KEY COMPONENTS IN UNDERSTANDING ADDICTION

ADDICTION vs. DEPENDENCE

The term **ADDICTION** is synonymous with the term **DEPENDENCE**. The former, "addiction", is more readily understood by the general public, but because of its negative connotations, the latter is often in the preferred term.

What distinguishes drug addiction from other compulsive use disorders is that drug addiction involves the ingestion of a substance that alone will stimulate the brain's reward system, fooling it with substances that mimic or trigger natural neurotransmitters. To understand addiction, there are a few terms that are important to know.

DRUG ADDICTION

The National Institute on Drug Abuse (NIDA) defines drug addiction as "a chronic, relapsing disease, characterized by compulsive drug-seeking and use and neurochemical and molecular changes in the brain".

An important characteristic of addiction is the compulsive use despite the negative physical/ health, social, emotional, and/or spiritual consequences.

The American Psychiatric Association's (APA's) Diagnostic and Statistical Manual (DSM) defines the criteria of nicotine dependence as any individual who exhibits 3 of the following 7 items occurring at any time in the same 12-month period:

1. Tolerance to nicotine
2. Withdrawal from nicotine
3. Taking nicotine for a longer period or in larger amounts than intended
4. Having a persistent desire or unsuccessful efforts to cut down or control nicotine use
5. Spending a great deal of time obtaining, using, or recovering from the effects of nicotine
6. Giving up important social, occupational, or recreational activities because of nicotine use
7. Nicotine use continues despite knowledge of having a persistent or recurrent physical or physiological problem that is likely to have been caused or exacerbated by it.

Simply put…Addiction is the loss of control and continued use of a psychoactive drug despite negative consequences!

Examples of young people losing control over their tobacco use are:

1. Smoking in the school bathroom despite serious consequences.
2. Smoking despite social disapproval (e.g., girlfriend hating it)
3. Smoking despite recognition of adverse effects on athletic performance

Some people believe that people struggling with an addiction have weak personalities-that all they need is willpower. It is not that simple! Inside our brain, when an addictive substance is taken, a reward or pleasure pathway is activated. When this occurs, the brain sends out strong signals triggering the individual to continue taking more of the substance.

WITHDRAWAL

There are a number of symptoms that are commonly reported by people giving up smoking. The main withdrawal symptoms are **irritability, restlessness, depression, anxiety, difficulty concentrating, poor sleep, hunger and craving for tobacco**. This is referred to as the *Nicotine Withdrawal Syndrome*[33].

When a person stops taking in nicotine, the amount of the drug in the body drops by half roughly every two hours. This means that it takes about 24 hours for all the nicotine to be gone from the body, and for withdrawal symptoms to reach their peak (although they may start within 4-6 hours of the last smoke). That is why we ask smokers, “How soon after you wake up do you have your first cigarette"? The most, addicted smokers will have a cigarette as soon as they get out of bed, or perhaps will awaken during the night to have a cigarette.

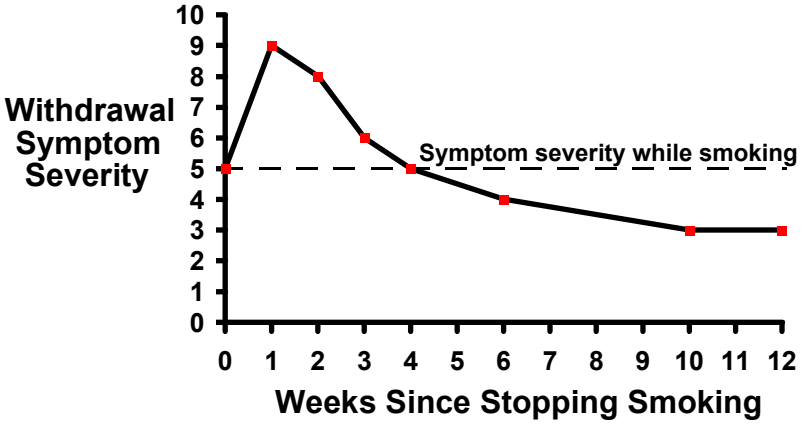
Nicotine Withdrawal Symptoms

Irritability
Restlessness
Depression
Anxiety
Difficulty concentrating
Poor sleep
Hunger and craving for tobacco

One study examined over 600 people giving up smoking without any help. It found that about half of them reported a significant increase in at least four of these symptoms within two days of quitting, but after 30 days most were finding it much easier and less than one in five were still suffering from an increase in four symptoms.

Clearly every smoker does not experience an increase in all these symptoms when they quit. It is also clear as shown in the diagram below that most withdrawal symptoms return to normal within a month. In fact, in a couple of months after quitting, most ex-smokers actually feel that their mood is better than while they were smoking (i.e. fewer unpleasant symptoms).

The severity of nicotine withdrawal symptoms over time after stopping smoking



However, during the initial four- week period of quitting tobacco use, withdrawal symptoms and craving is the main reason people find it difficult to abstain. Nicotine replacement therapy (NRT) and its effects on withdrawal are discussed later in this chapter.

TOLERANCE

Developing tolerance to a substance is a key indicator for addiction. Looking at a person's tobacco use and seeing that the person increased their usage over time to get the desired effect of the drug is the hallmark of tolerance.

TRIGGERS AND CUES

When someone is addicted to a substance, a wide variety of "people, places and things" become associated with acquiring, keeping, and using the substance. These associations are called **triggers and cues**. Most of us have grown up in a society where we have seen tobacco products being used, advertised and offered for sale. The messages can be very confusing and contradictory. Prevention and education is provided in schools, yet cigarettes are displayed more prominently than candy in many convenience stores. Students go home to parents who smoke or watch their favorite TV stars puffing away on a cigarette. Many of these television stars are not smokers in real life. However, actors (or the producers) have been known to be paid to smoke by the tobacco industry in order to attract new, young and vulnerable smokers.

CONCERN VS. NAGGING

Sometimes a person's concern about a person's use of tobacco comes across as nagging when it is perceived as repeated criticism. Nagging is not helpful. When reminded that the drug use is "crazy", "inappropriate", "unhealthy", "inconsiderate", etc., the smoker reacts with feeling a bit trapped and anxious, often turning to smoking for instant relief. The person perceived nagging the smoker views the smoker as expressing defiance. This can be a vicious cycle.

MOST PEOPLE WHO SMOKE WANT TO STOP

We have found that **most people who smoke want to stop but many find it very difficult.** Most teens admit that they wished they had started smoking and comment that smoking is very expensive. They find it difficult to relate to their own mortality, but usually can identify someone they know who was a smoker and is either sick or has died from smoking. Young people who do quit smoking state that, once they have quit, they quickly notice that they are able to run quicker and are not as tired. It is important to find out what sort of things young people like to do that can serve as a motivator for quitting (i.e. running track, playing football, ice skating).

MORAL ISSUE? MEDICAL CONDITION?

The stigma associated with substance abuse being out of control is not as pronounced with tobacco as it is with alcohol or heroin. Nonetheless, enormous feelings of guilt and shame are often associated with tobacco dependence. In the past, the health professionals and school professionals have all too often fueled this perspective by wagging a finger at young people with words like, "You should quit smoking," and nothing more.

Responding in this manner to a person struggling with an addiction, is like telling a diabetic patient, "You need to lower your blood sugar," or telling a person with hypertension, "You should lower your blood pressure," without offering help to do so. **Understanding that people do not plan to become addicted is a very important concept to understand.**

SHOWING STUDENTS YOU CARE

Facilitators of QUIT 2 WIN need to *establish a trusting relationship* with their students around their tobacco use. *The group needs to be a safe setting* where students can safely and openly address their tobacco use. Pointing fingers and saying tobacco use is bad will not be helpful. But *allowing students to discuss their struggles* and *working together as a group* to *learn*, *make an educated decision about quitting*, and *supporting them* through this process will yield success!

Showing students you care

Establish a trusting relationship
Make the group a safe place to talk
Allow students to discuss their struggles
Facilitate a group that works together as a group
Learn from each other
Allow students to make educated decisions about quitting
Support students and allow the students to support each other

STAGES OF READINESS FOR CHANGE

In the previous chapter, we explored the various stages of natural progression to youth smoking. Similarly, a smoker's decision to quit smoking can be defined as a process that occurs over time. The majority of smokers do not quit "overnight", rather students often make several attempts to quit the before succeeding. The Psychologists, James Prochaska and Carlo DiClemente describe 6 stages that people go through in trying to quit smoking. These stages include "pre-contemplation", "contemplation" and "preparation" on the part of the smoker looking to make this particular behavior change.

Precontemplation – a smoker who at this point in time does not want to quit smoking. The smoker currently believes that the benefits of smoking outweigh the costs.

Contemplator – a smoker who wants to quit smoking at this point in time, however, lacks the motivation or confidence to do so. The lack of confidence can be attributed to the smoker's lack of self-efficacy in quitting. This can result from unsuccessful past quit attempts or from lack of knowledge or misinformation with regard to the quitting process.

Preparation – a smoker who is interested and ready to quit smoking. The motivation is present to make a change which results from the smoker believing that the benefits of quitting outweigh the benefits of smoking.

A simple question, asked of the smoker, will allow you to assess a smoker's *current* stage.

"Are you interested in quitting smoking at this time?" or "If I were able to help you quit smoking right now, would you be interested in my help?

A smoker in the **precontemplation stage** will respond with a lack of interest when asked if he/she would like to quit smoking. This doesn't mean that the person has never attempted to quit smoking in the past, but rather, at this exact point in time chooses not to quit smoking. It is best to reply, in an understanding tone, that you are aware that the smoker may not be interested or ready to quit at this time, however, if and when the smoker is ready, you will be there for them. It is also advised that you explore the smoker's perceived benefits and costs of smoking and present the smoker with information that is tailored to the smoker's concerns (i.e. negative health affects, the amount of money spent each year, etc.). This will hopefully motivate the smoker to consider making a change, or to contemplate quitting smoking.

A smoker in the **contemplation stage** will respond with an interest in making a change, however, will try to delay making the actual change. For example, a contemplative smoker may respond with *"Well, of course I would like to quit smoking, but now is not a good time as I have finals coming up and I am really stressed out about them*." In this case, the motivation to change is not there because the smoker is not convinced himself that he can make the change, right now! It is best to work on boosting the smoker's confidence in quitting smoking by educating him on the quitting tools available and exploring past quit attempts to discover triggers and any helpful steps that he might have missed.

A smoker in the **preparation stage** will respond that they are ready to make a change in the very near future. It is important to work with this smoker to develop a thorough plan that should include the quit date and strategies for quitting, and choice of adjunctive medications to assist with withdrawal symptoms. The smoker should also take time to identify triggers to his smoking and explore alternate behaviors/ new activities that can replace the behavior of smoking when presented with the urge to have a cigarette. It is helpful for smokers to take a written inventory of the cigarettes smoked over the course of a few days to aid in identifying the times and situations when the urges will be the greatest.

MEDICAL COMPLICATIONS

For several decades, the health impact of tobacco use has been clearly demonstrated. Tobacco smoke has been linked to a multitude of health problems, and these cost our society huge economic and quality-of-life burdens. Smoking continues to kill more people than all of the other "lifestyle" factors, such as alcohol, AIDS, homicide, suicide, motor vehicle accidents, and drug use, combined. The added issue of environmental tobacco smoke (ETS) brings to the forefront the issue of passive exposure, and non-smokers' risk.

For adolescents, the immediate effects of tobacco use are more important than long-term health risks.

Contents of smoke:

Tobacco smoke contains over 4000 known toxins and carcinogens. Nicotine is one of the most well known substances in tobacco smoke. Although frequently implicated in health effects, and despite having some physiological effects (small increases in heart rate and blood pressure), its predominant role is as the primary addictive substance in smoke. Carbon monoxide is a substance found in tobacco smoke that irreversibly blocks the body's hemoglobin found in blood, from delivering oxygen to the body's tissues. This can lead to relative lack of oxygen at many sites (ischemia). There are over 75 known carcinogens found in tobacco smoke. The most well known are polycyclic aromatic hydrocarbons (PAH), namely benzopyrenes, and nitrosamines. The long list of toxins found in tobacco smoke includes ammonia, arsenic, cyanide, formaldehyde, nail polish remover, and naphthalene (found in moth balls).

Health effects of smoke:

The predominant effects that smoking has on the body are from cardiovascular, pulmonary and oncologic disease.

Cardiac disease:

Coronary artery disease remains the leading cause of death in our society, and smoking is a major risk factor. Smoking causes increases in circulating epinephrine (adrenaline) which is predominately due to surges in nicotine. This results in increases in pulse and blood pressure, and vasoconstriction of coronary arteries. Other substances in tobacco smoke result in increase platelet adhesiveness and endothelial (small vessel) damage, which may lead to heart attacks. Nicotine alone is not the major contributor to coronary artery disease.

Pulmonary disease:

Smoking has many effects on lung function. It causes increased mucus production, as the airways attempt to protect themselves from the toxins found in smoke. This mucus can lead to obstructive lung disease (chronic bronchitis) or chronic obstructive pulmonary disease (emphysema). Substances in tobacco smoke are toxic to the cilia that line the airways, whose function is to clear out toxins and particulate matter from the lungs. Therefore, these wastes remain in the lungs also contributing to obstruction. Smoking also suppresses the cough reflex, increasing mucus obstruction. Smoke also increases the hyper-reactivity of airways, contributing to asthma exacerbations. Toxins found in smoke lead to migration of immune cells to the lung tissue. These cells release enzymes that destroy both foreign material, as well as health lung tissue. The result is damage leading to emphysema. Finally, the lung's ability to fight infection is severely diminished, leading to increased rates and severity of respiratory infections. Once again, these effects are not related to nicotine.

Cancer:

Cancer is one of the most feared consequences of tobacco smoking, and is the 2nd leading cause of death in this country. Lung cancer is the type most closely linked to smoking, as up to 90% of lung cancers are tobacco related. As the proportion of filtered cigarette users has increased, the specific type of lung cancer has evolved, likely influenced by deeper inhalation.

Besides lung cancer, nearly one-third of all cancer deaths are tobacco related. Tobacco has been implicated in cancer of the cervix, bladder, kidney, mouth, pharynx, larynx, esophagus, and pancreas.

Vascular disease:

Circulatory diseases are very common among smokers. The 3rd leading cause of death in our nation is stroke (cerebrovascular disease). Damage to the walls of blood vessels, combined with increased tendency for clotting are the causes of these diseases. Stroke is the most direct cause of vascular disease related to smoking. However, peripheral vascular disease is very common, and can lead to significant morbidity and mortality in the form of leg ulcers, painful circulation, and amputation. Any organ can be affected by vascular disease, since they all require oxygen. Circulation problems can lead to impotence, visual difficulties, and kidney problems.

Miscellaneous health effects:

As stated earlier, smoking has been associated with a multitude of other health problems. Smoking leads to increases in respiratory infections (bronchitis, pneumonia, sinusitis), osteoporosis, decreased fertility and impotence, cataracts,

macular degeneration, peptic ulcer disease and acid reflux, poor wound healing, and increased surgical risk from anesthesia.

Specific concerns of adolescents:

Young smokers are much more likely to be concerned about short-term symptoms, appearance, and social impact of their smoking than long-term health consequences. Some of the most important concerns include: bad breath, yellow teeth, shortness of breath, cough, reduced exercise tolerance, and increased frequency of respiratory infections including bronchitis, sinus infections.

Benefits of quitting:

The benefits from quitting smoking range from almost immediate to long term. Within minutes to days of quitting, blood pressure decreases, exercise tolerance increases, and sense of smell and taste returns. Risk of respiratory infections declines over 2-4 weeks. By 1 year, the risk of having a heart attack is cut by 50%. Within 5-15 years, the risk of having a stroke returns to that of a non-smoker. By 10 years after quitting, the risk of developing cancer decreases substantially.

Environmental Tobacco Smoke (ETS):

ETS contains a different mix of the same materials found in mainstream smoke, including carcinogens. The only difference is the proportion of these substances. Therefore, the health effects of ETS exposure are similar to those seen in smokers. Health effects of ETS are most noticeable in areas such as low birth-weight infants and SIDS, increased childhood infections and asthma, increased heart disease, and increased risk of cancer.

Policy issues include the rights of the smoker versus the rights of innocent bystanders. Additionally, from a pollution standpoint, the Environmental Protection Agency (EPA) pollution control levels would dictate a ban on smoking by virtue of air quality. Unfortunately, the EPA has no jurisdiction over indoor air. The issues of clean indoor air, protecting non-smokers, and the economic impact of smoking bans will continue for many years.

TOBACCO DEPENDENCE TREATMENT MEDICATIONS

Medical Aspects of Providing Pharmacotherapy

Despite the current lack of conclusive evidence for the effectiveness of cessation medications in young people, it appears that these medications are likely safe for use, and based on their success in adults, they may be effective in aiding youth smoking cessation in select people. As with adults, medications will be most effective if combined with other components of a comprehensive tobacco cessation support program. The more a young person smokes, the more likely he/she is to benefit from use of a cessation medication, and those who smoke much less than 10 cigarettes per day are unlikely to benefit from these medications.

Nicotine is one of the 4000 chemicals found in tobacco smoke, and it is this chemical that makes smoking so addictive. When people stop smoking, their brains crave nicotine, and they experience unpleasant withdrawal symptoms. There are six medications approved by the Food and Drug Administration (FDA) to help smokers quit: the nicotine transdermal patch; nicotine gum; nicotine oral inhaler; nicotine nasal spray; nicotine lozenge; and a pill, bupropion (Zyban®). These medications have been proven to be safe and effective in reducing the cravings for cigarettes and in relieving withdrawal symptoms associated with quitting. People who use these medications to help them quit are, on average, twice as likely to be successful at remaining smoke-free compared to those who don't use medications.[26] The choice of medication should be based on several factors: clinician familiarity with the medication; contraindications to the medication; patient's previous experiences with certain medications; and patient characteristics and preferences for particular medications.

The Public Health Service Clinical Practice Guideline recommends that "all patients attempting to quit should be encouraged to use effective pharmacotherapies (medications) except in the presence of special circumstances".[26] One of these "special circumstances" includes the use of medications by youth. There are several reasons why specific issues need to be considered in treating young smokers with these medications. First of all, although we are fairly clear on how nicotine dependence occurs in adults, it is less clear how nicotine affects young smokers, how dependence develops and how it is best measured in this population. There have been some studies showing that nicotine dependence may occur at levels of consumption much lower than in adults.[12] Also, there are many complex psychological and social influences that may play a strong role in maintaining a young person's smoking behavior, beyond the effect of nicotine addiction. Secondly, there have been only a few relatively small studies looking at the effectiveness and safety of medications in young smokers.[27,28,34] These studies have not yet shown the

same effectiveness of nicotine medication in young smokers as we have seen in adults.[27,28] Finally, the US Food and Drug Administration (FDA) does not currently recommend the use of nicotine medications or bupropion (Zyban®) in patients under 18 years of age. This may be a deterrent for prescribers wanting to use these medications in young people.

For these reasons, the *Guideline* includes specific recommendations for treating young smokers, stating "clinicians may consider prescriptions for bupropion SR or nicotine replacement therapies when there is evidence of nicotine dependence and a desire to quit".[26] Therefore, if there are clear signs of nicotine dependence as measured by standard methods, and if the smoker wants to quit, one can consider adding these medications to a cessation support plan. Three of these medications (the nicotine oral inhaler, nicotine nasal spray, and bupropion [Zyban®]) require a prescription, while the nicotine patch, gum, and lozenges are available over the counter. Regardless of their prescription status, in keeping with the product labeling, it is prudent to involve a medical practitioner in the decision process for considering any of these medications with young people, since they are not normally recommended for this age group. Parents should also be informed about the rationale for the use of medication.

Key Questions and Answers on Tobacco Cessation in Youth

1. Can young people be assisted effectively for tobacco dependence*?*

There is good evidence that smoke-free policies, cigarette price increases, and particular advertising and health messages can reduce the numbers of young people who start smoking. However, the data regarding what works specifically to help youth tobacco users quit are scant.

The *Public Health Service Clinical Practice Guideline*[26] summarizes the evidence for effective help for adults and suggests that the same methods be used with young people. Although these intervention and cessation support methods have not been clearly shown to be efficacious for young people, they have been approved for use with youth by the American Association of Pediatrics.[35]

The following questions address the applicability of the *Guideline* to cessation in young smokers:

2. **Can the number of smoking quit attempts and successful quits by tobacco using youth be increased by implementing a brief assessment and intervention model that can be enacted by teachers and others who have contact with them?**

All healthcare providers are encouraged by the *Guideline* to implement a "5A" approach to addressing tobacco: The 5 A's are:

ask all patients about tobacco use,
advise those who use tobacco to quit,
assess motivation to quit,

assist with making an effective quit plan, and
arrange for follow-up contact.

Brief contact with patients using this model can reduce the prevalence of tobacco use. While the 5A method does not result in large increases in the percentages of successful quit attempts, it does reduce smoking by encouraging people to think about their smoking and thus increases the number of people who make a quit attempt.

Teachers and staff in high schools and colleges have regular contact with young people who smoke. They also serve in a benevolent authoritative role, similar to the role that healthcare providers have with adults. It is likely, then, that school faculty and staff, like healthcare providers, can effectively implement a brief approach to addressing tobacco that will increase quit attempts and therefore successful quits. In order for this approach to be successful, interested and willing faculty and/or staff need to be committed to applying a "5A" type approach within the school environment, and they need to have effective cessation support available for those students who want to quit. Such assistance would include behavioral counseling and pharmacotherapy specific to the needs of school age youth. More specific recommendations for cessation support are made below.

3. Will young people participate in quit smoking programs?
Pokarov et al[36] found that young people are less likely to be actively quitting or preparing to quit than adults. This may be because of lack of motivation due to a misperception of the dangers of smoking,[37] a rapid onset of dependency among adolescents,[13] the need to gradually develop confidence and skills to be able to quit,[38] or other reasons. Because of the high frequency of quit attempts by young people,[3,24] though, indications are that cessation support that are available and developmentally appropriate will be utilized and can be effective.[3,38] That has been supported by early experience in New Jersey.

Factors in New Jersey high school cessation groups that have enhanced program utilization were (1) offering cessation support at the school within the class schedule; (2) publicizing the program through counseling staff, teachers, and peers; and (3) working through a key faculty or staff advocate who engages students and manages the in-school administrative tasks like scheduling and the necessary permissions.

Other types of less intensive support such as Internet and telephone counseling can also help people quit smoking. While it has been shown that youth in other countries, like the United Kingdom, will utilize telephone quit services, this has not been demonstrated yet in the United States. More research into methods of engaging youth in tobacco cessation support using established social marketing approaches needs to be completed to determine if these approaches will work in the United States.

4. Does more intensive support with youth lead to greater success in quitting smoking?
The *Guideline* cites strong evidence for a dose response cessation effectiveness, that is, more frequent and longer term counseling leads to higher success rates. It is not clear if this is also true for youth. However, in groups facilitated in New Jersey, high school participants overwhelmingly suggested that the original six-week format that was used be lengthened and that the weekly sessions be increased to two times per week. This is supported by suggestions for gradual introduction to quitting and skill building described by Moolchan et al.[38] On the other hand, it can be difficult to find appropriate space in the busy school schedule for cessation groups, and so they should be as time efficient as possible.

5. Is group counseling or individual counseling more effective, and what is the optimal length for counseling?
Experience with groups in New Jersey indicates that high school students will attend groups, and that these groups can be effective in increasing quit attempts. Because of developmental issues concerning peer relations, and individuation from authority, it is likely that groups will be more successful than individual counseling. However, the group facilitator(s) must be skilled in balancing group structure, enhancing motivation to quit, and empowering youth to manage their own particular obstacles to quitting.

6. Do pharmacological cessation supports help young people quit smoking to the extent that they help adults to quit? If so, what medicines and what medication protocols are most effective?
Because of the difficulties in studying underage drug efficacy, there has not been much research into the effectiveness of nicotine replacement, Zyban®, and other pharmacological aid in youth. The experience in New Jersey strongly indicates that a large number of high school students who want to quit present with symptoms of dependence easily equivalent to those of adults, for whom medication is an essential part of the quitting process.

In addition to the lack of evidence for drug efficacy in adolescents, other difficulties with providing medication to youth include access, liability, parental misunderstandings and school administrative policies. Solutions for these difficulties need to be negotiated in order to implement medication protocols with youth in school-based programs.

7. Is level of dependence the best predictor of success in quitting among those motivated to quit, or are other factors known to affect youth tobacco initiation more important, such as peer use, cigarette availability, parental use of tobacco, rules, and permissiveness about smoking behaviors?

The best predictor of successful outcome among adults (given the cessation support is the same) is level of dependence, where those that are less dependent are more likely to successfully quit. We are not sure if this is the case among youth. Other issues such as peer and parental smoking, availability of

cigarettes and smoking opportunities that are pertinent to youth smoking initiation may be more germane to youth tobacco cessation than to adult tobacco cessation.

8. Is there a role for mandated counseling for tobacco use among young people?
There are many new laws, regulations and policies that govern youth tobacco use. Questions often arise about how to deal with violators, and in particular, about whether there a role for mandated counseling.

Substance abuse counselors have a historical protocol for counseling and referral of violators of regulations for other drugs and alcohol. Whether this approach will be successful with youth and tobacco is unclear because of the differences in attitudes and access. Experience in New Jersey schools has led us to help only students who voluntarily want to stop smoking and to find other avenues, or possibly other counseling venues, for those students who are referred for regulatory violations.

9. Does involving parents in youth smoking cessation support, either in person or through other means of communication (informational brochures, specific and actions, such as permitting smoking in the home, purchasing cigarettes for their children, or misperceptions about medications for quitting make quitting much more difficult?
Efforts should be made to involve and/or educate parents to support their children's efforts to quit, whenever practical.

10. Does peer involvement in tobacco counseling help young people to quit?
Peer involvement and group therapy are recommended components for treating adolescents who abuse alcohol and other drugs.[39] There is no reason to believe that groups will not also be successful for helping youth who are tobacco dependent. Peer effects are a key component of behavior change in youth, and are likely to be effective with helping young people to quit smoking.

11. What is the relationship between school smoking policies (nonsmoking grounds, for example) and successful quit smoking initiatives? Are students who are enrolled in schools at which there is no smoking on the grounds or in the near area more successful in quitting?
Evidence from workplaces indicates that these types of smoking policies do help adult quit rates.[40] Preliminary indications in New Jersey are that students who are trying to quit have more frequent and intensive relapses if they can easily step outside the school or into the bathroom to join their smoking peers.

Protocol for using medications for smokers under the age of 18:

Michael Steinberg, MD, MPH
Medical Director
UMDNJ-Tobacco Dependence Clinic

Summary of points made in the Youth Treatment Manual regarding pharmacotherapy in youth[26,27,28, 34,41]

- Six medications are approved by the Food and Drug Administration (FDA) to help adult smokers quit: nicotine transdermal patch; nicotine gum; nicotine oral inhaler; nicotine nasal spray; nicotine lozenge; and a pill, bupropion SR (Zyban®).
- Specific youth issues include:
    - Not fully clear how nicotine affects young smokers, and how dependence develops and is best measured in this population
    - Complex psychological and social influences play a strong role in maintaining a young person's smoking behavior, beyond the effect of nicotine addiction
    - There exist limited data looking at the effectiveness and safety of medications in young smokers
    - FDA does not currently recommend the use of nicotine medications or bupropion (Zyban®) in patients under 18 years of age

- PHS Guideline recommendations:
    - Clinicians may consider prescriptions for bupropion SR or nicotine replacement therapies when there is evidence of nicotine dependence and a desire to quit

- Rationale for using medications in smokers under 18 years of age
    - Medications are proven safe and effective in adult smokers
    - Although dependence in this group is not fully understood, many younger smokers display "adult" patterns of smoking behavior and dependence
    - Although, studies do not yet demonstrate the same efficacy for medications in younger smokers, there is no evidence that these medications are unsafe
    - All smokers are already receiving nicotine in the most harmful form (tobacco smoke), often at higher doses. These medications offer it in the safest form (medicinal nicotine).

Our recommendations:

Following guideline recommendations, determine:

1) Is there a desire to quit?
2) Is there significant evidence of nicotine dependence? (may want to use more recently adapted instruments for youth (e.g. Hooked On Nicotine Checklist)).
3) Has the smoker unsuccessfully tried to quit on his/her own without medications?

If the above are true, consider pharmacological treatment.

- Involve a medical practitioner when considering using medications for tobacco dependence treatment in smokers under the age of 18 years.
- All smokers under 18 years who might receive bupropion (or any antidepressant) need to be carefully screened for depression and suicidal ideation.
- The best first option is to have the smoker discuss the use of medications with their healthcare provider and obtain authorization to use these medications.
- If the smoker has no access to a healthcare provider, consider utilizing the services of a provider in your school system, if available.
- Important to obtain the consent of parent or guardian when considering medications for smokers under the age of 18 years. Under certain circumstances this may not be possible, but it is beneficial.
- If the smoker (and parent) decides to use over-the-counter medications on their own, he/she need to be made aware of the risks and benefits of such medications in this age group.

The UMDNJ-Tobacco Dependence Clinic can be a resource to help you, your students, and healthcare providers assist young people in quitting smoking.
Please contact us at (732) 235-8222 for more information or visit our website at www.tobaccoclinic.org .

Sample letter to parents from SAC:

Dear Parents:

We are conducting an educational program at your child's school regarding helping students quit smoking. We will be providing information to your child on the latest and most effective methods for smoking cessation in young people. These methods are recommended and supported by the United States Public Health Service in their current Clinical Practice Guidelines (2000), and our Tobacco Dependence Clinic has a great deal of experience helping smokers quit, having seen over 1500 smokers since 2001.

Included in these guidelines are the recommendations to consider using medications, including nicotine replacement medications (patch, gum, lozenge, inhaler, and nasal spray) and Zyban® (also known as Wellbutrin® or under the generic name bupropion SR) in select young smokers who show signs of nicotine dependence and who have had a difficult time quitting on their own. You should know that most of the studies that have been done on these medications did not include smokers less than 18 years of age. Therefore, these medications are not officially approved for use in this age group. Despite this, we have had success using these medications in young smokers, and research has shown they are safe and effective in adult smokers. Considering the known health risks of tobacco smoke, and the fact that nicotine replacement medications give lower doses of nicotine and do NOT contain any of the 4000 other toxins in smoke, we feel it is a better alternative than continued smoking.

In any event, we recommend that any use of medications for smokers under the age of 18 years be discussed and approved by his/her healthcare provider. If the healthcare provider has any questions regarding these medications, they can contact the Student Assistance Counselor, or Dr. Michael Steinberg at the UMDNJ-Tobacco Dependence Clinic (732) 235-8222.

If you have any questions regarding this program, please do not hesitate to contact us for more information.

Sincerely,

Michael Steinberg, MD, MPH
Tobacco Dependence Program
UMDNJ School of Public Health