5000 harmful chemicals, tobacco contains various carcinogenic elements like tar, carbon monoxide, radioactive substances and metals<sup>4</sup>. About 30% of the total estimated 13.8 lakh cancer cases in the country are attributed to tobacco cause as reported in 2015. The data from National Cancer Registry, suggests an increment of around 2.8 lakh new cancer cases to be expected every year<sup>5</sup>. With more and more professionals understanding the gravity of this menace, there are now many options available to aid tobacco quitters. These interventions include the conventional behavioral management through counseling and usage of pharmacotherapy either entirely or as adjunct.

One of the reason for low success to tobacco cessation is unplanned quit attempts and ineffective cessation aids. Many patients who attempt to quit are unknowing of the various course of actions available. The use of these options will be increased if dentists and clinicians constantly motivate their patients and aid them in quitting.

#### **Unique Role of Dentists in Tobacco Cessation (Background)**

The World Oral Health Report 2003 points out that "All health providers must be involved (in treatment of tobacco dependence), including oral health professionals who, in

many countries, reach out a large proportion of the healthy population"<sup>10</sup>.

Tobacco use has known to be associated with various oral infirmities like necrotizing ulcerative gingivitis, advanced chronic periodontitis, and increased risk of oral neoplasm<sup>6-9</sup>.

Consequently, oral health practitioners encounter a large fraction of the tobacco users. Dental practice is thus a potential zone for tobacco cessation activities.

Dental doctors can provide an essential role in tobacco control through their participation as educators, spokesperson, role models and advocates at the community level and nationally through professional organizations. They are well placed to recognize smokers and can identify the impact of tobacco use at early stages in the mouth<sup>13</sup>. Being cognizant of case identification, use-associated risks and health benefits of tobacco quitting, they can contribute massively in this domain. The commitment of the dental team (includes dentists, dental hygienists, and practice assistants), plays a major role in the primary or the secondary prevention of tobacco addiction, and is essential to achieve success in helping patient quit tobacco<sup>14</sup>. In a report by Carr (2006), interventions for cessation conducted by dental professionals increase abstinence rates in tobacco use at 12 months and longer<sup>15</sup>. An oral physician has access to children, youngsters and their families and can thus influence individuals to avoid, postpone initiation or quit using tobacco use before they become dependent strongly. Dental personnel spend abundant time with his patients and so can integrate education and intervention methods. Follow-up also is easier with dental patients, as treatments are usually spread over multiple appointments.

#### **Module for Tobacco Cessation at Dental Centre**

The CAR $\chi$ E process is an acronym for the steps in tobacco cessation, where each letter represents the stages to be followed in sequence (Figure 1).

Figure 1: C-A-R $\chi$ -E module stages in tobacco cessation.



**Stage I: Chair side Evaluation (Figure 2)**

Any investigation begins with a detailed *case history*. While routine examination of patients on dental chair, recording personal history would reveal tobacco-related habits and behaviors. Emphasis should be given to collect information pertaining to tobacco chewing or smoking prior to inspecting the oral cavity. Tobacco use is a cause of several dental problems, few being – halitosis, staining of teeth, dental caries, root exposure, loss of taste sensation and various other intra oral lesions<sup>16,17</sup>.

The next step involves *clinical recording* with a thorough oral examination, to observe discolored teeth, malodor, gingival recession, dental erosion, dental caries, periodontal disease, delayed wound healing, palatal and other mucosal lesions, like leukoplakia, submucous fibrosis, carcinoma etc (Table 1).<sup>18</sup> A breath analyser may also be used to record carbon monoxide levels. Apart from the chief area of concern i.e. oral cavity, dentist should conduct a *comprehensive physical exam* to record other signs of pathosis that tobacco usage can have. These can include staining of fingers/nails, clubbing, peripheral edema, raised blood pressure, chronic cough, breathlessness, changes in body weight etc. as signs of underlying systemic illness<sup>19</sup>. By the end of the first step, oral health professional has completed the evaluation and now furnishes the records of the findings and thus

aquaints the patient with his/her health picture. At this stage, it expected for the patient to become *consciously aware* and inturn generate a fearful recognition of all the infirmities that affects him/her.

Table1: A list of dental pathology to look for in a tobacco user is given below<sup>20</sup>:

S.No.	Tooth and gum related	S.No.	Oral mucosal lesions
1.	Staining of teeth	1.	Leukoplakia
2.	Malodor	2.	Erythroplakia
3.	Gingival bleeding, recession	3.	Tobacco pouch keratosis
4.	Dental erosion/abrasion	4.	Smoker’s palate
5.	Dental decay	5.	Oral submucous fibrosis
6.	Periodontal disease	6.	Tobacco associated melanosis
7.	Tooth loss (premature mortality)	7.	Carcinoma

Figure 2: The “C” in C-A-R $\chi$ -E is:



**Stage II : Assessment and Action (Tobacco Quit Counselling (TQC) (figure 3)**

After screening and examination, the patients recognized for tobacco usage would go for the next stage that is one on one counseling with the dentist or a team. The dentist

here, may take assistance of a trained psychologist/counselor. The “5As” (Ask, Advise, Assess, Assist, Arrange) (table 2) is a standard that guides through the right process to talk to patients who are ready to quit about tobacco use and deliver advice.<sup>21</sup>

Table 2: The 5A’s tobacco interventions for patients ready to quit.<sup>16</sup>

5 A’s	Intervention	Strategy	Time
ASK	As a part of routine, identify tobacco users at every visit.	<ul style="list-style-type: none"> <li>• Ask about tobacco usage, in a simple, friendly way and not in accusation.</li> <li>• Tobacco usage status should be included while recording medical notes (habit history)</li> <li>• Establish the stage of change: Precontemplation: Not interested in quitting. Contemplation: Planning to quit in next 6 months. Preparation: Planning on quitting in next 30 days Action: Has quit within past month. Maintenance: Not using tobacco for at least 6 months.</li> </ul>	1 – 2 min
Advice	Persuasion that they need to quit tobacco use.	<p>Advice should be:</p> <ul style="list-style-type: none"> <li>• Clear – regarding the importance of quitting and how you can help.</li> <li>• Strong – as to why you as a doctor are urging to quit smoking, to protect their future health.</li> <li>• Personalized – express concerns pertaining to demographics (eg: fertility issues in females and males), health concerns (eg: risks to asthma sufferers), social factors (eg: information on second-hand smoke).</li> </ul>	1 min
Assess	Determining the	Asking questions that inculcate ‘importance’	1 – 2 min

	readiness to make an attempt to quit.	and 'self-efficacy' to quit. <ul style="list-style-type: none"> <li>• If a patient is not willing to quit, proceed to the 5R intervention.</li> <li>• If the patient is ready to quit, proceed to <b>Assist and Arrange</b>.</li> </ul>	
Assist	Helpin the patient to develop a plan, counselling, supplementary materials, or use of medication if needed.	<ul style="list-style-type: none"> <li>• Developing a quit plan may include strategies like <b>Setting</b> a quit date, <b>Telling</b> family and friends about quitting, <b>Anticipating</b> challenges, <b>Removing</b> tobacco products from the environment (<b>STAR</b>).</li> <li>• Practical counselling should focus on providing information about smoking and quitting, and then move on to cognitive and behavioral skills in coping and provision of medication if needed.</li> </ul>	5 – 8 minutes
Arrange	Scheduling follow ups in person or by telephone, or referring the patient to specialist if needed.	<p>The 1<sup>st</sup> follow up should be arranged within a week, the 2<sup>nd</sup> in one month.</p> <p>Practical methods such as telephone/emails/personal visits should be used for the same.</p> <p>Identify problems encountered, assess medication use, congratulate on their success, remind them of relapse and schedule next follow ups.</p>	2 min +

1) Patient Assessment:

It involves recording and *assessing* the dependency levels of tobacco and the type of product used. A detailed evaluation of the level of dependency is done applying the Fagerström test<sup>22</sup>. Through this standardized test the difficulty in quitting tobacco and occurrence of withdrawal symptoms can be apprehended. This test may also aid in deciding the strategy of therapy to be followed, whether behavioral modification, pharmacotherapy or a combined approach<sup>23</sup>. Identifying psychological and physiological motivators and triggers is done here.

2) Appraisal or Prompting Self-evaluation:

After assessment of patient's tobacco usage, is the stage of *appraisal* to evaluate and relate tobacco habits with the series of illness he/she might be suffering from, screening of which was done in the chair side evaluation. This would provide for an evidence -based learning for the patient as a strategy for improving tobacco health education<sup>24</sup>. Ask the patient to think about how tobacco use conflicts with his goals and values in life. At this cognitive level, it is expected that now the patient is prepared to receive counselling.

3) Advocate for Sensitisation:

A crucial role of the dentist sneaks in here. The duty of dentist here is to *advocate* the risks and health liabilities expected with continuing tobacco use<sup>25,26</sup>. (table 3 and 4) Keeping a medical perspective, the dentist should explain the very benefits of quitting tobacco use. TQC when comes from a health professional has a more inspiring impact on the mind of the user. At all times the professional should remember to keep a caring and empathetic attitude. When the patient feels, the benefits of quitting tobacco use outweigh the costs, he/she will be more motivated to change the behavior. The patients start to develop a firm resolve to take appropriate action. For patients disinclined to quitting tobacco, the “5Rs” is recommended.

Table 3: Health risks related to tobacco use for sensitization<sup>25</sup>

Region	Health Effect Of Tobacco Use
Hair	Increased hair loss
Brain	Higher chances of stroke
Eyes	Macular degeneration
Skin	Early ageing, wrinkles and increased wound infection
Mouth & pharynx	High chances of cancer and gum disease
Lungs	Cancer, emphysema, pneumonia
Heart	Coronary artery disease
Stomach	Cancer, ulcer
Pancreas	Cancer
Bladder	Cancer
Women	Cervical cancer, early menopause, irregular and painful periods
Men	Impotence and infertility

Table 4: Health benefits from quitting tobacco<sup>26</sup>

Duration	Improvement To Health
20 minutes	Blood pressure and pulse rate is back to normal. Hand and feet temperature feels normal.
8 hours	Oxygen levels are normal and breathing much easier. Carbon-Monoxide in blood drops to normal. Chances of heart attack decreased.
24 hours	Increase in coughing, as lungs start to clear out.
48 hours	Body now becomes nicotine-free. Sense of taste and smell improves. Nerve endings start to re-grow.
72 hours	Body has more energy, circulation improves and lung capacity increases. Bronchial tubes start relaxing, so breathing and exercising is easier.
1 year	Risk of heart attack reduces to 50%.
10 years	Risk in dying of lung cancer decreased to half.
10-15 years	Risk in dying of heart attack is = a person who has never smoked.

4) Ardor or Willingness to Quit :

Patients must not feel as if they are being forced upon, but should be encouraged and offered help in making the final decision to quit. It is important to avoid argumentation so that engaging the patient in the process of quitting tobacco is easier. After assessing the willingness, there is a necessity to provide the 5R’s motivation intervention (Table 5)<sup>27</sup>.



Table 5: 5R's Motivation Intervention<sup>27</sup>

5 R's	Strategy	Time
Relevance	<ul style="list-style-type: none"> <li>Encourage the patient as to why quitting will be important to them – family, pregnancy.</li> <li>Motivational counseling is the main stay.</li> </ul>	2 minutes
Risks	<ul style="list-style-type: none"> <li>Make the patient think of short term and long term risks of tobacco use.</li> <li>Risks to others surrounding them.</li> <li>Give them a consequences pamphlet.</li> </ul>	1 – 2 minutes
Rewards	<ul style="list-style-type: none"> <li>Benefits or rewards if they stopped, should be explained here. improved health, better taste, save money, feel better etc.</li> <li>Let the patient think about the rewards that are important to him.</li> </ul>	2 minutes
Roadblock	<ul style="list-style-type: none"> <li>Identify perceived barriers blocking them from successfully quitting.</li> <li>Withdrawal symptoms, dread of failure, gain weight, lack of support, stress.</li> </ul>	1 minute
Repetition	<ul style="list-style-type: none"> <li>Each recall visit should assess status of patient's tobacco use.</li> <li>Review the stated concerns.</li> <li>Use empathy, listen carefully and provide appropriate interventions.</li> </ul>	1 – 2 minutes

5) Approach towards Methods to quit : Different methods suit people in quitting tobacco use. They are as follows:

- 1) Tapering off slowly: Individuals can be assisted by setting a quit date. This is followed by progressive reduction, i.e. lowering down number of cigarettes/pouches.<sup>16</sup> Constant support is required to assist the tobacco user to cope up with any difficulties he faces uptill he quits absolutely.
- 2) Cold Turkey: Patients with relatively lower nicotine dependency are candidates for this method. Assistance to quit tobacco all at once can be provided through pharmacologic therapy. Positive reinforcement should be provided by focusing on the personal rewards and social rewards of quitting.

So, The final step is to opt for an *approach* that would suit the patient, either cold-turkey or tapering down slowly and positively reinforce this technique onto the individual.

Figure 3: The “A“ in C-A-Rχ-E is:



### Stage III: Rx i.e Risper (figure 4)

#### 1. Cessation pharmacotherapy

Dependence of nicotine is similar to drug dependence. Patients who develop increased tolerance to nicotine undergo a withdrawal syndrome. Medication proves to be quite effective in curbing withdrawal symptoms. There is no absolute contraindication for the use of pharmacotherapy, however considerations need to be given for pregnant women and individuals with cardio-pulmonary diseases. The various known methods of pharmacotherapy are described (table 6).<sup>28,29</sup> Dental professionals are in accurate position and authority to assess the need and form of pharmacological therapy to be given and thus prescribe the same. So towards the end of stage II, the selected patients are advised about the adjunct drugs or Nicotine Replacement Therapy (NRT) required for him/her and given a proper prescription for the same and explained about the duration of the therapy. It is important to account that adequate motivation is required during this process as well.

Table 6: First - line pharmacotherapies (Approved for use for smoking cessation by the FDA)<sup>28,29</sup>

#### 2. Consultation with a trained pharmacologist

After overview of the patient and counseling session, once the decision is made regarding the role of pharmacotherapy in selected patients, they are accurately prescribed the NRT drug. With that prescription, the patient is sent for interaction with a trained pharmacologist, appointed in office. He/she explains about the drug, its dosage, and the method of use. In addition, the duty of pharmacologist here is also to deliver information about the side effects of drug abuse, and enforce an advice to take the medicine only after proper prescription by an authorized doctor/dentist.

This step is intended to inculcate a systematic approach towards the use of NRTs. Pharmacologists come in direct

social contact with tobacco users during the purchase of NRTs, and their role hence comes into play at this major step. The patient gets oriented to their role, and would consult the same for his queries during his future purchases.

Figure 4: The “Rx” in C-A-Rx-E is:



### Stage IV: Encouragement and Enhancement (figure 5)

#### 1. Exchange

After ceasing one on one counselling, the stage “E” begins with *exchange* of opinions through other persons struggling to quit tobacco. This is done by assembling them all in a recreation hall/room, where they can interact with each other and discuss their hindrances, motivational factors for quitting. Such an interaction can help in providing a social support towards quitting the habit.

#### 2. E-media

This is followed by the use of *E-media*, i.e displaying posters, and persuasive health education materials which can highly impact the decision of quitting tobacco. Playing music videos projecting tobacco use sufferers, necessity to quit and benefits of quitting provides additional reinforcement to the individuals, before they leave the dental office and acquire their take home



message from it. Such multimedia interventions have proved to strengthen motivation towards tobacco cessation and should be inculcated as a part of the tobacco intervention.<sup>30</sup>

### 3. Emphasis

The stage of *emphasis* is to provide the patients with pamphlets, fact sheets or posters, as material that they can take along and display around their home or workplaces.

### 4. Empty

The last activity is to *empty* out the tobacco products that they might be carrying along with them. The now motivated individuals are advised to dump the cigarettes or pouches from their pockets and bags, before leaving the dental office. This curbs their craving after they walk out and aids in beginning the process of quitting tobacco use henceforth.

Figure 5: The “E” in C-A-Rχ-E is:



## Conclusion

Lack of knowledge, information and training, not the financial loss and time constraints have been found to be barrier in the implementation of Tobacco cessation strategies in the present survey by the dental professionals.<sup>31</sup> Many dentists may not feel qualified to prescribe non-NRT medications and are referred for consultation with their patient's physician. This is particular, as the pharmacokinetics of certain medications may change, with or without nicotine replacement, as a result of cessation.<sup>32</sup> Tobacco use interventions orchestrated by dental physicians incorporating a component of oral examination in the dental centre and community settings can enhance tobacco abstinence rates. The aim of this proposed module is to provide a stage wise guide to dental professionals working in different health set ups to effectively assist individuals in quitting tobacco. Such a protocol or module for tobacco cessation can be dexterously followed both at the undergraduate and postgraduate level. Not only in dental institutes, but also in any dental set up - private clinic, corporate dental hospitals etc.

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