



Smoking and HIV: What Clinicians Need to Know

Trainer Guide

Smoking and HIV: What Clinicians Need to Know

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Heroin and HIV: What Clinicians Need to Know

Background Information

The purpose of this introductory training is to provide HIV clinicians (including, but not limited to physicians, dentists, nurses, and other allied medical staff, therapists and social workers, and counselors, specialists, and case managers) with a detailed overview of smoking, the relationship between smoking and HIV/AIDS, and effective behavioral and medical smoking cessation approaches. The duration of the training is approximately 120-150 minutes (2-2 ½ hours), depending on whether the trainer chooses to present all of the slides, or a selection of slides.

Pre- and post-test questions have been inserted at the beginning and end of the presentation to assess a change in the audience's level knowledge after the information has been presented. An answer key is provided in the Trainer's notes for slides 5-9 and slides 108-112. Additional "test your knowledge" content questions and "what do you think" opinion questions have been woven throughout the presentation, as well.

Audience Response System can be utilized, if available, when facilitating the pre- and post-test question sessions.

In addition, a case study and companion video has been included on slides 84-85 to encourage dialogue among the training participants, and to illustrate how the information presented can be used clinically.

What Does the Training Package Contain?

- PowerPoint Training Slides (with notes)
- Trainer's Guide with detailed instructions for how to convey the information and conduct the interactive exercises
- Two-page fact sheet entitled, "*Tips for HIV Clinicians Working with Smokers*"

What Does This Trainer's Manual Contain?

- Slide-by-slide notes designed to help the trainer effectively convey the content of the slides themselves
- Supplemental information for select content to enhance the quality of instruction
- Suggestions for facilitating the "Test Your Knowledge" questions and group activities/role plays

How is This Trainer's Guide Organized?

For this manual, text that is shown in bold italics is a "***Note to the Trainer.***" Text that is shown in normal font relates to the "Trainer's Script" for the slide.

It is important to note that several slides throughout the PowerPoint presentation contain animation, some of which is complicated to navigate. Animations are used to call attention to particular aspects of the information or to present the information in a stepwise fashion to facilitate both the presentation of information and participant understanding. Getting acquainted with the slides, and practicing delivering the content of the presentation are essential steps for ensuring a successful, live training experience.

General Information about Conducting the Training

The training is designed to be conducted in medium-sized groups (30-50 people). It is possible to use these materials with larger groups, but the trainer may have to adapt the small group exercises and discussions to ensure that there is adequate time to cover all of the content.






Materials Needed to Conduct the Training

- Computer with PowerPoint software installed (2003 or higher version) and LCD projector to show the PowerPoint training slides.
- When making photocopies of the PowerPoint presentation to provide as a handout to training participants, it is recommended that you print the slides three slides per page with lines for notes. Select “pure black and white” as the color option. This will ensure that all text, graphs, tables, and images print clearly.
- Flip chart paper and easel/white board, and markers/pens to write down relevant information, including key case study discussion points.

Overall Trainer Notes

It is critical that, prior to conducting the actual training, the trainer practice using this guide while showing the slide presentation in Slideshow Mode in order to be prepared to use the slides in the most effective manner.

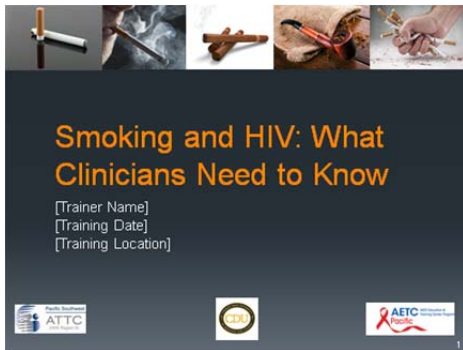
Icon Key

	Note to Trainer		Activity
	References		Audience Response System (ARS)-Compatible Slide
	Image Credit		

Smoking and HIV: What Clinicians Need to Know

Slide-By-Slide Trainer Notes

The notes below contain information that can be presented with each slide. This information is designed as a guidepost and can be adapted to meet the needs of the local training situation. Information can be added or deleted at the discretion of the trainer(s).



Slide 1: [Title Slide]



Before you begin, welcome participants and take care of housekeeping announcements, such as location of restrooms, turning off cell phones, participating actively, etc.

The purpose of this introductory training is to provide HIV clinicians (including, but not limited to physicians, dentists, nurses, and other allied medical staff, therapists and social workers, and counselors, specialists, and case managers) with a detailed overview of smoking, the relationship between smoking and HIV/AIDS, and effective behavioral and medical smoking cessation approaches. The duration of the training is approximately 120-150 minutes (2-2 ½ hours), depending on whether the trainer chooses to present all of the slides, or a selection of slides.

Pre- and post-test questions have been inserted at the beginning and end of the presentation to assess a change in the audience's level knowledge after the information has been presented. An answer key is provided in the Trainer's notes for slides 5-9 and slides 108-112.

(Notes for Slide 1, continued)

Slide 1: [Title Slide]



Additional “test your knowledge” content questions and “what do you think” opinion questions have been woven throughout the presentation, as well.

Audience Response System can be utilized, if available, when facilitating the pre- and post-test question sessions.

In addition, a case study and companion video has been included on slides 84-85 to encourage dialogue among the training participants, and to illustrate how the information presented can be used clinically.



IMAGE CREDITS (Left to Right):

CDC website, 2016; CDC website, 2016; Fotolia, 2016 (purchased image); Fotolia, 2016 (purchased image); Fotolia, 2016 (purchased image).

Training Collaborators

- LA Region Pacific AIDS Education and Training Center
- Pacific Southwest Addiction Technology Transfer Center
- UCLA Integrated Substance Abuse Programs

Slide 2: Training Collaborators

This PowerPoint presentation, Trainer Guide, and companion fact sheet were developed by Beth Rutkowski, MPH (Associate Director of Training of UCLA ISAP) and Thomas E. Freese, PhD (Director of Training of UCLA ISAP and Principal Investigator/Director of the Pacific Southwest ATTC) through supplemental funding provided by the Pacific AIDS Education and Training Center, based at Charles R. Drew University of Medicine and Science. We wish to acknowledge Phil Meyer, LCSW, Kevin-Paul Johnson, Maya Gil Cantu, MPH, and Thomas Donohoe, MBA, from the LA Region PAETC.

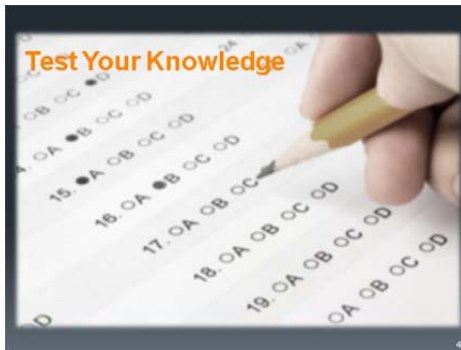
Special Acknowledgements

- Kimberlee Homer Vagadori, MPH, California Youth Advocacy Network
- Steven A. Schroeder, MD, University of California, San Francisco

Slide 3: Special Acknowledgements



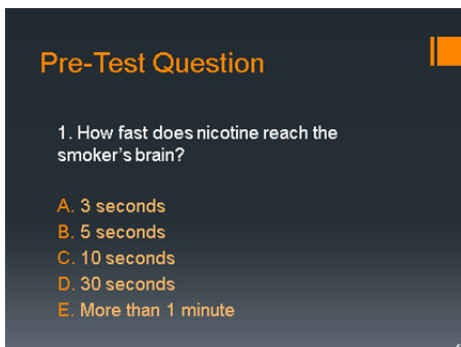
The authors wish to thank the individuals featured on the slide for their valuable contributions to this curriculum.



Slide 4: Test Your Knowledge



The purpose of the following five (5) questions is to test the pre-training level of smoking and HIV knowledge amongst the training participants. The questions are formatted as either multiple choice or true/false questions. Read each question and the possible responses aloud, and give training participants time to jot down their response before moving on to the next question. Do not reveal the answers to the questions until the end of the training session (when you re-administer the questions that appear on slides 108-112).



Slide 5: Pre-Test Question #1



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

2. On average, every cigarette takes _____ minutes off of your life.

- A. 1 minute
- B. 5 minutes
- C. 7 minutes
- D. 11 minutes
- E. 22 minutes

Slide 6: Pre-Test Question #2



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

3. What percentage of smokers start smoking in their teens?

- A. 15%
- B. 30%
- C. 50%
- D. 70%
- E. 80% or more

Slide 7: Pre-Test Question #3



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

4. Using tobacco products may affect HIV in which of the following ways:

- A. Less successful HIV drug therapy
- B. More likely to experience side effects of HIV medications
- C. Higher CD4 counts
- D. Lesser chance of developing opportunistic infections
- E. Higher rates of HIV transmission
- F. A, B, and E only
- G. All of the above

Slide 8: Pre-Test Question #4



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

5. How many classes of FDA-approved smoking cessation medications are available?

- A. None
- B. 1
- C. 3
- D. 5
- E. More than 10

Slide 9: Pre-Test Question #5



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Introductions

- Briefly tell us:
 - What is your name?
 - Where do you work and what do you do there?
 - Who is your favorite musician or performer?
 - What is one reason you decided to attend this training session?



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Slide 10: Introductions



In an effort to break the ice and encourage group interaction, take a few minutes to ask training participants to briefly share the answers to these four questions. You can ask for several volunteers to share their responses, if the size of your audience prevents all participants from sharing.

If the group is too large for formal introductions, the trainer can quickly ask participants the following two questions to gauge their work setting and professional training:

1. How many [case managers, LMFTs or LCSWs, counselors, administrators, physicians, PAs, nurse practitioners, nurses, medical assistants, dentists, etc.] are in the room? Did I miss anyone? {elicit responses}

2. How many people work in a [substance abuse, mental health, primary care, infectious disease] setting? Did I miss any settings? {elicit responses}

Educational Objectives

At the end of this training session, participants will be able to:

1. List and describe at least four types of smoked and smokeless tobacco products
2. Review trends in the prevalence of smoking among adolescents and adults in the United States
3. Discuss the impact of smoking and tobacco use on HIV disease
4. Describe at least three evidence-based behavioral or medical smoking cessation interventions

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Why are we Talking about Smoking?

Smoking remains the leading cause of preventable death and disease in the United States, killing more than 480,000 Americans each year

source: CDC.gov

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Slide 11: Educational Objectives



Briefly review each of the educational objectives with the audience.

Slide 12: Why are we Talking about Smoking?

Smoking remains the leading cause of preventable death and disease in the United States, killing more than 480,000 Americans each year (in other words, smoking is responsible for nearly 1 out of every 5 deaths). Smoking can cause immediate damage to your body, harms every organ system, and leads to disease and disability. For every smoking-related death, at least 30 Americans live with a smoking-related illness. The only proven strategy to protect yourself from harm is to never smoke, and if you do smoke or use tobacco products, to quit.

The Centers for Disease Control and Prevention have numerous smoking and tobacco use resources, including a smoking cessation campaign called “*Tips from Former Smokers.*” For more information, visit:


<http://www.cdc.gov/tobacco>.

Did You Know?

Nicotine reaches your brain within 10 seconds

Research shows menthols may be even more addictive than other cigarettes

More than 7,000 chemicals are found in a single puff of cigarette smoke



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Slide 13: Did You Know?



****ANIMATION INSTRUCTIONS****

The first of three text box animations will appear automatically. Click once to advance to the 2nd animation, and click again to advance to the 3rd animation. Once the 3rd animation appears, click one more time to advance to the next slide.



REFERENCE:

National Institute on Drug Abuse. (2014). *Tobacco/Nicotine Webpage*. Accessed May 27, 2016 from <https://www.drugabuse.gov/drugs-abuse/tobacco-nicotine>.



Slide 14: Did You Know?



**** ANIMATION INSTRUCTIONS ****

The first of three text box animations will appear automatically. Click once to advance to the 2nd animation, and click again to advance to the 3rd animation. Once the 3rd animation appears, click one more time to advance to the next slide.



REFERENCE:

National Institute on Drug Abuse. (2014). *Tobacco/Nicotine Webpage*. Accessed May 27, 2016 from <https://www.drugabuse.gov/drugs-abuse/tobacco-nicotine>.



Slide 15: Did You Know?



****ANIMATION INSTRUCTIONS****

The first of two text box animations will appear automatically. Click once to advance to the 2nd animation, and click again to advance to the 3rd animation. Once the 2nd animation appears, click one more time to advance to the next slide.



REFERENCE:

National Institute on Drug Abuse. (2014). *Tobacco/Nicotine Webpage*. Accessed May 27, 2016 from <https://www.drugabuse.gov/drugs-abuse/tobacco-nicotine>.



Slide 16: Did You Know?



**** ANIMATION INSTRUCTIONS ****

The first of three text box animations will appear automatically. Click once to advance to the 2nd animation, and click again to advance to the 3rd animation. Once the 3rd animation appears, click one more time to advance to the next slide.



REFERENCE:

National Institute on Drug Abuse. (2014). *Tobacco/Nicotine Webpage*. Accessed May 27, 2016 from <https://www.drugabuse.gov/drugs-abuse/tobacco-nicotine>.



Slide 17: Did You Know?



****ANIMATION INSTRUCTIONS****

The stop sign animation will appear automatically. You do not need to click in order to make the animation appear.



REFERENCE:

National Institute on Drug Abuse. (2014). *Tobacco/Nicotine Webpage*. Accessed May 27, 2016 from <https://www.drugabuse.gov/drugs-abuse/tobacco-nicotine>.

What's the Link between Smoking and HIV?

The prevalence of smoking among people living with HIV remains **2- to 3-fold higher** than that of the general population, and this high prevalence of smoking has **profound health implications** for HIV-positive individuals

SOURCE: Rahmanian et al., 2011.

Slide 18: What's the Link between Smoking and HIV?

The prevalence of cigarette smoking among individuals living with HIV infection is exceedingly high, and tobacco has been implicated as a major contributor in the increase of smoking-related illnesses, such as cardiovascular disease, respiratory illnesses, and cancers. Research shows that if you are infected with HIV, the harmful effects of smoking are greatly magnified, even when HIV appears to be under control through the use of antiretroviral medications.



REFERENCE:

Rahmanian, S., Wewers, M.E., Koletar, S., Reynolds, N., Ferketich, A., & Diaz, P. (2011). Cigarette smoking in the HIV-infected population. *Proceedings of the American Thoracic Society*, 8(3), 313-319.



Slide 19: [Transition Slide] – Types of Tobacco Products – What are we talking about?



This next section of the presentation reviews, in detail, the various types of tobacco products that are used in the United States, and beyond.



IMAGE CREDIT:

Fotolia, 2016 (purchased image).

Where is Tobacco Grown?

- In 2015, **five countries**—China, Brazil, India, Turkey, and the United States—produced **two-thirds** of the world's tobacco.
- Grown in **16 states** in the US.
 - The largest tobacco-producing states are **Kentucky** and **North Carolina** (account for **71%** of all tobacco grown in US)



SOURCE: World Lung Foundation, 2015

Slide 20: Where is Tobacco Grown?

Nicotine is a leafy plant grown around the world. It is grown in more than 125 countries, though 5 countries produce two-thirds of all tobacco. Tobacco is grown on a wide variety of soil and climates. The production of tobacco leaves has more than doubled since the 1960s.



REFERENCE:

World Lung Foundation. (2015). *The Tobacco Atlas*. Accessed June 2, 2016 from <http://www.tobaccoatlas.org>.



IMAGE CREDIT:

WHO, 2016.

How can Dried Tobacco Leaves be Used?



- Shredded and smoked in cigarettes, cigars, and pipes
- Ground into snuff, which is sniffed through the nose
- Cured and made into chewing tobacco
- Moistened, ground or shredded into dip, which is placed in the mouth between the lip and gum

SOURCE: US DHHS, 2016

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Slide 21: How can Dried Tobacco Leaves be Used?

Nicotine is a leafy plant grown around the world. Dried tobacco leaves can be used in a variety of ways.



REFERENCE:

US Department of Health and Human Services. (2016). *Tobacco and Nicotine*. Accessed May 27, 2016 from <http://betobaccofree.hhs.gov/about-tobacco/tobacco-and-nicotine/index.html>.



IMAGE CREDIT:

NIDA website, 2016.

Test Your Knowledge

How many ingredients are contained within a cigarette?

- A. 50
- B. 150
- C. 250
- D. 500
- E. 600+

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Slide 22: Test Your Knowledge



Read the question and answer choices, and review audience responses out loud.

Correct Response is E (600+)



**Audience Response System (ARS)-compatible slide



Slide 23: Cigarettes

A **cigarette** is a small cylinder of finely cut tobacco leaves rolled in thin paper for smoking. The cigarette is ignited at one end and allowed to smolder; its smoke is inhaled from the other end, which is held in or to the mouth. In some cases, a cigarette holder may be used, as well.

Most modern manufactured cigarettes are filtered and also include reconstituted tobacco and other additives. The term cigarette, as commonly used, refers to a tobacco cigarette, but can apply to similar devices containing other substances, such as cannabis. A cigarette is distinguished from a cigar by its smaller size, use of processed leaf, and paper wrapping, which is normally white, though other colors and flavors are also available. Cigarettes contain approximately 600 ingredients. When burned, they create upwards of 7,000 chemicals, many of which are known to cause cancer or are poisonous. Many of the chemicals found in cigarette smoke are also found in consumer products, but those products carry warning labels. No such warning exists to warn the public of the toxins that are contained in cigarette smoke.

(Notes for Slide 23, continued)

Slide 23: Cigarettes

The following list details a few of the chemicals in tobacco smoke and other places they are found:

- **Acetone** – found in nail polish remover
- **Acetic Acid** – an ingredient in hair dye
- **Ammonia** – a common household cleaner
- **Arsenic** – used in rat poison
- **Benzene** – found in rubber cement
- **Butane** – used in lighter fluid
- **Cadmium** – active component in battery acid
- **Carbon Monoxide** – released in car exhaust fumes
- **Formaldehyde** – embalming fluid
- **Hexamine** – found in barbecue lighter fluid
- **Lead** – used in batteries
- **Naphthalene** – an ingredient in mothballs
- **Methanol** – a main component in rocket fuel
- **Nicotine** – used as insecticide
- **Tar** – material for paving roads
- **Toluene** – used to manufacture paint

(Notes for Slide 23, continued)



Slide 23: Cigarettes



IMAGE CREDIT (Top to Bottom):

NIDA website, 2016; Fotolia, 2016 (purchased image).

Slide 24: What Does Your Garage have in Common with a Cigarette?

One cigarette probably has more chemicals than all the stuff you keep in your garage. Let's take a look:

Ammonia is one of the most commonly produced industrial chemicals in the United States, but you probably know it best as a household cleaner—the kind that you wear gloves around and avoid breathing in.

Arsenic is notorious for its use in rat poison. It's also one of the World Health Organization's 10 chemicals of major public health concern, along with two other ingredients on this list, benzene and cadmium.

(Notes for Slide 24, continued)

Slide 24: What Does Your Garage have in Common with a Cigarette?

Benzene is found in glues and adhesives—such as rubber cement—as well as car fumes and gasoline exhaust. But according to National Cancer Institute, cigarette smoking accounts for about half of the total U.S. population exposure to this cancer-causing chemical.

Butane is highly flammable and often used as fuel for lighters.

Cadmium is an active component in battery acid. Cadmium itself is classified as a human carcinogen, and smokers have about twice as much of it in their bodies as do non-smokers.

Carbon monoxide, a deadly, colorless, odorless, and poisonous gas, is released in car exhaust fumes as well as from a burning cigarette.

Hexamine is found in barbecue lighter fluid.

Naphthalene is an ingredient in moth balls, which are basically small balls of pesticide. Naphthalene turns directly from a solid into a toxic vapor, which in the case of mothballs kills insects and may repel animals.

Nicotine is the infamous addictive substance in tobacco products. It is also used as an insecticide because of its toxicity.

(Notes for Slide 24, continued)

Slide 24: What Does Your Garage have in Common with a Cigarette?

Tar is black and sticky material for paving roads. In cigarettes, it's the solid, sticky substance that remains after tobacco is burned, both in the ashtray and inside your lungs.

Toluene is used to manufacture paint and it's also found in gasoline. Exposure to toluene may affect the central nervous system.



REFERENCE:

American Lung Association. (2016). Accessed June 6, 2016 from <http://www.lung.org/about-us/blog/2016/05/your-garage-and-a-cigarette.html>.



IMAGE CREDIT:

American Lung Association website, 2016.



Slide 25: Cigars

Cigars are manufactured in three main forms – little cigars, cigarillos, and large cigars. The following three slides provide more detail on each type of cigar.



IMAGE CREDIT:

CDC website, 2016.

Little Cigars

- Similar in size and appearance to cigarettes
- Wrapped in brown paper that contains some tobacco leaf
- Available in a number of flavors
- Sold in packs of 20
- Brands include Swisher Sweets®, Winchester®, and Cheyenne®



SOURCE: Slide courtesy of Kimberlee Homer Agadol, 2016

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Slide 26: Little Cigars

Cigars are defined by the US government as “any roll of tobacco wrapped in leaf tobacco.” While there are currently three major cigar products—cigars, cigarillos and little cigars—current federal classifications narrowly define them into two categories: little cigars and large cigars. Little cigar flavors include vanilla, grape, watermelon, cherry, chocolate, and menthol, among others. The sale of little cigars increased by approximately 240% between 1997 and 2007. U.S. imports of little cigars increased from 34 million pieces in 1997 to 311 million pieces in 2007, an increase of more than 800%. As a point of comparison, large cigar imports jumped from 587 million to 889 million during the same time period, an increase of only 51%. According to tobacco industry documents, little cigars were intended to replace cigarettes as cigarette advertising became increasingly restricted, and taxes on cigarettes, but not cigars, continued to increase.

With regards to the health risks, some users have a misconception that little cigars are less addictive and less harmful than cigarettes, but in fact, little cigars, cigarillos, and large cigars contain the same compounds as cigarettes and can be just as harmful and addictive.

(Notes for Slide 26, continued)

Slide 26: Little Cigars

Similar to cigarettes, all types of cigar products can cause various cancers and cigar smokers are at a greater risk of developing chronic obstructive pulmonary disease (COPD) than non-smokers.



REFERENCE:

American Legacy Foundation. (2009). *Cigars, Cigarillos, & Little Cigars Fact Sheet*. Washington, DC: Author.



IMAGE CREDIT:

Fotolia, 2016 (purchased image).

Cigarillos (a.k.a. "blunts")

- "Mid-size" cigars; grouped in the same category as large cigars
- Also known as blunts
- Can be tipped or untipped
- Sold individually or in packages



SOURCE: Slide courtesy of Kimberlee Homer Agabot, 2016

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Slide 27: Cigarillos (a.k.a., "blunts")

Cigarillos are grouped with large cigars in the Federal classifications because of their weight. Cigarillos are also called blunts or cheroots. All tobacco blunts are rolled in two sheets of tobacco. Similar to little cigars, cigarillos come in a variety of flavors, including cherry, apple, menthol, and wine, to name a few. The sale of cigarillos increased by about 150% between 1997 and 2007. With regards to the health risks, some users have a misconception that cigarillos are less addictive and less harmful than cigarettes, but in fact, little cigars, cigarillos, and large cigars contain the same compounds as cigarettes and can be just as harmful and addictive. Similar to cigarettes, all types of cigar products can cause various cancers and cigar smokers are at a greater risk of developing chronic obstructive pulmonary disease (COPD) than non-smokers.



REFERENCE:


American Legacy Foundation. (2009). *Cigars, Cigarillos, & Little Cigars Fact Sheet*. Washington, DC: Author.



IMAGE CREDIT:

Fotolia, 2016 (purchased image).

Large Cigars



- Shredded tobacco wrapped in tobacco leaves
- Cigar flavorings are not regulated by the federal government
- Either rolled by hand or machine
 - Higher quality cigars are rolled by hand
 - Cheaper cigars are rolled by a machine

SOURCE: Slide courtesy of Kimberlee Homer Agabot, 2016

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Slide 28: Large Cigars

Large cigars may contain as much tobacco as an entire pack of cigarettes. Cigars are wrapped in tobacco leaves and burn differently than cigarettes. As a result, cigar smoke has a higher concentration of toxins than cigarettes. Whereas the sale of little cigars and cigarillos increased between 1997 and 2007, the sale of large cigars actually decreased by 6% in that same time period.

With regards to the health risks, some users have a misconception that cigarillos are less addictive and less harmful than cigarettes, but in fact, little cigars, cigarillos, and large cigars contain the same compounds as cigarettes and can be just as harmful and addictive. Similar to cigarettes, all types of cigar products can cause various cancers and cigar smokers are at a greater risk of developing chronic obstructive pulmonary disease (COPD) than non-smokers.



REFERENCE:

American Legacy Foundation. (2009). *Cigars, Cigarillos, & Little Cigars Fact Sheet*. Washington, DC: Author.

(Notes for Slide 28, continued)

Slide 28: Large Cigars



IMAGE CREDIT:

Fotolia, 2016 (purchased image).

Smokeless Tobacco

- Includes **chewing tobacco** (loose leaf, plug, twist) and **snuff** (dry and moist)
 - Available loose or in pouches
 - Multiple flavors
- **Energy Dip** (long cut tobacco blend)
- **Snus** (moist power tobacco sold in pouches)

SOURCE: Slide courtesy of Kimberlee Homer Agadol, 2016

Slide 29: Smokeless Tobacco

Several smokeless tobacco products are currently on the market, including chewing tobacco, snuff, Energy Dip, and snus.

Popular brands of chewing tobacco include Skoal, Copenhagen, Timberwolf, and Grizzly. As with the other tobacco products that have been previously describe, smokeless tobacco comes in many different flavors, including mint, cinnamon, berry, grape, vanilla, and alcohol-flavored. Energy dip contains tobacco mixed with caffeine and other additives. Flavors include straight, wintergreen, and mint. Energy dip is marketed towards service members, civil servants, and consumers who could benefit from being alert, focused, and energized. Snus is consumed by placing the moist powder in the upper lip for at least 30 minutes. Popular brands include Camel and Marlboro.

Smokeless tobacco products are not a safe substitute to smoking cigarettes, as the products contain at least 28 known cancer-causing chemicals. As with other tobacco products, the use of smokeless tobacco can cause a number of cancers (e.g., oral, pancreatic, and esophageal) and other diseases, such as tooth decay, diseases of the mouth, and heart disease.

(Notes for Slide 29, continued)

Slide 29: Smokeless Tobacco

A misconception exists that smokeless tobacco is effective in helping individuals quit smoking, but on the contrary, data show that smokeless tobacco use maintains nicotine dependence in individuals who quit smoking. Similar to cigarette smokers, smokeless tobacco users exhibit nicotine dependence.




IMAGE CREDIT:

CDC website, 2016.

Hookah

- Waterpipe used for smoking tobacco
 - Other names include *shisha*, *narghile*, and *goza*
 - Can also be used to smoke steam stones, herbs, cannabis, etc.
- Mixture of shredded tobacco leaf and honey, molasses, or dried fruit.
- Multiple flavors



The diagram shows a hookah with labels: head, body, hose, water bowl, and mouthpiece. Below the diagram are two photographs of hookahs.

SOURCE: Slide courtesy of Kimberlee Homer 'Agadol, 2016

Slide 30: Hookah

Waterpipe tobacco smoking, also known as hookah and shisha, has increased in popularity among young people in the United States. Hookah use is popular among youth and young adults, and is most common among 18-24 year olds, non-Hispanic whites, those with at least some college education, and current and former tobacco users. Hookah use is also increasingly becoming the first tobacco that young people try.

Steam stones are heat-treated, porous materials soaked in a fluid (typically a mix of glycerin and flavoring). The tobacco can come in many flavors, including apple, banana, peach, pineapple, rose, strawberry, tutti fruity, vanilla, watermelon, berry, chocolate, coconut, coffee, cola, grape, kiwi, lemon, licorice, mango, mint, orange, apricot, and bubblegum.



REFERENCES:

Meier, E.M., Tackett, A.P., Miller, M.B., Grant, D.M., & Wagener, T.L. (2015). Which nicotine products are gateways to regular use? First-trying tobacco and current use in college students. *American Journal of Preventive Medicine*, 48(1, Suppl 1), S86-S93.

(Notes for Slide 30, continued)

Slide 30: Hookah



REFERENCES:

Salloum, R.G., Osman, A., Maziak, W., & Thrasher, J.F. (2015). How popular is waterpipe tobacco smoking? Findings from internet search queries. *Tobacco Control, 24*(5), 509-513.

Salloum, R.G., Thrasher, J.F., Kates, F.R., & Maziak, W. (2015). Water pipe tobacco smoking in the United States: Findings from the National Adult Tobacco Survey. *Preventive Medicine, 71*, 88-93.

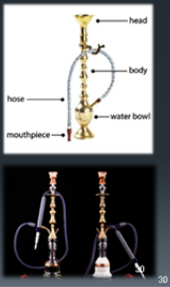


IMAGE CREDITS (Top to Bottom):

CDC website, 2016; Fotolia, 2016 (purchased image).

Hookah

- Waterpipe used for smoking tobacco
 - Other names include *shisha*, *narghile*, and *goza*
 - Can also be used to smoke steam stones, herbs, cannabis, etc.
- Mixture of shredded tobacco leaf and honey, molasses, or dried fruit.
- Multiple flavors



SOURCE: Slide courtesy of Kimberlee Homer Agadol, 2016

Slide 31: Hookah vs. Cigarettes

Depending on the toxicant measured, a single waterpipe session produces the equivalent of at least 1 and as many as 50 cigarettes. Misconceptions about waterpipe smoke content may lead users to underestimate health risks. Specifically, compared to smoking one cigarette, a single session of smoking a water pipe is associated with 1.7 times the nicotine, 8.4 times the carbon monoxide, and 36 times the tar.



REFERENCE:

Cobb, C., Ward, K.D., Maziak, W., Shihadeh, A.L., & Eissenberg, T. (2010). Waterpipe tobacco smoking: An emerging health crisis in the United States. *American Journal of Health Behaviors*, 34(3), 275-285.

What do you think?

E-cigarettes are a safe alternative to smoking regular cigarettes.

A. True
B. False

32

Slide 32: What do you think?



Read the question and answer choices, and review audience responses out loud.

Correct Response is B (False)



**Audience Response System (ARS)-compatible slide

Electronic Cigarettes



- Cig-a-Like
 - Same size/shape as cigarettes
 - Nicotine solution sold in pre-filled cartridge
- Vape Pens
 - Larger device
 - May look like ink pen
 - User fills pen with nicotine solution
- Mods or Tanks
 - Largest device
 - Contains big battery that creates more aerosol
 - Users fill with nicotine solution
- Hookah Pens
 - Flavored e-cigarette designed to taste like hookah smoke
 - Often a bit larger than a cig-a-like

SOURCE: Slide courtesy of Kimberlee Homer Agadol, 2016

33

Slide 33: Electronic Cigarettes

Electronic cigarettes, which are also called e-cigarettes or electronic nicotine delivery systems, are battery-operated devices designed to deliver nicotine with flavorings and other chemicals to users in vapor instead of smoke. They can be manufactured to resemble traditional tobacco cigarettes, cigars or pipes, or even everyday items like pens or USB memory sticks. Newer devices, such as those with fillable tanks, may look different. More than 250 different e-cigarette brands are currently on the market. Four main types of electronic cigarettes (e-cigarettes) are marketed – cig-a-like, vape pens, mods or tanks, and hookah pens.

(Notes for Slide 33, continued)

E-Cigarettes

- Do **not** contain tobacco, but nicotine may be derived from tobacco
- Solution includes three main ingredients
 - Propylene Glycol
 - Vegetable Glycerin (humectant)
 - Nicotine
 - Flavor
- Can be used to smoke other substances
 - Cannabis
 - Alcohol

SOURCE: Slide courtesy of Kimberlee Hunter-Spardon, 2016.

34

Slide 33: Electronic Cigarettes



REFERENCE:

National Institute on Drug Abuse. (2016). *Drug Facts: Electronic Cigarettes (e-cigarettes)*. Rockville, MD: NIDA, National Institutes of Health, U.S. Department of Health and Human Services.



IMAGE CREDIT:

Fotolia, 2016 (purchased image).

Slide 34: E-Cigarettes

Most e-cigarettes consist of three different components, including: (1) a cartridge that holds a liquid solution containing varying amounts of nicotine, flavorings, and other chemicals; (2) a heating device (vaporizer); and (3) a power source (usually a battery). In many types of e-cigarettes, puffing activates the battery-powered heating device, which vaporizes the liquid in the cartridge. The resulting aerosol or vapor is then inhaled (called "vaping").

(Notes for Slide 34, continued)

Slide 34: E-Cigarettes

E-cigarettes are designed to simulate the act of tobacco smoking by producing an appealingly flavored aerosol that looks and feels like tobacco smoke and delivers nicotine but with less of the toxic chemicals produced by burning tobacco leaves. Because they deliver nicotine without burning tobacco, e-cigarettes *appear* as if they may be a safer, less toxic alternative to conventional cigarettes, though insufficient evidence exists to determine whether or not this is the case. Although they do not produce tobacco smoke, e-cigarettes still contain nicotine and other potentially harmful chemicals.

Some people believe e-cigarette products may help smokers lower nicotine cravings while they are trying to discontinue their tobacco use. However, at this point it is unclear whether e-cigarettes may be effective as smoking cessation aids. There is also the possibility that they could perpetuate the nicotine addiction and thus interfere with quitting.



REFERENCE:

National Institute on Drug Abuse. (2016). *Drug Facts: Electronic Cigarettes (e-cigarettes)*. Rockville, MD: NIDA, National Institutes of Health, U.S. Department of Health and Human Services.

(Notes for Slide 34, continued)

Slide 34: E-Cigarettes



IMAGE CREDITS (Top to Bottom):

Fotolia, 2016 (purchased image); CDC website, 2016.

E-Cigarette Use by Youth

Students who have used e-cigarettes by the time they start 9th grade are more likely than others to start smoking traditional cigarettes and other smokable tobacco products within the next year



SOURCE: Rigotti, 2015

36

Slide 35: E-Cigarette Use by Youth

E-cigarettes are increasingly popular among teens. Some states have banned sale of e-cigarettes to minors, but teens have been ordering them online. Their easy availability (online or via mall kiosks), in addition to their wide array of cartridge flavors (such as coffee, mint, candy, and fruit flavors), have helped make them particularly appealing to this age group. As a part of the FDA's new regulation to protect the health of our youth, minors will no longer be able to buy e-cigarettes in person or online.

In addition to the unknown health effects, early evidence suggests that e-cigarette use may serve as an introductory product for youth who then go on to use other tobacco products, including conventional cigarettes, which are known to cause disease and lead to premature death. A recent study showed that students who have used e-cigarettes by the time they start 9th grade are more likely than others to start smoking traditional cigarettes and other smokable tobacco products within the next year (Rigotti, 2015).

(Notes for Slide 35, continued)

Slide 35: E-Cigarette Use by Youth



REFERENCES:

National Institute on Drug Abuse. (2016). *Drug Facts: Electronic Cigarettes (e-cigarettes)*. Rockville, MD: NIDA, National Institutes of Health, U.S. Department of Health and Human Services.

Rigotti, N.A. (2015). E-cigarette use and subsequent tobacco use by adolescents: New evidence about a potential risk of e-cigarettes. *Journal of the American Medical Association*, 314(7), 673-674.



IMAGE CREDIT:

Fotolia, 2016 (purchased image).



Slide 36: Betel Quid with Tobacco

Betel quid is a combination of betel leaf, areca nut, and slaked lime. In many countries, tobacco is also added, and the product is known as gutka, ghutka, or gutkha. Global estimates report that up to 600 million men and women use some variety of betel quid. Betel quid with or without tobacco is widely used in the Indian subcontinent (e.g., Bangladesh, India, and Pakistan), as well as throughout Asia and the Pacific region (e.g., Cambodia, Indonesia, Malaysia, Philippines, Taiwan, and Thailand). Health effects include oral precancerous lesions and leukoplakia, oral submucous fibrosis, oral cancers, cancer of the esophagus, reproductive health outcomes, and nicotine addiction.



REFERENCE:

Centers for Disease Control and Prevention. (2016). *Betel Quid with Tobacco (Gutka)*. Accessed June 6, 2016 from http://www.cdc.gov/tobacco/data_statistics/fact_sheets/smokeless/betel_quid/index.htm.



IMAGE CREDIT:

WHO IARC Report, 2004.

Commonalities among Non-Cigarette Tobacco Products

- Flavors
- Lack of regulation
- Accessibility
- Affordability
- Myths and Misconceptions
- Gateway to Cigarettes
- Cessation Implications



SOURCE: Slide courtesy of Kimberlee Homer Magdon, 2016.

37

Slide 37: Commonalities among Non-Cigarette Tobacco Products

With regards to **flavors**, at this time, cigarettes are the only tobacco product that cannot be made with added flavors (other than menthol). Thousands of unique flavors of nicotine solution (e-juice) used in electronic cigarettes exist. Flavors are known to attract new users, especially youth and young adults. With regards to **lack of regulation**, non-cigarette tobacco products are not currently regulated by the FDA, and many products, such as hookah, smokeless tobacco, and e-cigarettes can be used in smoke-free environments.

Several issues related to **accessibility** exist. Many college campuses, such as UCLA, include hookah stores and lounges on or near campus. Many retailers are in close proximity to schools. According to one data source, in California, 75% of retailers near schools sell flavored non-cigarette tobacco products. Non-cigarette tobacco products are not taxed at all or are taxed differently than cigarettes, making them more **affordable**. Not all tobacco products are sold in packs, such as cigarillos or little cigars, so single quantity products may be purchased for under \$1. Smoking devices, such as a hookah, can be made at home with liquor/beverage bottles and tubing.

(Notes for Slide 37, continued)

Slide 37: Commonalities among Non-Cigarette Tobacco Products

Many myths and misconceptions exist with regards to the safety of alternative tobacco products. Some users feel that they are safer than cigarettes or may serve as a smoking cessation aid. Others feel that because they do not use the products daily, they can quit at any time. For some, something that smells good cannot possibly be bad for them; and for others, because they do not smoke cigarettes, they do not consider themselves a smoker.

Numerous studies have concluded that alternative tobacco products may lead people to use cigarettes; and there is growing evidence that e-cigarettes in particular act as a **gateway** to regular cigarettes. At least six studies that were published in 2015 along came to the conclusion that youth who use e-cigarettes are more likely to smoke traditional cigarettes. Lastly, with regards to **cessation implications**, cessation may need to be approached differently with non-daily or light tobacco users.

(Notes for Slide 37, continued)



Slide 37: Commonalities among Non-Cigarette Tobacco Products

The type of treatment (e.g., behavioral intervention, NRT) may be different; promotion of cessation services may need to be adapted so that nondaily users pay attention; and dual use of multiple different types of tobacco products needs to be a focus of cessation efforts (those who use multiple types of alternative tobacco products may actually have a greater dependence on nicotine due to more consistent use throughout the day).



IMAGE CREDIT:

Beth Rutkowski personal image, 2016.

Slide 38: [Transition Slide] – The Health Impacts of Smoking

Nicotine is a highly addictive drug, and recent research suggests nicotine exposure may also prime the brain to become addicted to other substances. The following section describes the health impacts of smoking.

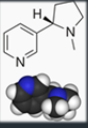


IMAGE CREDIT:

Fotolia, 2016 (purchased image).

Nicotine

- Tobacco is an **addictive** substance because it **contains the chemical nicotine**
- Like heroin or cocaine, nicotine **changes the way your brain works** and causes you to **crave more and more nicotine**
- This **addiction to nicotine** is what makes it so difficult to quit smoking and using other tobacco products



SOURCE: US DHHS, 2016

39

Slide 39: Nicotine

Nicotine is a potent parasympathomimetic alkaloid and is a stimulant drug found in the tobacco plant. More than 7,000 chemicals are found in the smoke of tobacco products. Of these, nicotine, first identified in the early 1800s, is the primary reinforcing component of tobacco.

Nicotine is addictive. The stimulant effect is a contributing factor to the addictive properties of tobacco smoking. Nicotine's addictive nature includes psychoactive effects, drug-reinforced behavior, compulsive use, relapse after abstinence, physical dependence, and tolerance.



REFERENCE:

US Department of Health and Human Services. (2016). *Tobacco and Nicotine*. Accessed May 27, 2016 from <http://betobaccofree.hhs.gov/about-tobacco/tobacco-and-nicotine/index.html>.



IMAGE CREDIT:

Wikipedia, 2016.

Test Your Knowledge

Nicotine reaches the brain faster when you inhale cigarette smoke vs. chew smokeless tobacco.

- A. True
- B. False

Slide 40: Test Your Knowledge



Read the question and answer choices, and review audience responses out loud.

Correct Response is A (True)




**Audience Response System (ARS)-compatible slide

How Does Tobacco Deliver its Effects?

- 1-2 milligrams of nicotine are inhaled in tobacco smoke
- When tobacco is smoked, nicotine rapidly reaches peak levels in the bloodstream and enters the user's brain
- An average smoker will take 10 puffs of a cigarette over a period of 5 minutes
- With tobacco products in which the user does not inhale the smoke (cigar and pipe, smokeless tobacco), nicotine is absorbed through the mucosal membranes and reaches peak blood levels and the brain more slowly

SOURCE: NIDA, 2015



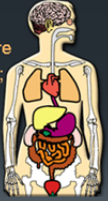
Slide 41: How Does Tobacco Deliver its Effects?

Cigarette smoking is the most popular method of using tobacco; however, many people also use smokeless tobacco products, such as snuff and chewing tobacco. These smokeless products also contain nicotine, as well as many toxic chemicals. The cigarette is a very efficient and highly engineered drug delivery system. By inhaling tobacco smoke, the average smoker takes in 1–2 milligrams of nicotine per cigarette. When tobacco is smoked, nicotine rapidly reaches peak levels in the bloodstream and enters the brain. A typical smoker will take 10 puffs on a cigarette over a period of 5 minutes that the cigarette is lit. Thus, a person who smokes about 1½ packs (30 cigarettes) daily gets 300 "hits" of nicotine to the brain each day. In those who typically do not inhale the smoke—such as cigar and pipe smokers and smokeless tobacco users—nicotine is absorbed through the mucosal membranes and reaches peak blood levels and the brain more slowly. Immediately after exposure to nicotine, there is a "kick" caused in part by the drug's stimulation of the adrenal glands and resulting discharge of epinephrine (adrenaline). The rush of adrenaline stimulates the body and causes an increase in blood pressure, respiration, and heart rate.

(Notes for Slide 41, continued)

Mechanism of Action of Nicotine

- Nicotine affects the entire body
- Changes **heart rate and blood pressure**
- Acts on nerves that control **respiration**; changes **breathing patterns**
- Acts in the brain to stimulate **feelings of pleasure**



SOURCE: NIDA, 2016. 42

Slide 41: How Does Tobacco Deliver its Effects?



REFERENCE:

National Institute on Drug Abuse. (2016). *Research Report Series: Tobacco/Nicotine*. Rockville, MD: National Institutes of Health, US Department of Health and Human Services.



IMAGE CREDIT:

NIDA website, 2016.

Slide 42: Mechanism of Action of Nicotine

Nicotine affects the entire body. Nicotine acts directly on the heart to change heart rate and blood pressure. It also acts on the nerves that control respiration to change breathing patterns. In high concentrations, nicotine is deadly, in fact one drop of purified nicotine on the tongue will kill a person. It's so lethal that it has been used as a pesticide for centuries. So why do people smoke? Because nicotine acts in the brain where it can stimulate feelings of pleasure.

(Notes for Slide 42, continued)

Slide 42: Mechanism of Action of Nicotine

When tobacco is smoked, nicotine is absorbed by the lungs and quickly moved into the bloodstream, where it is circulated throughout the brain. All of this happens very rapidly. In fact, nicotine reaches the brain within 8 seconds after someone inhales tobacco smoke. Nicotine can also enter the bloodstream through the mucous membranes that line the mouth (if tobacco is chewed) or nose (if snuff is used), and even through the skin.



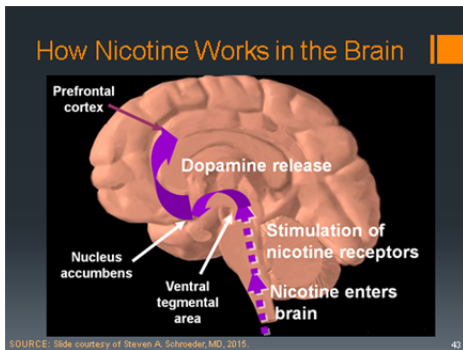
REFERENCE:

National Institute on Drug Abuse. (2016). *Mind Over Matter: Nicotine*. Accessed May 15, 2016 from <https://teens.drugabuse.gov/teachers/mind-over-matter/nicotine>.



IMAGE CREDIT:

NIDA website, 2016.



Slide 43: How Nicotine Works in the Brain

The human brain is made up of billions of nerve cells. They communicate by releasing chemical messengers called neurotransmitters. Each neurotransmitter is like a key that fits into a special "lock," called a receptor, located on the surface of nerve cells. When a neurotransmitter finds its receptor, it activates the receptor's nerve cell.

The nicotine molecule is shaped like a neurotransmitter called acetylcholine. Acetylcholine and its receptors are involved in many functions, including muscle movement, breathing, heart rate, learning, and memory. They also cause the release of other neurotransmitters and hormones that affect your mood, appetite, memory, and more. When nicotine gets into the brain, it attaches to acetylcholine receptors and mimics the actions of acetylcholine.

Nicotine also activates areas of the brain that are involved in producing feelings of pleasure and reward. Recently, scientists discovered that nicotine raises the levels of a neurotransmitter called dopamine in the parts of the brain that produce feelings of pleasure and reward.

(Notes for Slide 43, continued)

Slide 43: How Nicotine Works in the Brain

Dopamine, which is sometimes called the pleasure molecule, is the same neurotransmitter that is involved in addictions to other drugs such as cocaine and heroin. Researchers now believe that this change in dopamine may play a key role in all addictions. This may help explain why it is so hard for people to stop smoking.

Drugs such as cocaine, heroin, amphetamine, and nicotine exert profound effects on the brain. These agents have in common the ability to **stimulate the release of the neurotransmitter dopamine** in the midbrain. **Dopamine induces feelings of euphoria and pleasure and is responsible for activating the dopamine reward pathway** (Leshner, 1997).

The dopamine reward pathway, as depicted in this simplified diagram, is a network of nervous tissue in the middle of the brain that elicits feelings of pleasure in response to certain stimuli. The important interconnected structures of the reward pathway include the **ventral tegmental area (VTA)**, the **nucleus accumbens**, and the **prefrontal cortex** (area of the brain responsible for thinking and judgment).

(Notes for Slide 43, continued)

Slide 43: How Nicotine Works in the Brain

The neurons of the VTA contain the neurotransmitter dopamine, which is released in the nucleus accumbens and in the prefrontal cortex.

Behaviors that naturally stimulate the reward pathway include eating to relieve hunger, drinking to alleviate thirst, or engaging in sexual activity. On a primitive, neurochemical level, **stimulation of the reward pathway reinforces the behavior so that it will be repeated**. Obviously these behaviors are necessary for continued survival of the organism. The reward pathway can also be stimulated by drugs of abuse such as cocaine, opiates, amphetamine, and nicotine. When these unnatural stimuli trigger the reward pathway the same pleasurable feelings are elicited. Researchers believe that, with chronic drug use, the brain becomes chemically altered—transforming a drug user into a drug addict (Leshner, 1997).

Consider cigarette smoking as an example. Immediately following inhalation, a bolus of nicotine enters the brain, stimulating the release of dopamine, which induces nearly immediate feelings of pleasure and relief of symptoms of nicotine withdrawal. This rapid dose-response reinforces and perpetuates the smoking behavior.

(Notes for Slide 43, continued)

Slide 43: How Nicotine Works in the Brain

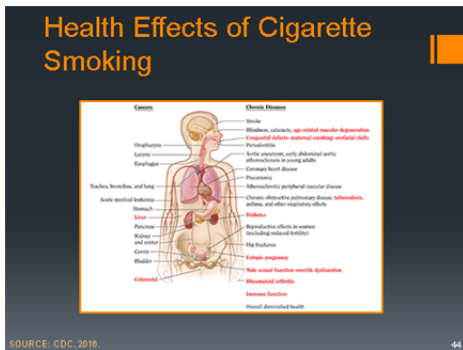


NOTE: This slide is made available to the public through the National Institute on Drug Abuse Web page, at www.nida.nih.gov/Teaching/largegifs/slide-9.gif. Adapted with permission by Dr. Rochelle D. Schwartz-Bloom, Duke University.



REFERENCE:

Leshner, A. (1997). Drug abuse and addiction are biomedical problems. Hospital Practice, Special Report, 2-4.



Slide 44: Health Effects of Cigarette Smoking

Cigarette smoking harms *nearly every* organ of the body, causes many diseases, and reduces the health of smokers in general. Quitting smoking lowers your risk for smoking-related diseases and can add years to your life.

Smoking can make it harder for a woman to become pregnant and can affect her baby's health before and after birth. Smoking increases risks for: preterm (early) delivery; stillbirth (death of the baby before birth); low birth weight; sudden infant death syndrome (known as SIDS or crib death); ectopic pregnancy; and orofacial clefts in infants.

Smoking can also affect men's sperm, which can reduce fertility and also increase risks for birth defects and miscarriage. Smoking can affect bone health. Women past childbearing years who smoke have weaker bones than women who never smoked, and are at greater risk for broken bones.

Smoking affects the health of your teeth and gums and can cause tooth loss. Smoking can increase your risk for cataracts (clouding of the eye's lens that makes it hard for you to see) and age-related macular degeneration (damage to a small spot near the center of the retina, the part of the eye needed for central vision).

(Notes for Slide 44, continued)

Slide 44: Health Effects of Cigarette Smoking

Smoking is a cause of type 2 diabetes mellitus and can make it harder to control. The risk of developing diabetes is 30–40% higher for active smokers than nonsmokers. Smoking causes general adverse effects on the body, including inflammation and decreased immune function. Smoking is a cause of rheumatoid arthritis.



REFERENCES:

U.S. Department of Health and Human Services. (2014). *The Health Consequences of Smoking – 50 Years of Progress: A Report from the Surgeon General*. Atlanta, GA: U.S. DHHS, Centers for Disease Control and Prevention and Health Promotion, Office of Smoking and Health.

U.S. Department of Health and Human Services. (2010). *How Tobacco Smoke Causes Disease: What It Means to You*. Atlanta: U.S. DHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

(Notes for Slide 44, continued)

Slide 44: Health Effects of Cigarette Smoking



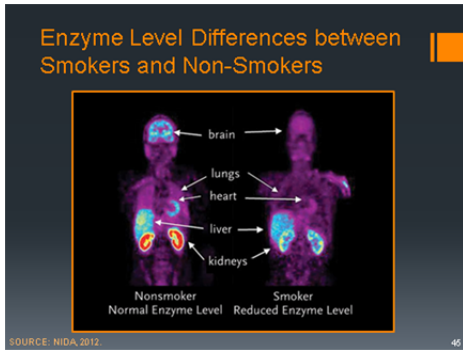
REFERENCE:

U.S. Department of Health and Human Services. (2001). *Women and Smoking: A Report of the Surgeon General*. Rockville (MD): U.S. DHHS, Public Health Service, Office of the Surgeon General.



IMAGE CREDIT:

CDC website, 2016.



Slide 45: Enzyme Level Differences between Smokers and Non-Smokers

Scientists can use advanced neuroimaging technology to see the dramatic effect of cigarette smoking on the brain and body. Findings include a marked decrease in the levels of monoamine oxidase (MAO B), an important enzyme that is responsible for the breakdown of dopamine (Source: Fowler et al., 2003).



REFERENCE:

National Institute on Drug Abuse. (2012). *Tobacco/Nicotine*. Accessed May 15, 2016 from <https://www.drugabuse.gov/publications/research-reports/tobacco/what-are-medical-consequences-tobacco-use>.



Slide 46: The Impact of Smoking on the User's Lungs

Sticky, brown tar coats the lungs of tobacco smokers. Along with thousands of other damaging chemicals, tar can lead to lung cancer and acute respiratory diseases. The image on the left is that of the lung of a health, non-smoker. The image on the right is that of a smoker's lung.



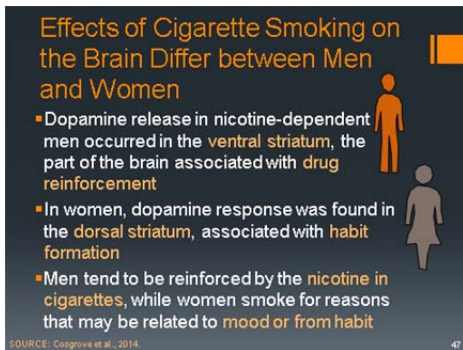
IMAGE CREDIT:

Image Credit: NIDA, 2016.

Effects of Cigarette Smoking on the Brain Differ between Men and Women

- Dopamine release in nicotine-dependent men occurred in the **ventral striatum**, the part of the brain associated with **drug reinforcement**
- In women, dopamine response was found in the **dorsal striatum**, associated with **habit formation**
- Men tend to be reinforced by the **nicotine in cigarettes**, while women smoke for reasons that may be related to **mood or from habit**

SOURCE: Coggrove et al., 2014



Slide 47: Effects of Cigarette Smoking on the Brain Differ between Men and Women

Researchers from Yale University discovered that brain activation during smoking occurs differently in men than in women. The research used a new method of brain imaging scan analysis, and was funded by NIDA and the NIH Office of Research on Women's Health. The study showed that dopamine release in nicotine-dependent men during smoking occurred in the part of the brain (ventral striatum) associated with drug reinforcement. The dopamine response in women was found within a part of the brain (dorsal striatum) associated with habit formation. The scientists suggest that these findings support previously published data that shows men tend to be reinforced by the nicotine in cigarettes, while women, though no less dependent on nicotine, smoke for reasons that may be related to mood or from habit. Understanding the differences of nicotine's impact on the brains of both men and women could help identify effective gender-sensitive approaches to smoking cessation.

(Notes for Slide 47, continued)


Slide 47: Effects of Cigarette Smoking on the Brain Differ between Men and Women



REFERENCE:

Cosgrove, K.P., Wang, S., Kim, S.-J., McGovern, E., Nabulsi, N., Gao, H., Labaree, D., Tagare, H.D., Sullivan, J.M., & Morris, E.D. (2014). Sex differences in the brain's dopamine signature of cigarette smoking. *Journal of Neuroscience*, *34*(50), 16851-16855.

Smoking and Pregnancy



- An estimated 16% of pregnant women smoke during their pregnancies
- Carbon monoxide and nicotine from tobacco smoke may interfere with the oxygen supply to the fetus
- Adverse effects include fetal growth retardation and decreased birthweight
- Smoking during pregnancy may also be associated with spontaneous abortion and sudden infant death syndrome (SIDS)

SOURCE: NIDA, 2016

Slide 48: Smoking and Pregnancy

In the United States, it is estimated that about 16% of pregnant women smoke during their pregnancies. Carbon monoxide and nicotine from tobacco smoke may interfere with the oxygen supply to the fetus. Nicotine also readily crosses the placenta, and concentrations in the fetus can be as much as 15 percent higher than maternal levels. Nicotine concentrates in fetal blood, amniotic fluid, and breast milk. Combined, these factors can have severe consequences for the fetuses and infants of smoking mothers. Smoking during pregnancy caused an estimated 910 infant deaths annually from 1997 through 2001, and neonatal care costs related to smoking are estimated to be more than \$350 million per year.

The adverse effects of smoking during pregnancy can include fetal growth retardation and decreased birthweight. The decreased birthweights seen in infants of mothers who smoke reflect a dose-dependent relationship—the more the woman smokes during pregnancy, the greater the reduction of infant birthweight.

(Notes for Slide 48, continued)

Slide 48: Smoking and Pregnancy

These newborns also display signs of stress and drug withdrawal consistent with what has been reported in infants exposed to other drugs. In some cases, smoking during pregnancy may be associated with spontaneous abortions and sudden infant death syndrome (SIDS), as well as learning and behavioral problems and an increased risk of obesity in children. In addition, smoking more than one pack a day during pregnancy nearly doubles the risk that the affected child will become addicted to tobacco if that child starts smoking.



REFERENCE:

National Institute on Drug Abuse. (2016). Research Report: *Tobacco Smoking and Pregnancy*. Accessed May 15, 2016 from: <https://www.drugabuse.gov/publications/research-reports/tobacco/smoking-pregnancy%E2%80%94what-are-risks>.



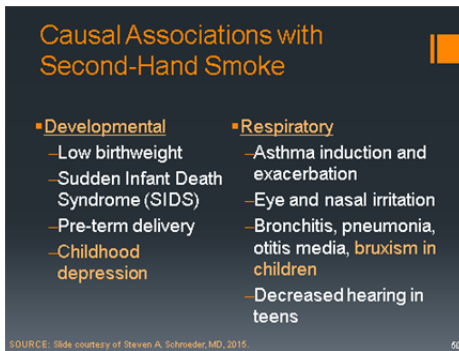
IMAGE CREDIT:

NIDA, 2016.



Slide 49: [No Title]

This image appeared in an Infographic released by the CDC in 2016 to warn young people of the dangers in using e-cigarettes.



Slide 50: Causal Associations with Second-Hand Smoke

According to a study conducted by CDC-funded researchers, nearly 50% of non-smoking youth in middle and high school encountered second-hand smoke in 2013, and rates were even higher among smokers. The U.S. Surgeon General has concluded that there is no safe level of secondhand smoke exposure.



REFERENCE:

Agaku, I.T., Singh, T., Rolle, I., Olalekan, A-Y, & King, B.A. (2016). Prevalence and determinants of seconhand smoke exposure among middle and high school students. *Pediatrics*, 13(2), 1-9.

Causal Associations with Second-Hand Smoke

▪Carcinogenic

- Lung cancer
- Nasal sinus cancer
- Breast cancer? (younger, premenopausal women)

▪Cardiovascular

- Heart disease mortality
- Acute and chronic coronary heart disease morbidity
- Altered vascular properties

SOURCE: Slide courtesy of Steven A. Schroeder, MD, 2015


51

Slide 51: Causal Associations with Second-Hand Smoke

No safe level of second-hand smoke exists. We also are aware of something known as third-hand smoke, which is the residue that remains after a cigarette has been extinguished.

Nicotine Addiction

- Tobacco users maintain a minimum serum nicotine concentration in order to
 - Prevent withdrawal symptoms
 - Maintain pleasure/arousal
 - Modulate mood
- Users self-titrate nicotine intake by
 - Smoking more frequently
 - Smoking more intensely
 - Obstructing vents on low-nicotine brand cigarettes



SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015

Slide 52: Nicotine Addiction

As was shown in the previous slide, tobacco users tend to carefully titrate, or regulate, their tobacco intake to maintain a relatively constant level of nicotine in the body, in order to:

- Prevent withdrawal symptoms
- Maintain pleasure/arousal
- Modulate mood (e.g., to handle stress or anxiety)

Although many tobacco users might not think about it consciously, they are able to alter nicotine delivery in a number of ways, including:

- By smoking or dipping more frequently
- By smoking more intensely (e.g., inhaling deeper or longer, smoking cigarette down to the filter)
- By obstructing the vents (with fingers or lips) on “light” cigarettes, thereby increasing the amount of nicotine delivered to the lung

(Notes for Slide 52, continued)



Slide 52: Nicotine Addiction



REFERENCES:

Benowitz, N.L. (2008). Clinical pharmacology of nicotine: Implications for understanding, preventing, and treating tobacco addiction. *Clinical Pharmacology and Therapeutics*, 83, 531-41.

Benowitz, N.L. (1999). Nicotine addiction. *Primary Care*, 26, 611-631.

Slide 53: Withdrawal Symptoms

Physical dependence to nicotine can cause a variety of uncomfortable withdrawal symptoms, as is detailed in the bulleted lists that appear on this slide. Withdrawal symptoms are usually at their worst 2-3 days after quitting, and gradually improve after several weeks. Overcoming the emotional dependence on tobacco use may be as hard, or harder than overcoming the physical dependence. For many people, smoking becomes an essential part of a daily routine, or can be a means to relaxing or handling stress, boredom, or anxiety.

Smoking and Behavioral Health

- Half of the annual smoking-related deaths in the U.S. occur among patients with chronic mental illness and/or substance abuse (240,000 of 480,000)
- This population consumes 40% of all cigarettes sold in the United States
 - Higher prevalence
 - Smoke more
 - More likely to smoke down to the butt



SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015

Slide 54: Smoking and Behavioral Health

About half of annual smoking-related deaths in the United States are among individuals with a chronic mental illness and/or substance abuse issue. Further, persons with mental illness smoke nearly half of all cigarettes produced, but are only half as likely to quit as other smokers.



REFERENCE:

UCSF Smoking Cessation Leadership Center. (2016). *Behavioral Health*. Accessed August 26, 2016 from <https://smokingcessationleadership.ucsf.edu/behavioral-health>.




IMAGE CREDIT:

ATTC Network, purchased image.

Smoking and Behavioral Health

- People with chronic mental illness die earlier than others
 - Smoking is a large contributor to that early mortality
- Greater risk for nicotine withdrawal
- Social isolation from smoking compounds the social stigma



SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015

Slide 55: Smoking and Behavioral Health

Persons with mental or substance use disorders die, on average, about five years prematurely than persons without these disorders. At the same time, this population experiences higher rates of disease, premature death, and reduced quality of life.



REFERENCE:

UCSF Smoking Cessation Leadership Center. (2016). *Behavioral Health*. Accessed August 26, 2016 from <https://smokingcessationleadership.ucsf.edu/behavioral-health>.



IMAGE CREDIT:

ATTC Network, purchased image.

Smoking and Death

- Cigarette smoking is the leading preventable cause of death in the United States.
- Causes more than 480,000 deaths each year in the United States (nearly 20% of all deaths)
- Smoking causes more deaths each year than the following causes combined:
 - Human immunodeficiency virus (HIV)
 - Illegal drug use
 - Alcohol use
 - Motor vehicle injuries
 - Firearm-related incidents

SOURCE: CDC, 2016

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Slide 56: Smoking and Death

Cigarette smoking causes about one in every five deaths in the United States each year. Overall mortality among both male and female smokers in the U.S. is about three times higher than that among similar people who never smoked. The major causes of excess mortality among smokers are diseases that are related to smoking, including cancer and respiratory and vascular disease.



REFERENCES:

U.S. Department of Health and Human Services. (2014). *The Health Consequences of Smoking-50 Years of Progress: A Report of the Surgeon General*. Atlanta: U.S. DHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Centers for Disease Control and Prevention. (2013). QuickStats: Number of deaths from 10 leading causes – National Vital Statistics System, United States, 2010. *Morbidity and Mortality Weekly Report*, 62(08),155.

(Notes for Slide 56, continued)

Slide 56: Smoking and Death



REFERENCES:

U.S. Department of Health and Human Services. (2010). *How Tobacco Smoke Causes Diseases: What It Means to You*. Atlanta: U.S. DHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Mokdad, A.H., Marks, J.S., Stroup, D.F., & Gerberding, J.L. (2004). Actual causes of death in the United States. *Journal of the American Medical Association*, 291(10), 1238-1245.

Smoking and Death

- The risk of dying from cigarette smoking has increased over the last 50 years in men and women in the United States.
- More than 10 times as many U.S. citizens have died prematurely from cigarette smoking than have died in all the wars fought by the U.S. during its history
- Causes about 90% (or 9 out of 10) of all lung cancer deaths in men and women
- Causes about 80% (or 8 out of 10) of all deaths from chronic obstructive pulmonary disease (COPD)

SOURCE: CDC, 2016

57

Slide 57: Smoking and Death

Cigarette smoking increases risk for death from all causes in men and women. More women die from lung cancer each year than from breast cancer.



REFERENCES:

U.S. Department of Health and Human Services. (2014). *The Health Consequences of Smoking-50 Years of Progress: A Report of the Surgeon General*. Atlanta: U.S. DHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

U.S. Department of Health and Human Services. (2010). *How Tobacco Smoke Causes Disease: What It Means to You*. Atlanta: U.S. DHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

U.S. Department of Health and Human Services. (2001). *Women and Smoking: A Report of the Surgeon General*. Rockville (MD): U.S. DHHS, Public Health Service, Office of the Surgeon General.



Slide 58: [Transition Slide] – Trends in the Use of Tobacco Products

The next section of the presentation presents data on the extent of the use of tobacco products in the United States. No single indicator or data source can tell the full story of the extent or impact of tobacco use. Therefore, data from several available indicators are presented in an attempt to paint a comprehensive picture of who uses tobacco, and the populations in which use is most prevalent.



IMAGE CREDIT:

Fotolia, 2016 (purchased image).



Slide 59: Test Your Knowledge



Read the question and answer choices, and review audience responses out loud.

Correct Response is A (True)



**Audience Response System (ARS)-compatible slide

Smoking and Tobacco Use: By the Numbers

- Worldwide, tobacco use causes nearly **6 million deaths** per year
- More than **16 million Americans** are living with a disease caused by smoking
- On average, smokers die **10 years earlier** than non-smokers
- If smoking continues at current rate among youth, **5.6 million Americans under the age of 18 are expected to die prematurely** from a smoking-related illness

SOURCE: Mee-Lee, 2016; CDC, 2015

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Slide 60: Smoking and Tobacco Use: By the Numbers

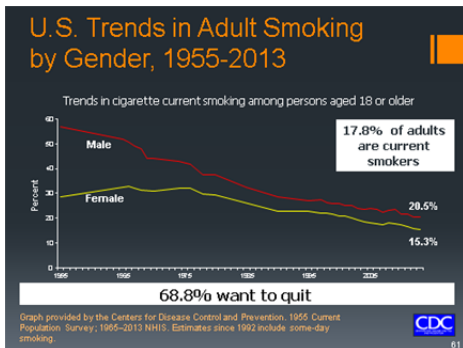
As was previously mentioned, smoking leads to disease and disability, and impacts nearly every organ of the body. For every person who dies because of smoking, there are at least 30 people who live with a smoking-related illness. If current trends in tobacco-related deaths continue, there will be more than 8 million tobacco-related deaths by 2030.



REFERENCES:

Mee-Lee, D. (2016). *David Mee-Lee's tips and topics*. Volume 13, Number 10, January 2016.

Centers for Disease Control and Prevention. (2015). *Fast Facts*. Accessed May 16, 2016 from http://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/.



Slide 61: U.S. Trends in Adult Smoking by Gender, 1955-2013

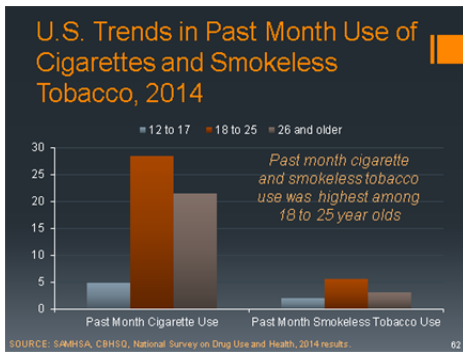


This slide is courtesy of Steven A. Schroeder, MD, SCLC, UCSF, 2015.

According to the CDC, more than 480,000 deaths each year are caused by cigarette smoking. Tobacco use and smoking do damage to nearly every organ in the human body, often leading to lung cancer, respiratory disorders, heart disease, stroke, and other illnesses.

In 2014, an estimated 66.9 million Americans aged 12 or older were current users of a tobacco product (25.2%). Young adults aged 18 to 25 had the highest rate of current use of a tobacco product (35%), followed by adults aged 26 or older (25.8%), and by youths aged 12 to 17 (7%).

In 2014, the prevalence of current use of a tobacco product was 37.8% for American Indians or Alaska Natives, 27.6% for whites, 26.6% for blacks, 30.6% for Native Hawaiians or other Pacific Islanders, 18.8% for Hispanics, and 10.2% for Asians.



Slide 62: U.S. Trends in Past Month Use of Cigarettes and Smokeless Tobacco, 2014

According to the 2014 National Survey on Drug Use and Health, individuals aged 18 to 25 were most likely to self-report past year or past month use of cigarettes and smokeless tobacco.

The Substance Abuse and Mental Health Services Administration (SAMHSA), an operating division within the U.S.

Department of Health and Human Services, is charged with reducing the impact of substance abuse and mental illness on America's communities.

SAMHSA is pursuing this mission at a time of significant change. Health reform has been enacted, bringing sweeping changes to how the United States delivers, pays for, and monitors health care. Examining trends in behavioral health data is critical to providing the most appropriate and highest quality behavioral health care.

Each year, SAMHSA publishes the most recent annual results from the National Survey on Drug Use and Health (NSDUH).

This survey is the primary source of statistical information on the use of illegal drugs, alcohol, and tobacco by the civilian, noninstitutionalized population of the United States aged 12 years old or older.

(Notes for Slide 62, continued)

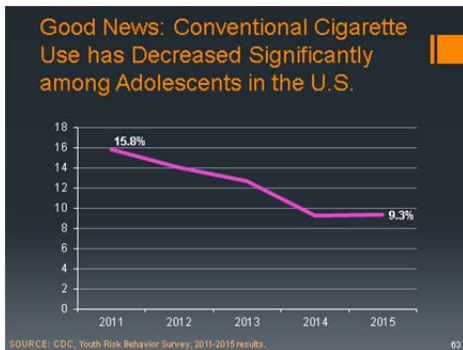
Slide 62: U.S. Trends in Past Month Use of Cigarettes and Smokeless Tobacco, 2014

The survey also covers mental health issues, allowing for a comprehensive look at the behavioral health of the United States.



REFERENCE:

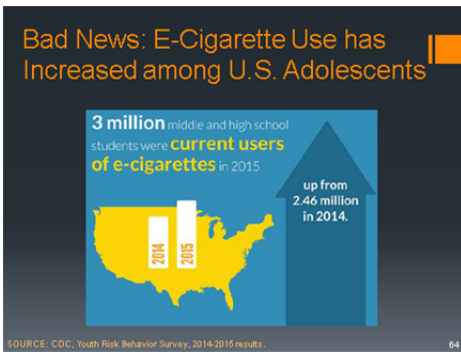
Center for Behavioral Health Statistics and Quality. (2015). *Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health* (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retrieved from <http://www.samhsa.gov/data/>.



Slide 63: Good News: Conventional Cigarette Use has Decreased Significantly among Adolescents in the U.S.

While there has been no significant change in overall tobacco use among high school students since 2011 (data not shown), according to the Youth Risk Behavioral Surveillance System, there was a significant decrease in current cigarette use among high school students during the same time period.

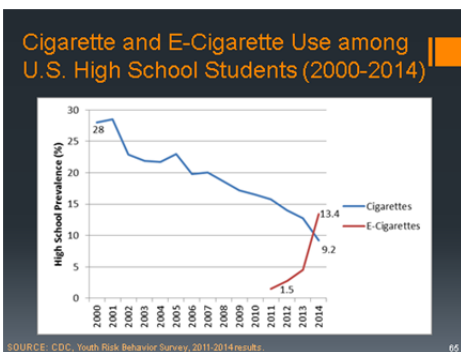
The YRBSS was developed in 1990 to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States. These behaviors, often established during childhood and early adolescence, include (1) behaviors that contribute to unintentional injuries and violence; (2) sexual behaviors related to unintended pregnancy and sexually transmitted infections, including HIV infection; (3) alcohol and other drug use; (4) tobacco use; (5) unhealthy dietary behaviors; and (6) inadequate physical activity. In addition, the YRBSS monitors the prevalence of obesity and asthma and other priority health-related behaviors plus sexual identity and sex of sexual contacts.



Slide 64: Bad News: E-Cigarette Use has Increased among U.S. Adolescents

While the previous slide showed a positive downward trend in conventional cigarette use among adolescents, the news is not as good as it relates to e-cigarette use.

According to the 2014 and 2015 results of the Youth Risk Behavior Survey, 3 million middle and high school students reported current use of e-cigarettes in 2015, up from 2.46 million in 2014.



Slide 65: Cigarette and E-Cigarette Use among U.S. High School Students (2000-2014)

This slide shows the overlapping trends of conventional cigarette use and e-cigarette use among high school students in the U.S.



Slide 66: What Tobacco Products are Students Using in the U.S.?



****ANIMATION INSTRUCTIONS****

The first image is animated to appear automatically; once you review the data contained on the first image, click to advance forward . The first image will disappear, and the second image will appear.

While cigarette smoking has declined among U.S. youth in recent years, the use of some other tobacco products has increased. The images on this slide detail YRBS data focused on the number of tobacco products middle and high school students used currently, and the percentage of students self reporting the use of various tobacco products.

Additional Information for the Trainer(s):

Cigarettes: from 2011 to 2015, current cigarette smoking declined among middle and high school students. About 2 of every 100 middle school students (2.3%) reported in 2015 that they smoked cigarettes in the past 30 days (a decrease from 4.3% in 2011). About 9 of every 100 high school students (9.3%) reported in 2015 that they smoked cigarettes in the past 30 days (a decrease from 15.8% in 2011).

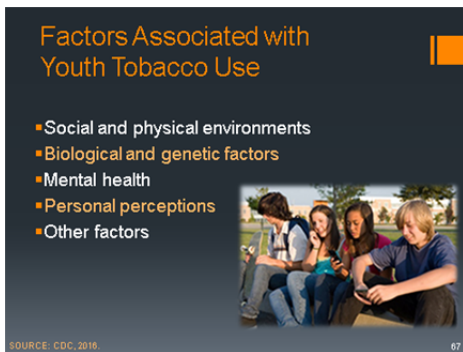
(Notes for Slide 66, continued)

Slide 66: What Tobacco Products are Students Using in the U.S.?

Additional Information for the Trainer(s):

Electronic cigarettes: Current use of electronic cigarettes increased among middle and high school students from 2011 to 2015. About 5 of every 100 middle school students (5.3%) reported in 2015 that they used electronic cigarettes in the past 30 days (an increase from 0.6% in 2011). Sixteen of every 100 high school students (16.0%) reported in 2015 that they used electronic cigarettes in the past 30 days (an increase from 1.5% in 2011).

Hookahs: From 2011 to 2015, current use of hookahs increased among middle and high school students. Two of every 100 middle school students (2.0%) reported in 2015 that they had used hookah in the past 30 days (an increase from 1.0% in 2011). About 7 of every 100 high school students (7.2%) reported in 2015 that they had used hookah in the past 30 days (an increase from 4.1% in 2011).



Slide 67: Factors Associated with Youth Tobacco Use

A variety of factors impact youth tobacco use. With regards to **social and physical environments**, the way mass media show tobacco use as a normal activity can promote smoking among young people. Youth are more likely to use tobacco if they see that tobacco use is acceptable or normal among their peers. High school athletes are more likely to use smokeless tobacco than their peers who are non-athletes. Parental smoking may promote smoking among young people. With regards to **biological and genetic factors**, evidence exists that youth may be sensitive to nicotine and that teens can feel dependent on nicotine sooner than adults. Genetic factors may make quitting smoking more difficult for young people. A mother's smoking during pregnancy may increase the likelihood that her offspring will become regular smokers. With regards to **mental health**, a strong relationship exists between youth smoking and depression, anxiety, and stress. With regards to personal perceptions, expectations of positive outcomes from smoking, such as coping with stress and controlling weight, are related to youth tobacco use.

(Notes for Slide 67, continued)

Slide 67: Factors Associated with Youth Tobacco Use

Other influences that affect youth tobacco use include: lower socioeconomic status, including lower income or education; lack of skills to resist influences to tobacco use; lack of support or involvement from parents; accessibility, availability, and price of tobacco products; low levels of academic achievement; low self-image or self-esteem; and exposure to tobacco advertising.



IMAGE CREDIT:

CDC website, 2016.

Perceived Risks and Benefits of Conventional Cigarettes vs. E-Cigarettes

- *"Oh, e-cigarettes are classy, because you can walk around with them. They do not have any vapor that goes around and they look nice. It's really hyped up, like, 'No nicotine.' That's what everybody's saying. 'There's no nicotine.' 'It's good for you. Cuz it's vapor.' 'The water vapor.'"*
- Participants were generally unsure about the possible risks of using e-cigarettes
- Participants described e-cigarettes as brand new products that they knew little about

SOURCE: Roditis & Halpern-Felsher, 2015

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Slide 68: Perceived Risks and Benefits of Conventional Cigarettes vs. E-Cigarettes

Teenagers are very familiar with the risks of smoking cigarettes, but are much less sure whether marijuana or e-cigarettes are harmful, according to a 2015 study by Roditis and Halpern-Felsher from Stanford University School of Medicine. While adolescents get clear messages from their families, teachers, peers and the media about the harms of smoking cigarettes, they receive conflicting or sparse information about the harms of marijuana and e-cigarettes. In the qualitative study, Roditis and Halpern-Felsher compared teens' knowledge of cigarettes, e-cigarettes, and marijuana. The participants were able to describe the negative consequences of using conventional cigarettes, but were less sure of the risks of marijuana and e-cigarette use. Adolescents reported learning about e-cigarettes from the media, family and friends, and from the school environment. This small study highlights the need for clinicians, prevention campaigns, and interventions to explicitly address risks of marijuana and e-cigarettes use along with risks of cigarette use. Additionally, there needs to be a stronger connection between formal messages that adolescents are getting regarding the risks of these products and their daily experiences.

(Notes for Slide 68, continued)

**Slide 68: Perceived Risks and Benefits of
Conventional Cigarettes vs. E-Cigarettes**



REFERENCE:

Roditis, M.L., & Halpern-Felsher, B. (2015). Adolescents' perceptions of risks and benefits of conventional cigarettes, e-cigarettes, and marijuana: A qualitative analysis. *Journal of Adolescent Health, 57*, 179-185.

Government Regulation of E-Cigarettes

- U.S. Food and Drug Administration (FDA) has established a new rule for e-cigarettes and their liquid solutions
- Now subject to government regulation as tobacco products
- In-store and online purchasers be at least 18 years of age
- More information available at: www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm499234.htm

SOURCE: NIDA, 2016

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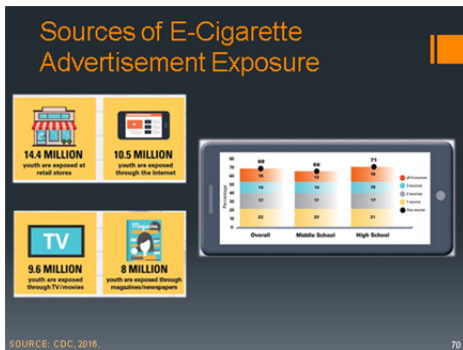
Slide 69: Government Regulation of E-Cigarettes

In an effort to help protect the public from the dangers of tobacco use, the U.S. Food and Drug Administration (FDA) has established a new rule for e-cigarettes and their liquid solutions. Because e-cigarettes contain nicotine derived from tobacco, they are now subject to government regulation as tobacco products, including the requirement that both in-store and online purchasers be at least 18 years of age.



REFERENCE:

National Institute on Drug Abuse. (2016). *Electronic Cigarettes (E-Cigarettes) Drug Facts*. Accessed May 16, 2016 from: <https://www.drugabuse.gov/publications/drugfacts/electronic-cigarettes-e-cigarettes>.



Slide 70: Sources of E-Cigarette Advertisement Exposure



** ANIMATION INSTRUCTIONS **

The three images are animated to appear automatically, no need to click to advance forward.

According to the 2014 National Youth Tobacco Survey, young people are exposed to e-cigarette advertisements from multiple sources. Starting with the images that appear on the left side of the slide, youth are most likely to be exposed to advertising in retail stores (14.4 million), followed by the Internet (10.5 million), TV/movies (9.6 million), and magazines or newspapers (8 million). The image on the right side of the slide pertains to the age breakdown of young people who are exposed to e-cigarette advertisements. Overall, a high proportion of U.S. middle and high school students saw e-cigarette advertisements in 2014. More specifically, 66% of U.S. middle school students, 71% of U.S. high school students, and 69% U.S. middle and high school students overall said they saw e-cigarette advertisements from one or more of the following four sources: retail, Internet, TV/movies, and Magazines/newspapers.

(Notes for Slide 70, continued)

**Slide 70: Sources of E-Cigarette
Advertisement Exposure**

According to additional data not shown on this slide, e-cigarette use has increased considerably among young people in the United States in recent years, and this increase corresponds to e-cigarette advertising expenditures.



REFERENCE:

Centers for Disease Control and Prevention. (2015). *2014 National Youth Tobacco Survey (NYTS)*. Accessed May 16, 2016 from:
http://www.cdc.gov/tobacco/data_statistics/surveys/nyts/.

E-Cigarettes and Smoking Cessation in the Real World

- Meta-analysis examined the association between e-cigarette use and cigarette smoking cessation among adults
- Odds of quitting cigarettes were 28% lower among smokers who used e-cigarettes than those who did not use e-cigarettes
- Take-Home Message: *E-cigarettes are associated with significantly less quitting among smokers*

SOURCE: Kalkhoran & Glantz, 2016

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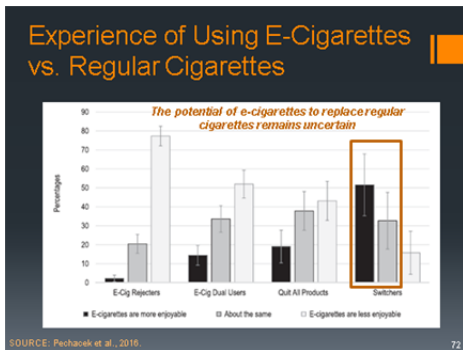
Slide 71: E-Cigarettes and Smoking Cessation in the Real World

Kalkhoran and Glantz conducted a meta-analysis to examine the association between e-cigarette use and cigarette smoking cessation among adults. The odds of smoking cessation among smokers using e-cigarettes were compared with smokers not using e-cigarettes. The main findings, which were based on 38 studies, were that the odds of quitting cigarettes were 28% lower among those who used e-cigarettes compared with those who did not. The association of e-cigarette with quitting did not differ among studies in which all smokers used e-cigarettes vs those studies of smokers interested in cigarette cessation. Other study characteristics, such as design, population, comparison group, time of exposure assessment, etc., were not associated with the overall effect size. The researchers concluded that e-cigarettes are associated with significantly less quitting among smokers.



REFERENCE:

Kalkhoran, S., & Glantz, S.A. (2016). E-cigarettes and smoking cessation in real-world and clinical settings: A systematic review and meta-analysis. *The Lancet*, 4(2), 116-128.



Slide 72: Experience of Using E-Cigarettes vs. Regular Cigarettes



ANIMATION INSTRUCTIONS

Two animations are included on this; once you review the main data presented in the bar graph, click once to advance to a box that appears over the “switchers” portion of the graph, and then click to advance one more time to text included at the top of the bar graph appears.

A 2016 article by Pechacek and colleagues details select results from the *2014 Tobacco Products and Risk Perception Survey*. The Survey provided representative estimates of non-institutionalized US adults and included detailed data on the use of Electronic Nicotine Delivery Systems (ENDS) (a.k.a., e-cigarettes). Data were gathered from a national probability sample of 5,717 US adults. The graph depicted on this slide shows the differences in opinions about how research participants compare the experience of using e-cigarettes to smoking regular cigarettes among four study groups (e-cigarette rejecters, e-cigarette and regular cigarette dual users, individuals who quit using all smoking products, and former smokers who switched to e-cigarettes).

(Notes for Slide 72, continued)

Slide 72: Experience of Using E-Cigarettes vs. Regular Cigarettes

Few e-cigarette rejecters, e-cigarette dual users, or quitters reported that e-cigarettes were more enjoyable than regular cigarettes. On the contrary, almost all switchers reported that e-cigarettes were either more enjoyable or as enjoyable as regular cigarettes. The researchers concluded that since many current smokers who have tried e-cigarettes did not find them to be a satisfying alternative to regular cigarettes, e-cigarettes are not likely to replace regular cigarettes unless the experience of using e-cigarettes is improved.



REFERENCE:

Pechacek, T.F., Nayak, P., Gregory, K.R., Weaver, S.R., & Eriksen, M.P. (2016). The potential that electronic delivery systems can be a disruptive technology: Results from a national survey. *Nicotine and Tobacco Research*, 00(00), 1-9.



Slide 73: [Transition Slide] – Smoking and HIV: What's the Connection?



The next section of the presentation prevents information on the connection between smoking and HIV acquisition and disease progression.



IMAGE CREDIT:

CDC website, 2016.

Slide 74: Test Your Knowledge



Test Your Knowledge

The prevalence of smoking is _____ among Americans living with HIV than in the general US population.

- A. About the same
- B. Two to three times higher
- C. Five times higher
- D. Ten times higher

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Read the question and answer choices, and review audience responses out loud.

Correct Response is B (Two to three times higher)

Smoking among People Living with HIV/AIDS

- Prevalence of smoking is approximately 2-3x higher than in the general population
- Perceived to have little interest in and motivation for smoking cessation efforts
- For people infected with HIV, smoking has been associated with increased rates of many negative health outcomes

SOURCE: Los Angeles County Department of Health Services, Tobacco Control and Prevention Program 76

Slide 75: Smoking among People Living with HIV/AIDS

People living with AIDS are often perceived to have little interest in and motivation for smoking cessation efforts due to a poor outlook for their future and a belief that death from AIDS is the inevitable outcome of their HIV diagnosis. As HIV infection transforms from a terminal illness into a manageable, chronic condition, however, a stronger emphasis should be placed on smoking cessation efforts with the goal of improving quality of life.

Among people who are infected with HIV, the prevalence of smoking is higher than it is in the general population. For example, according to one East Coast study (2000), people living with HIV had a smoking prevalence of 70%, as compared to a national prevalence of 25%. In another study based in San Francisco (2002), people with HIV had a smoking prevalence of 54%, compared to a prevalence estimate of 18% for the general population in San Francisco and the state of California.

For people infected with HIV, smoking has been associated with increased rates of a variety of negative health outcomes, as stated on the next slide.

(Notes for Slide 75, continued)

Slide 75: Smoking among People Living with HIV/AIDS



REFERENCE:

Los Angeles Department of Health Services, Tobacco Control and Prevention Program. *HIV and Tobacco Use*. Accessed April 27, 2016 from <http://publichealth.lacounty.gov/tob/pdf/HIV%20Flyer.rev.pdf>.

How might Smoking affect HIV Disease Progression?

- Less successful HIV drug therapy
- May be more likely to experience side effects of HIV medications
- Lower CD4 counts
- May have greater chance of developing opportunistic infections
- Higher rates of HIV transmission

SOURCE: The Body, accessed April 27, 2016.

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Slide 76: How might Smoking affect HIV Disease Progression?

Cigarette smoking is a dangerous habit even for those in perfect health. The risks involved with smoking seem to be greater, however, for people who are living with HIV. Recent research has shown that, for people living with HIV and receiving good medical care, those who smoke lose more years of their life to smoking than to HIV. In the past, many people living with HIV did not worry about the serious illnesses that smoking might cause because they did not expect to be alive long enough to get them. Now that people living with HIV are living longer, healthier lives, it is critical to pay attention to issues that affect long-term health and wellness.



REFERENCE:

The Body. Smoking, Tobacco Use, and HIV.
Accessed on April 27, 2016 from:

<http://www.thebody.com/content/62098/smoking-tobacco-use-and-hiv.html>.

What Does the Research Say?

Outcome	Citation	Finding
HIV acquisition	Bums et al., 1991	Higher % of seroconversion among cigarette smokers (p=0.03)
HIV progression	(1) Royce & Winkelstein, 1990	(1) Significant CD4 cell decline (p<0.01)
	(2) Feldman et al., 2006	(2) Significant CD4 cell decline (p=0.01) and significant difference in incidence of AIDS-defining conditions (p<0.01)
HIV progression	Nieman et al., 1993	Shorter median time to AIDS (shorter for smokers, p=0.03)
All-Cause Mortality	(1) Crothers et al., 2005	(1) Significant effect of smoking on mortality (HR=1.99)
	(2) Feldman et al., 2006	(2) Significant effect of smoking on mortality (HR=1.53)

SOURCE: Marshall et al., 2009

Slide 77: What Does the Research Say?

Cigarette smoking is more common among those with HIV compared the general population. According to a literature review by Marshall and colleagues (2009), “it remains unclear whether smoking alters the natural history of HIV infection or if unique health consequences related to smoking occur in the context of HIV.”

This slide features key positive findings from the Marshall et al. literature review. According to the research team, more data are needed regarding the prevalence, patterns, and intensity of cigarette smoking within HIV-infected and at risk populations. And longitudinal studies will be important to identify trajectories of smoking over time and in particular, what changes occur in smoking behavior in relation to HIV seroconversion, HAART initiation, or changes in use of illicit substances.

HR = hazard ratio (in survival analysis, the hazard ratio is the ratio of the hazard rates corresponding to the conditions described by two levels of an explanatory variable; in this case it’s the rate of death between people with HIV who smoke vs. people with HIV who do not smoke).

(Notes for Slide 77, continued)

Slide 77: What Does the Research Say?

Importantly, both studies demonstrating a significant effect of smoking on mortality included follow-up almost entirely during the time period in which highly active anti-retroviral therapy (HAART) was the standard of care (Crothers et al., 1993 and Feldman et al., 2006).



REFERENCE:

Marshall, M.M., McCormack, M.C., & Kirk, G.D. (2009). Effect of cigarette smoking on HIV acquisition, progression, and mortality. *AIDS Education and Prevention*, 21(3 Suppl), 28-39.

HIV Infection, Cigarette Smoking, and CD4 Counts

- According to results of the San Francisco Men's Health Study:
- Smokers' counts fell faster than non-smokers' following HIV infection
- Response to smoking is less pronounced soon after infection

SOURCE: Royce & Winkelstein, 1990.

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Slide 78: HIV Infection, Cigarette Smoking, and CD4 Counts

The effect of cigarette smoking on CD4+ T lymphocytes was investigated in the San Francisco Men's Health Study cohort. The cohort was established by probability sampling in 1984 to study infection with HIV. Smoking showed an association with increased CD4+ cell counts in all men but the effect was attenuated in HIV-seropositive men (85 cells/ μ l difference in median counts, non-smokers compared with smokers) compared with HIV-seronegative men (230 cells/ μ l difference in median counts). The positive dose response between packs smoked per day and CD4+ counts observed in uninfected men was substantially reduced in infected men (slope 87 versus 27 cells/ μ l). Analysis of data from HIV seroconverters suggest that smokers' counts fall faster than non-smokers' following infection, and that response to smoking becomes less pronounced soon after infection. This report demonstrates that those who monitor CD4+ cell counts in HIV-infected individuals for clinical and/or research purposes should also consider smoking status.

(Notes for Slide 78, continued)

Slide 78: HIV Infection, Cigarette Smoking, and CD4 Counts



REFERENCE:

Royce, R., & Winkelstein, Jr., W. (1990). HIV infection, cigarette smoking, and CD4+ T-lymphocyte counts: Preliminary results from the San Francisco Men's Health Study. *AIDS*, 4(4), 327-333.

Consequences of Smoking for People Living with HIV

- Periodontal disease
- Oral candidiasis
- Oral hairy leukoplakia
- Oral lesions
- Bacterial pneumonia
- AIDS-related spontaneous pneumothorax
- Kaposi's sarcoma
- Cervical cancer
- Lung cancer
- Genital warts
- AIDS dementia complex
- Emphysema
- Bronchial hyperresponsiveness
- Bronchitis
- Depression

SOURCE: Los Angeles County Department of Health Services, Tobacco Control and Prevention Program. 79

Slide 79: Consequences of Smoking for People Living with HIV

Smoking is associated with increased rates of a variety of negative health outcomes. Smoking when you have HIV makes you more likely to get other serious illnesses than non-smokers with HIV. They include: COPD (chronic obstructive pulmonary disease, a serious lung disease that causes severe breathing problems and includes emphysema and chronic bronchitis), health disease and stroke, lung cancer, head and neck cancer, cervical cancer, and anal cancer. People with HIV who smoke are less likely to maintain their HIV treatment plan than non-smoking HIV patients.

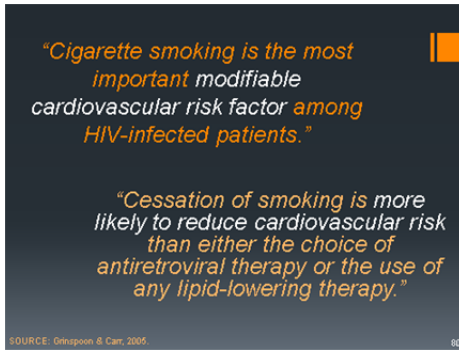
Oral candidiasis = also called thrush; a mouth infection

Hairy leukoplakia = white mouth sores



REFERENCE:

Los Angeles Department of Health Services, Tobacco Control and Prevention Program. *HIV and Tobacco Use*. Accessed on April 27, 2016 from <http://publichealth.lacounty.gov/tob/pdf/HIV%20Flyer.rev.pdf>.



Slide 80: [No Title]

According to research by Grinspoon and Carr (2005), cigarette smoking is the most important modifiable cardiovascular risk factor among HIV-infected patients.



REFERENCE:

Grinspoon, S., & Carr, A. (2005). Cardiovascular risk and body-fat abnormalities in HIV-infected individuals. *New England Journal of Medicine*, 352(1), 48-62.

Consequences of Smoking for People Living with HIV

- For pregnant women infected with HIV, research has shown a **threefold increase in the risk of transmitting HIV** to their child due to smoking
- Some research has pointed to a **more rapid progression to AIDS** and a **higher risk of death** in smokers infected with HIV
- Smokers who are HIV+ who undergo HAART could be predisposed to **an even higher risk of cardiovascular disease** than for smoking alone

SOURCE: Los Angeles County Department of Health Services, Tobacco Control and Prevention Program 81

Slide 81: Consequences of Smoking for People Living with HIV

Many consequences exist for people living with HIV who smoke, including those related to transmission during pregnancy, more rapid progression to AIDS, higher risk of cardiovascular disease, and higher risk of death.



REFERENCE:

Los Angeles Department of Health Services, Tobacco Control and Prevention Program. *HIV and Tobacco Use*. Accessed April 27, 2016 from

<http://publichealth.lacounty.gov/tob/pdf/HIV%20Flyer.rev.pdf>.

Barriers to Smoking Cessation among Individuals Living with HIV

- HIV care providers less likely to identify current smokers and report less confidence in influencing smoking cessation than non-HIV care providers
- Managing complications of HIV infection may overshadow smoking cessation discussions
- Smoking cessation is less of a priority, if the individual feels he/she will die from AIDS
- May use tobacco to manage HIV-related symptoms and pain
- Body image issues/body mass index increases
- High prevalence of concomitant substance use

SOURCE: Rahmanian et al., 2011.

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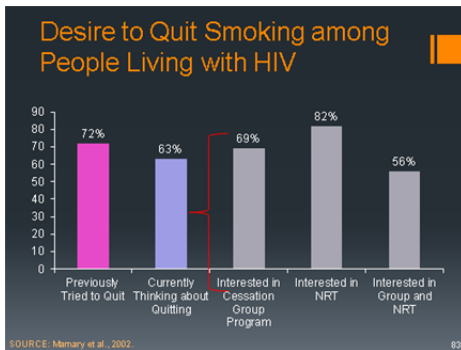
Slide 82: Barriers to Smoking Cessation among Individuals Living with HIV

In their 2011 review article, Rahmanian and colleagues outlined a variety of potential barriers and complicating factors to smoking cessation among individuals infected with HIV. Additional barriers not included in the bulleted list are as follows: high prevalence of psychiatric disorders in HIV-infected individuals (between 17 and 63%, depending on the study); low socioeconomic status and lack of strong support systems (lower income and employment status appear to be associated with smoking in HIV-infected individuals).



REFERENCE:

Rahmanian, S., Wewers, M.E., Koletar, S., Reynolds, N., Ferketich, A., & Diaz, P. (2011). Cigarette smoking in the HIV-infected population. *Proceedings of the American Thoracic Society*, 8(3), 313-319.



Slide 83: Desire to Quit Smoking among People Living with HIV

Mamary and colleagues studied the desire to quit smoking among individuals living with HIV. The results were encouraging in that nearly three-quarters of the study participants had previously tried to quit smoking, and nearly two-thirds were currently thinking about quitting. Of those currently thinking about quitting, high percentages were interested in smoking cessation group counseling programs, nicotine replacement therapy, or a combination of both.

Health care settings are important venues for smoking cessation efforts with persons living with HIV. Because of an increased use of medical services, people living with HIV have greater contact with health care professionals who can assess them for smoking and provide referrals to smoking cessation services, if warranted.




REFERENCE:

Mamary et al., (2002). Cigarette smoking and the desire to quit among individuals living with HIV. *AIDS Patient Care and STDs*, 16, 39-42.

Case Study: Brian

Brian, age 43, was admitted into the hospital after being diagnosed with HIV. Soon thereafter, his virus became undetectable. He went back to work and began to feel "invincible." Quitting his 30-year smoking habit was hardly a priority, until he started to experience increasingly serious health issues. You are meeting Brian for the first time.



1. Where would you start the conversation with Brian?
2. Recognizing that Brian gets to set his treatment goals, what are the top three priority issues to discuss?

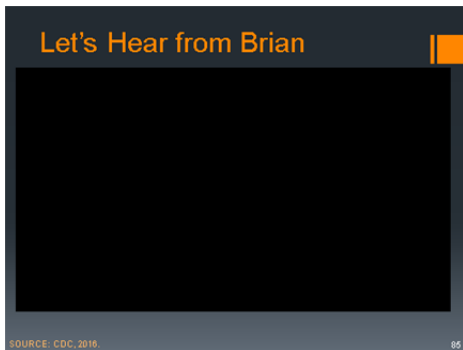
SOURCE: CDC, 2016

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Slide 84: Case Study: Brian



1. **Read the case study aloud.**
2. **Ask participants to break into pairs or small groups (depending on the size of the audience), and spend 5-10 minutes discussing the two questions.**
3. **De-brief as a full group for 5-10 minutes. Ask for volunteers to briefly share responses to the two questions.**



Slide 85: Let's Hear from Brian



This slide contains a movie clip that will play when the trainer clicks on the box. In order for this to work, the connection between the PowerPoint

presentation and the video file must be maintained. When moving the PowerPoint file to another location on your computer or to another computer, make sure to always move the video file along with it. If the link becomes broken, the video will need to be reinserted.

Delete the black box that appears on the slide. From the insert menu in PowerPoint, select "movie." Select the video file that was included for this training. When asked, indicate that the movie should play automatically. It will appear as a black box on the screen. Move the black box on the slide and it should play when the slide show is being viewed when the trainer clicks on the box.

(Notes for Slide 85, continued)

Slide 85: Let's Hear from Brian

Brian is featured in the CDC's *A Tip from a Former Smoker* Campaign. According to Brian, HIV alone did not cause the clogged artery in my neck. Smoking with HIV did. Brian was in good health, working and managing his infection with HIV—the virus that can cause AIDS—when smoking led to health problems that nearly killed him. Smoking is especially dangerous for people who are living with HIV. For Brian, smoking and having HIV led to clogged blood vessels. At age 43, he had a blood clot in his lungs, a stroke, and surgery on an artery in his neck. Brian had already beat tough health problems—including being very sick with AIDS—but he had not quit smoking. "It took a stroke for me to actually stop smoking," said Brian. For months after the stroke, Brian had trouble speaking and reading. He couldn't work or even dress himself. Today, his right hand is still weak, so he can no longer work as a waiter or teach pottery classes. Brian hopes his story will inspire other people to quit smoking before it's too late. "Smoking is something that you do have control over. You can stop. And it's worth your life to stop smoking."

Link to Brian's Story:

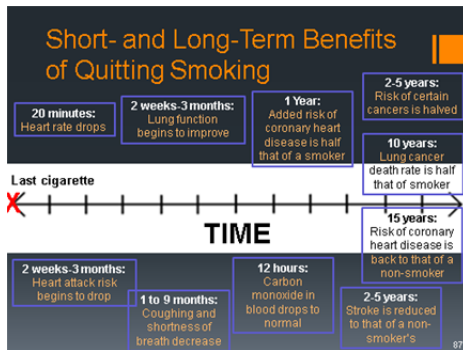
<http://www.cdc.gov/tobacco/campaign/tips/stories/brian.html>.



Slide 86: [Transition Slide] – Effective Medical and Behavioral Smoking Cessation Approaches



The final section of this presentation reviews the medical and behavioral smoking cessation approaches available today.



Slide 87: Short- and Long-Term Benefits of Quitting Smoking



**** ANIMATION INSTRUCTIONS ****

This slide contains a series of animated text boxes. You do not need to click to advance to the next animation, each will appear automatically every few seconds.

It does not matter how long you have been smoking; quitting can greatly improve your overall health and wellness, in as little as 20 minutes. Within 20 minutes of smoking the last cigarette, your body begins a series of changes that continue for years. Within 24 hours, your blood pressure drops, and your risk of heart attack begins to decrease. Within months, you can have better lung function and circulation. Over several years, you can greatly reduce your risk of lung cancer and heart disease. People who quit at the age of 50 are half as likely to die of smoking-related causes than those who continue to smoke.

(Notes for Slide 87, continued)

Additional Benefits of Quitting Smoking or Going Tobacco-Free

- Improved sense of smell and taste
- Healthier looking skin
- Whiter teeth
- Healthier gums
- Fresher breath
- Able to participate in physical activities
- Economic savings
- No more smoking ban restrictions

SOURCE: The Body: The Complete HIV/AIDS Resource, accessed April 27, 2016

Slide 87: Short- and Long-Term Benefits of Quitting Smoking



REFERENCES:

Centers for Disease Control and Prevention. (2016). Benefits of Quitting. Accessed April 27, 2016 from http://www.cdc.gov/tobacco/quit_smoking/how_to_quit/benefits/index.htm.

The Body. *Smoking, Tobacco Use, and HIV*. Accessed April 27, 2016 from: <http://www.thebody.com/content/62098/smoking-tobacco-use-and-hiv.html>.

Slide 88: Additional Benefits of Quitting Smoking or Going Tobacco-Free

Quitting smoking or going tobacco-free has other health benefits, in addition to the ones described on the previous slide.



REFERENCE:

The Body. *Smoking, Tobacco Use, and HIV*. Accessed April 27, 2016 from: <http://www.thebody.com/content/62098/smoking-tobacco-use-and-hiv.html>.

(Notes for Slide 89, continued)

Slide 89: What are the Main Types of Smoking Cessation Approaches?

Nasal sprays spray nicotine into the nostrils, and is available by prescription only.

Bupropion reduces the urge to smoke and is available by prescription only. It is also available as an anti-depressant (Wellbutrin) at a different dose.

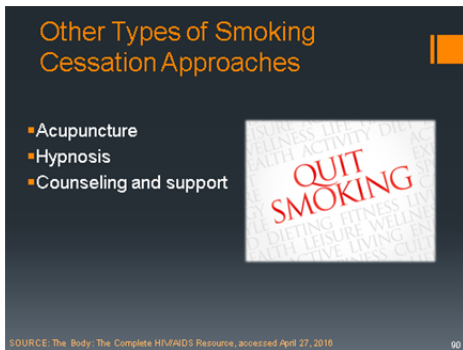
Varenicline reduces withdrawal symptoms and the pleasure associated with smoking; it, too, is available by prescription only.



REFERENCES:

National Institute on Drug Abuse. (2016). *Treatment Approaches for Drug Addiction*. Accessed May 19, 2016 from <https://www.drugabuse.gov/publications/drugfacts/treatment-approaches-drug-addiction>.

The Body. *Smoking, Tobacco Use, and HIV*. Accessed April 27, 2016 from: <http://www.thebody.com/content/62098/smoking-tobacco-use-and-hiv.html>.



Slide 90: Other Types of Smoking Cessation Approaches

Acupuncture is a complementary therapy that involves placing very small needles around the outer ear to reduce cravings and promote relaxation. **Hypnosis** (or hypnotherapy) involves reaching a state of deep relaxation in which one is open to suggestions for behavioral change (such as quitting smoking). Many people may find it helpful to have professional **counseling** or the organized **support** of others when quitting. Many places have organized support groups and smoking cessation classes (in the US, see your local chapter of the American Lung Association or American Cancer Society).



REFERENCES:

The Body. *Smoking, Tobacco Use, and HIV*. Accessed April 27, 2016 from: <http://www.thebody.com/content/62098/smoking-tobacco-use-and-hiv.html>.

Quitlines and Behavioral Health

Do quitlines work for people with MI and/or SUD?
Yes!

Are they able to meet the demand?
They are underused

SOURCE: Slide courtesy of Steven A. Schroeder, MD, 2015

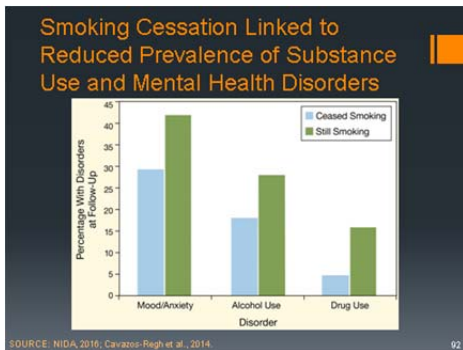
Slide 91: Quitlines and Behavioral Health

Quitlines have been established to help people quit smoking. This slide features one such quitline.



REFERENCE:

Schroeder, S.A. (2015). *Get Your Patients with HIV/AIDS to Stop Smoking Before it Kills Them*. Presented at the International Antiviral Society Meeting, December 15-17, 2015, New Orleans, LA.



Slide 92: Smoking Cessation Linked to Reduced Prevalence of Substance Use and Mental Health Disorders

Smoking cessation appears unlikely to hinder and may even help recovery from substance use disorders and from mood and anxiety disorders, according to research led by Dr. Patricia Cavazos-Rehg at the Washington University School of Medicine in St. Louis, Missouri. Cavazos-Rehg and colleagues examined responses of more than 5,000 daily smokers who completed the National Epidemiological Survey on Alcohol and Related Conditions (NESARC). Between two interviews (one conducted in 2001-2002 and a follow-up interview conducted three years later), nearly 60% of respondents cut back on smoking by 10% or more, including nearly 20% who quit altogether. Quitters reported fewer continuing or recurrent drug use disorders (by 69%), alcohol use disorders (by 36%), and mood or anxiety disorders (by 30%) at follow-up. The Missouri team's findings are consistent with those of other studies, and strongly argue that smoking cessation is highly compatible with recovery from mental disorders.


What Can You Do?

- Referral patients to the quitline
 - 1-800-QUITNOW
- Purchase a carbon monoxide breathalyzer
 - Costs about \$500 plus disposal mouthpieces
- Ask all patients this question:
 - *"When do you have your first cigarette of the day?"*
- Approach smoking as a **chronic illness**, just like HIV/AIDS

Slide 93: What Can You Do?

This slide features a bulleted list of things that providers can consider to assist patients who wish to quit smoking.

Cognitive Strategies for Smoking Cessation



- Review commitment to quit
- Focus on downsides of tobacco use
- Reframe smoking thoughts
- Distractive thinking
- Positive self-talks, “pep talks”
- Relaxation through imagery
- Mental rehearsal, visualization

SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015

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Slide 94: Cognitive Strategies for Smoking Cessation

Cognitive strategies focus on *retraining the way a patient thinks*. Many quitters panic because they are thinking about tobacco after they quit, and this leads to relapse. Thinking about cigarettes (or other forms of tobacco) is normal. The trick is not to dwell on the thought. As tobacco users move toward sustained abstinence, they learn to recognize that thinking about a cigarette doesn't mean they need to have one.

One cognitive strategy that might help is reviewing one's commitment to quitting, including reminding oneself that cravings and temptations are temporary and will pass. Sometimes it helps a patient to announce, either silently or out loud, “I want to be a nonsmoker, and the temptation will pass.” Or each morning, to look in the mirror and say, *“I am proud that I made it through another day without tobacco!”*

Deliberate, distractive thinking can help a patient move current thought processes to issues other than craving or temptation to use tobacco. **Positive self-talks**, or “pep-talks,” involve saying things such as, *“I can do this,”* or reminding oneself of previous difficult situations in which tobacco use was avoided successfully.

(Notes for Slide 94, continued)

Slide 94: Cognitive Strategies for Smoking Cessation

Relaxation through imagery helps the patient to center the mind on positive, relaxing thoughts. This can help to ease the anxiety, stress, and negative moods that may trigger tobacco use. **Mental rehearsal and visualization** involves envisioning situations that might arise and how best to handle them. This method is commonly used by athletes prior to a game. For example, a goalie might envision (or enact, during pregame warmups) how to block different types of shots or plays from opposing players. In the case of smoking, a person might envision what would happen if he or she were offered a cigarette by a friend—he or she would mentally craft and rehearse a response and perhaps even practice it by saying it out loud.




IMAGE CREDIT:

CDC website, 2016.

Behavioral Strategies for Smoking Cessation

- Stress
 - Anticipate future challenges
 - Develop substitutes for tobacco
- Alcohol
 - Limit or abstain during early stages of quitting
- Other tobacco users
 - Stay away
 - Ask for cooperation from family and friends



SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015


95

Slide 95: Behavioral Strategies for Smoking Cessation

This slide features additional concrete strategies and techniques that can be utilized with patients to help them manage stress, alcohol intake, and the impact of other tobacco users.

Behavioral Strategies for Smoking Cessation

- Oral gratification needs
 - Use substitutes; water, sugar-free gum or hard candies
- Automatic smoking routines
 - Anticipate routines; develop alternative plan
- Weight gain after cessation
 - Anticipate; use gum or medication; exercise
- Cravings
 - Distractive thinking; change activities



SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015

96

Slide 96: Behavioral Strategies for Smoking Cessation

This slide features additional concrete strategies and techniques that can be utilized with patients to help them focus on meeting oral gratification needs, avoid smoking routines, manage weight gain after cessation, and manage cravings.

More about Pharmacotherapy

"Clinicians should encourage all patients attempting to quit to use effective medications for tobacco dependence treatment, except where contraindicated or for specific populations* for which there is insufficient evidence of effectiveness."

* Includes pregnant women, smokeless tobacco users, light smokers, and adolescents.

Medications significantly improve success rates.

SOURCES: Fiore et al., 2008. Slide courtesy of Steven A. Schroeder, MD, 2015.

Slide 97: More about Pharmacology

The U.S. Public Health Service Clinical Practice Guideline for treating tobacco use and dependence states that "clinicians should encourage all patients attempting to quit to use effective medications for tobacco dependence treatment, except where contraindicated or for specific populations for which there is insufficient evidence of effectiveness" (Fiore et al., 2008, p. 106).

Use of pharmacotherapy requires special consideration in the following patient populations (Fiore et al., 2008):

- Pregnant or breast-feeding women
- Smokeless tobacco users
- Patients smoking fewer than 10 cigarettes per day (light smokers)
- Adolescents



REFERENCE:

Fiore, M.C., Jaén, C.R., Baker, T.B., et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline*. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service.

**Pharmacologic Methods:
First-line Therapies***

- Nicotine replacement therapy (NRT)
 - nicotine gum, patch, lozenge, nasal spray, inhaler
- Partial nicotine receptor agonist
 - varenicline
 - ? cytisine in the future
- Psychotropics
 - sustained-release bupropion

* Counseling plus meds better than either alone

Currently, no medications have an FDA indication for use in spit tobacco cessation.

SOURCES: Fiore et al., 2008; Hughes et al., 2007; David et al., 2006. Slide courtesy of Steven A. Schroeder, MD, 2016.



Slide 98: Pharmacologic Methods: First-line Therapies*

Three general classes of FDA-approved medications exist for smoking cessation:

- **Nicotine replacement therapy** (NRT) includes the nicotine gum, patch, lozenge, nasal spray, and inhaler. A nicotine sublingual tablet currently is available in Europe.
- The only **psychotropic agent** currently approved by the FDA for smoking cessation is bupropion SR.
- Varenicline, a **partial nicotinic receptor agonist**, was approved by the FDA in 2006 for smoking cessation.

According to the U.S. Public Health Service Clinical Practice Guideline for treating tobacco use and dependence, NRT, sustained-release bupropion and varenicline are considered first-line pharmacotherapies for smoking cessation (Fiore et al., 2008). Currently, no medications have an FDA indication for use in spit tobacco cessation.

(Notes for Slide 98, continued)

Slide 98: Pharmacologic Methods: First-line Therapies*

Additional Information for the Trainer(s):

The following pharmacotherapies have been studied but are *not* recommended by the U.S. Public Health Service Clinical Practice Guideline for treating tobacco use and dependence based on a lack of benefit relative to placebo therapy (Fiore et al., 2008; Hughes et al., 2007; David et al., 2006):

- **Anxiolytic agents** (buspirone, diazepam)
- **Beta-blockers** (propranolol)
- **Mecamylamine**
- **Opioid mixed agonists-antagonists and antagonists** (buprenorphine, naloxone, naltrexone)
- **Selective serotonin reuptake inhibitors** (citalopram, fluoxetine, paroxetine, sertraline)
- **Silver acetate**

(Notes for Slide 98, continued)

Slide 98: Pharmacologic Methods: First-line Therapies*



REFERENCES:

Fiore, M.C., Jaén, C.R., Baker, T.B., et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline*. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service.

Hughes, J.R., Stead, L.F., & Lancaster, T. (2007). Antidepressants for smoking cessation. *Cochrane Database Syst Rev* 1:CD000031.

David, S., Lancaster, T., Stead, L.F., & Evins, A.E. (2006). Opioid antagonists for smoking cessation. *Cochrane Database Syst Rev* 4:CD003086.

Techniques for Talking to Your Patients about Quitting Smoking

- Ensure that tobacco use status is collected during clinic visits as a "vital sign"
- Discuss the cost savings of quitting
- Discuss how quitting can improve overall health status
- Discuss secondhand smoke and how it can injure children and loved ones



SOURCE: CDC, 2016

Slide 99: Techniques for Talking to Your Patients about Quitting Smoking

The current care model and workforce for HIV infection are well-suited to address smoking cessation with patients living with HIV. This slide details a few concrete techniques HIV care providers can use to engage their patients in a conversation about quitting smoking.



REFERENCE:

Centers for Disease Control and Prevention. (2016). Smoking and HIV.

Accessed April 15, 2016 from

<http://www.cdc.gov/tobacco/campaign/tips/diseases/smoking-and-hiv.html>.

The Five "A's" for Patients Willing To Quit Smoking

- **Ask** – identify and document tobacco use status for every patient at every visit
- **Advise** – in a clear, strong, and personalized manner, urge every tobacco user to quit
- **Assess** – if the tobacco user willing to make a quit attempt at this time
- **Assist** – if yes, use counseling and pharmacotherapy to help him/her quit
- **Arrange** – schedule follow-up contact soon after the quit date

SOURCE: AHRQ, 2010; Arntsen, n.d.

100

Slide 100: The Five "A's" for Patients Willing to Quit Smoking

Successful intervention begins with identifying users and appropriate interventions based upon the patient's willingness to quit. The five major steps to intervention are the "5 A's": Ask, Advise, Assess, Assist, and Arrange.

Ask every patient at every visit about tobacco use; consider it a vital sign, along with blood pressure, pulse, temperature, and respiratory rate.

Make advice clear, strong, and personalized (*"As your health care provider, I must tell you that the most important thing you can do to improve your health is to stop drinking."*)

Tips for Providing the Right Treatment at the Right Time

1. Assess where the individual is at with regards to willingness to quit smoking
2. Distinguish between current use, past use, and no history of use in addition to light and heavy smoker categories
3. Ask about all forms of present and past nicotine and tobacco use
4. Assess medical, psychiatric, and addiction co-morbidities and socioeconomic factors

SOURCE: Mee-Lee, 2016.

101

Slide 101: Tips for Providing the Right Treatment at the Right Time

Drs. Susan Blank and Lori Karan are the co-authors of the Tobacco Use Disorder section of Chapter 9 "Emerging Understandings of Addiction" in *The ASAM Criteria* (2013). Susan Blank, MD is President of the Georgia Society of Addiction Medicine (GSAM) and Co-Founder and Chief Medical Officer of the Atlanta Healing Center in Norcross, Georgia. Lori Karan D., MD, FACP, FASAM is Medical Director of the Department of Public Safety, and is Professor of Psychiatry, John A Burns School of Medicine, Honolulu, Hawaii. She is also an Associate Clinical Professor of Medicine, University of California, San Francisco.

This slide contains tips on "The Right Treatment at the Right Time" for nicotine addiction.

Tips for Providing the Right Treatment at the Right Time

5. Assess whether the smoker is using alcohol, illicit drugs, and prescription medications
6. Treatment planning should be holistic, and take into account the multidimensional assessments
7. The intervention and intensity of treatment should be tailored to the individual

SOURCE: *Mea-Lee*, 2016.

102

Slide 102: Tips for Providing the Right Treatment at the Right Time

Drs. Susan Blank and Lori Karan are the co-authors of the Tobacco Use Disorder section of Chapter 9 "Emerging Understandings of Addiction" in *The ASAM Criteria* (2013). Susan Blank, MD is President of the Georgia Society of Addiction Medicine (GSAM) and Co-Founder and Chief Medical Officer of the Atlanta Healing Center in Norcross, Georgia. Lori Karan D., MD, FACP, FASAM is Medical Director of the Department of Public Safety, and is Professor of Psychiatry, John A Burns School of Medicine, Honolulu, Hawaii. She is also an Associate Clinical Professor of Medicine, University of California, San Francisco.

This slide contains tips on "The Right Treatment at the Right Time" for nicotine addiction.

A Few Caveats...

- Smoking is a chronic condition, yet medication treatment often short (12 weeks) in contrast to methadone maintenance
- Great spectrum of severity and addiction; treatment should be tailored accordingly
- Study participants may be more motivated to quit
- Research tends to involve more intensive counseling than what is found in real-world practice
- Most medication trials exclude patients with mental illness

SOURCE: Slide courtesy of Steven A. Schneider, MD, 2015

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Slide 103: A Few Caveats

It is important to keep in mind that smoking is a chronic condition, yet treatment approaches that involve the use of medicines are often short in duration. It is essential that treatment be tailored to the severity of the patient's addiction. With regards to results from research trials, it may be the case that study participants are more motivated to quit than those individuals who do not participate in research studies. Lastly, there are limitations to the individuals who are selected to participate in research trials.

Strategies to Prevent Smoking among Youth

- Higher costs for tobacco products
- Prohibiting smoking in indoor areas of worksites and public places
- Raising the minimum age of sale to 21 years
- TV and radio commercials, posters, and other media messages to counter tobacco product ads
- Community programs and school and college policies to encourage tobacco-free environments
- Community programs that reduce tobacco advertising, promotions, and availability of tobacco products

SOURCE: CDC, 2016

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Slide 104: Strategies to Prevent Smoking among Youth

A variety of national, state, and local program activities have been shown to reduce and prevent youth tobacco use when implemented together, and are referenced in the bulleted list.

Resources for Clinicians

- California Youth Advocacy Network (www.cyanonline.org)
- California Smokers' Helpline (www.nobutts.org)
- California Tobacco Control Program (<http://www.cdph.ca.gov/programs/Tobacco>)
- Smoking Cessation Leadership Center (<http://smokingcessationleadership.ucsf.edu>)
- Los Angeles County Tobacco Control and Prevention Program (<http://www.lapublichealth.org/tob>)

Slide 105: Resources for Clinicians

The **California Youth Advocacy Network** changes the tobacco use culture in California's high schools, colleges, and universities, military installations, and other youth and young adult communities by providing knowledge, skills, and tools to create local change for healthier communities. CYAN offers technical assistance, training, statewide advocacy and policy campaigns, educational materials and publications, and opportunities for networking.

The **California Smokers' Helpline** offers free telephone counseling, self-help materials, and online help in six languages to help individuals quit smoking. Additional information is available by calling 1-800-NO-BUTTS (1-800-662-8887).

The mission of the **California Tobacco Control Program** is to improve the health of all Californians by reducing illness and premature death attributable to the use of tobacco products. Through leadership, experience, and research, CTCP empowers statewide and local health agencies to promote health and quality of life by advocating social norms that create a tobacco-free environment.

(Notes for Slide 105, continued)

Slide 105: Resources for Clinicians

The **Smoking Cessation Leadership Center** is based at the University of California, San Francisco, and provides CME/CE webinars, fact sheets, toolkits, and publications, training resources and presentations, e-newsletters and listserv, and online ordering options for 1-800-QUIT NOW cards.


The **Los Angeles County Department of Public Health's Tobacco Control and Prevention Program (TCPP)** is the largest local lead agency in California in terms of size and funding. TCPP implements a countywide program to reduce youth access to tobacco product, reduce exposure to secondhand smoke and increase access to smoking cessation services.



This slide can be customized by trainers who will be presenting the information outside of California.

Smoking Cessation Therapies Benefit Substance Use Disorder Clients

- The ATTC Network created an Infographic highlighting the benefit of incorporating smoking cessation therapies into substance use disorder treatment programs
- The Infographic can be downloaded from: <http://tinyurl.com/zkkjwpt>



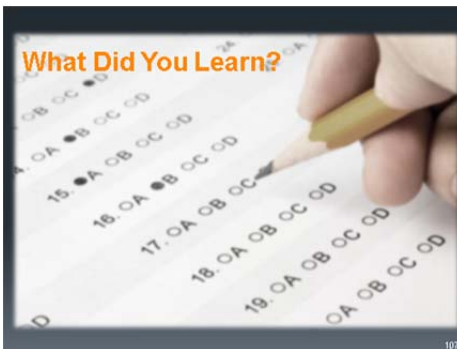
SOURCE: ATTC Network, NIDA/SAMHSA Funding Initiative, 2015

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Slide 106: Smoking Cessation Therapies Benefit Substance Use Disorder Clients

In 2015, the SAMHSA-funded ATTC Network developed an Infographic entitled “*Smoking Cessation Therapies Benefit Substance Use Disorder Clients.*” The Infographic can be downloaded from: <http://tinyurl.com/zkkjwpt>.

What Did You Learn?



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Slide 107: What Did You Learn?



The purpose of the following five post-test questions is to test the change in smoking and HIV knowledge amongst training participants. These questions are identical to the pre-test questions. Read each question and possible responses aloud, and give training participants time to jot down their response. Reveal the answers to each question once participants have had a chance to indicate their responses to each question.

Post-Test Question

1. How fast does nicotine reach the smoker's brain?

- A. 3 seconds
- B. 5 seconds
- C. 10 seconds
- D. 30 seconds
- E. More than 1 minute

100

Slide 108: Post-Test Question #1



Read the question and answer choices, and review audience responses out loud.

Correct Response is C (10 seconds)



**Audience Response System (ARS)-compatible slide

Slide 109: Post-Test Question #2



Post-Test Question

2. On average, every cigarette takes _____ minutes off of your life.

- A. 1 minute
- B. 5 minutes
- C. 7 minutes
- D. 11 minutes
- E. 22 minutes

100

Read the question and answer choices, and review audience responses out loud.

Correct Response is D (11 minutes)



**Audience Response System (ARS)-compatible slide

Post-Test Question

3. What percentage of smokers start smoking in their teens?

- A. 15%
- B. 30%
- C. 50%
- D. 70%
- E. 80% or more

110

Slide 110: Post-Test Question #3



Read the question and answer choices, and review audience responses out loud.

Correct Response is E (80% or more)



**Audience Response System (ARS)-compatible slide

Post-Test Question

4. Using tobacco products may affect HIV in which of the following ways:

- A. Less successful HIV drug therapy
- B. More likely to experience side effects of HIV medications
- C. Higher CD4 counts
- D. Lesser chance of developing opportunistic infections
- E. Higher rates of HIV transmission
- F. A, B, and E only
- G. All of the above

111

Slide 111: Post-Test Question #4



Read the question and answer choices, and review audience responses out loud.

Correct Response is F (A, B, and E only)



**Audience Response System (ARS)-compatible slide

Post-Test Question

5. How many classes of FDA-approved smoking cessation medications are available?

- A. None
- B. 1
- C. 3
- D. 5
- E. More than 10

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Slide 112: Post-Test Question #5



Read the question and answer choices, and review audience responses out loud.

Correct Response is C (3)



**Audience Response System (ARS)-compatible slide

In Closing...

"Starting today, every doctor, nurse, health plan, purchaser, and medical school in America should make treating tobacco dependence a top priority."

--David Satcher, MD, PhD, Former US Surgeon General, Director, National Center for Primary Care, Morehouse School of Medicine

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Slide 113: In Closing...

As has been stated numerous times in today's presentation, tobacco use is the single greatest preventable cause of disease and premature death in America. This quote from Dr. David Satcher is an appropriate note on which to end this presentation.



Slide 114: [Final Slide]



This concludes the presentation. Thank the participants for their time and address any last-minute questions about the content. Encourage participants to reach out to the Pacific Southwest ATTC or the LA Region PAETC, should they have questions or concerns following the training session.



IMAGE CREDITS (Left to Right):

CDC website, 2016; CDC website, 2016; Fotolia, 2016 (purchased image); Fotolia, 2016 (purchased image); Fotolia, 2016 (purchased image).

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Prepared in 2016 by: Pacific Southwest Addiction Technology Transfer Center

11075 Santa Monica Boulevard, Suite 200

Los Angeles, California 90025

T: (310) 267-5408

F: (310) 312-0538

pacificsouthwestca@attcnetwork.org

At the time of writing, Thomas E. Freese, Ph.D. served as the Principal Investigator and Director of the HHS Region 9, Pacific Southwest Addiction Technology Transfer Center, based at UCLA Integrated Substance Abuse Programs. Humberto M. Carvalho, MPH, served as the ATTC Government Project Officer, and Kimberly Johnson, PhD, served as Director of the Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration. The opinions expressed herein are the views of the authors and do not reflect the official position of the PAETC/HRSA or the Pacific Southwest ATTC/SAMHSA-CSAT. No official support or endorsement of the PAETC/HRSA or the Pacific Southwest ATTC/SAMHSA-CSAT for the opinions described in this document is intended or should be inferred.