The Emerging Science of E-Cigarette Use and Nicotine Addiction

2016-2017 TCN Podcast Series

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2017 President’s Challenge

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A Web of Cause and Effect

- HIV, Sexually Transmitted Infections, Viral Hepatitis
- Self-Harm and Interpersonal Violence
- Low Educational Attainment
- Limited Access to Care
- Substance Misuse and Addictions
- Mental Illness
- Human Trafficking
- Adverse Childhood Experiences
- Social Isolation
- Poverty
- Homelessness
- Imprisonment and Recidivism
- Historic Trauma
- Homelessness
2017 Challenge:
Public Health Approaches to Preventing Substance Misuse and Addictions
Building on Past Challenges

- 2009: Injury Prevention
- 2010: Promoting Health Equity
- 2011: Healthy Babies
- 2012: Reintegration of Public Health and Healthcare
- 2013: Prescription Drug Abuse
- 2014: Healthy Aging
- 2015: Advancing Health Equity and Optimal Health for All
- 2016: Healthy Babies
- 2017: Walk the Talk

Injury Prevention
Promoting Health Equity
Healthy Babies
Reintegration of Public Health and Healthcare
Prescription Drug Abuse
Healthy Aging
Advancing Health Equity and Optimal Health for All
Walk the Talk
Scope of Substance Misuse and Addictions

Legal Substances
- Alcohol, Marijuana

Illicit Substances
- Heroin, Methamphetamines, Synthetic Cannabinoids, Cathinones

Therapeutic Substances and Prescription Drugs
- Opioids, Amphetamines, Benzodiazepines

Emerging Technologies
- Powdered Alcohol, Vaping Devices, Designer Psychoactives
Substance Misuse in the United States

- Overdose is the leading cause of injury-related death in the United States.
- 1 in 10 Americans aged 12 or older used illicit drugs in the past month.
- 3.8 million young adults aged 18 to 25 reported heavy alcohol use in the past month.
- From 2002 to 2014, the prevalence of daily or almost daily marijuana use in the past year increased by 92 percent.
- Misuse of tobacco, alcohol, and illicit drugs costs more than $700 billion annually.

Past Year Substance Use Disorder
Total = 20.8 Million People

Source: National Survey on Drug Use and Health, 2015
Substance Misuse and Addictions: Prevention Framework

Public Health Practice Paradigms

Acute Health Event Control and Prevention

Prevent life-threatening adverse outcomes
SNEPs
Naloxone
Ignition Interlock

Chronic Disease Screening and Management

Diagnose and treat addictions and substance use disorders
Screening and Treatment
Remove Stigma
Understanding of Addiction as a Chronic Condition of the Brain

Environmental Controls and Social Determinants

Reduce the need to self-medicate, control access to addictive substances, and promote protective factors
Taxation
Age Restrictions
Limited Advertising
Prevention of ACEs
Personal and Community Resiliency
Adolescent Risk Reduction
Promote Mental Wellness
Effective PDMPs and Use of Data
Rational Pain Management
Judicious Prescribing

Strategic Priorities
2016 - 2019 Strategic Map

Develop and Leverage Public Health Approaches to Prevent Substance Misuse, Addictions, and Related Consequences

- Reduce Stigma and Change Social Norms
- Increase Protective Factors and Reduce Risk Factors in Communities
- Strengthen Multi-Sectoral Collaboration
- Strengthen Prevention Infrastructure
- Optimize the Use of Cross-Sector Data for Decisionmaking

Foster Cultural Competence and Relevance
Cross-Sectoral Collaboration is Key

- Public Health Agencies
- Attorneys General Offices
- Justice and Corrections
- Medical Boards
- Healthcare Providers
- Hospitals and Clinics
- Community Coalitions
- Businesses and Labor
- Media
- Emergency Medical Services
- Social Services Agencies
- Faith Communities
- Pharmaceutical Industry
- Educators
- Third-Party Payers
- Others
What Can We Do?

• **Increase access to naloxone**
  - Provide public and professional education on administering naloxone and managing overdose
  - Eliminate liability and financial barriers
  - Authorize standing orders, third-party prescribing, and pharmacist independent dispensing

• **Support clean needle use**
  - End “drug paraphernalia laws” that restrict access
  - Support syringe and needle sales and exchange programs

• **Reduce impaired driving**
  - Support widespread and sustained use of ignition interlocks
  - Implement sobriety checkpoints
What Can We Do?

• Reframe “addictions”
  • Promote a science-based understanding of addictions
  • Increase awareness of addictions as chronic health conditions

• Increase screening and diagnosis
  • Incorporate Screening, Brief Intervention and Referral to Treatment (SBIRT) into healthcare and social services

• Improve access to withdrawal symptom management and support for recovery
  • Remove barriers to access to therapy for withdrawal symptom management and maintenance of recovery
  • Train prescribers and dispensers on identifying and managing addictions
  • Increase facilities and providers
  • Encourage third-party payer coverage
What Can We Do?

• **Promote healthy families and increase resiliency**
  • Promote maternal and early childhood health programs
  • Prioritize pregnant women for screening and access to treatment
  • Utilize tools outlined in CDC’s 2016 technical package, “Preventing Child Abuse and Neglect”

• **Reduce the prescription supply of opioids in communities**
  • Develop and utilize user-friendly, robust PDMPs

• **Support safer pain management and judicious prescribing**
  • Expand public and professional education, including evidence-based pain management guidelines and non-opioid pain management strategies
  • Encourage providers to take the Surgeon General’s pledge
  • Develop and promote safe medication storage practices and drug return programs
What Can We Do?

Use data for assessing the problem and measuring progress

• Standardize and enhance **post-mortem toxicological testing** in investigation of suspected overdose and suicide deaths (e.g., testing for fentanyl)
• Leverage **Violent Deaths Reporting System** to increase timeliness and accuracy of data collection and analysis
• Develop **syndromic surveillance** methodology to identify clusters of overdose and substance toxicity
• Increase capacity to determine risk factors for **HCV infection**
• Establish access to and capacity to **analyze PDMP data**
• Utilize **BRFSS module assessing ACEs**
• Create **lines of communication** to assure cross-sectoral data sharing
What Will Success Look Like?

Near horizon (next 3 years)

• Reduced deaths from drug overdose
• Declines in motor vehicle crashes from impaired driving
• Fewer self-injection related HIV and HCV infections
• Less unintentional injuries and self-harm related to drugs and alcohol

Further horizons

• Lower rates of drug misuse and addiction, including underage use
• Reduced drug- and alcohol-related incarceration and re-incarceration of persons with addictions
• Lower rates of crime and referrals to child protective services
• Less interpersonal violence, self-harm, and child neglect
• Prevention of excessive prescriptions for controlled substances while improving wellness and function
Thank you!
E-cigarettes

Public Health Promise or Peril?

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TOBACCO CONTROL NETWORK PODCAST ● 2017
What is an E-cigarette?

Types of E-cigarettes

- Mini E-Cig
- Mid-Sized
- Modified

Smaller/Fixed → Larger/Customizable

Anatomy of an E-Cigarette

- User inhales aerosol
- Liquid Cartridge (holds a liquid nicotine, propylene glycol, and/or glycerin solution)
- Atomizer (heats the solution)
- Battery (power source)
Ever Use of E-Cigarettes Among U.S. Adults, by Cigarette Smoking Status, 2010-2016

<table>
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<th>Year</th>
<th>Current Cigarette Smoker</th>
<th>Former Cigarette Smoker</th>
<th>Never Cigarette Smoker</th>
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<td>2016</td>
<td>44.94</td>
<td>17.78</td>
<td>6.65</td>
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</table>

Source: CDC. Styles Survey. 2010-2016

Is there a potential benefit for e-cigarettes?

Answer: Under certain circumstances

Complete long term substitution by established smokers

Assist in rapid transition to a society with little or no use of combustible products

Short-term use if shown to produce successful & permanent cessation of combustible products

However, “Cutting back” is not enough—even a few cigarettes per day is dangerous
E-Cigarette Use As A Smoking Cessation Tool Among Adults

• “The long-term safety of e-cigarettes is unknown.”

• “There is evidence from two trials that e-cigarettes help smokers to stop smoking in the long term compared with placebo e-cigarettes. However, the small number of trials, low event rates and wide confidence intervals around the estimates mean that our confidence in the result is rated 'low' by GRADE standards.”

“Overall, the USPSTF found the evidence on the use of ENDS as a smoking cessation tool in adults, including pregnant women, and adolescents to be insufficient.”

Potential Harms from E-Cigarettes if:

- Leads to initiation of combustible tobacco use among non-smokers, particularly children
- Leads to relapse among former smokers
- Diminishes the chances that a smoker will quit
- Discourages smokers from using proven quit methods
- Exposes children, pregnant women, and non-users to secondhand aerosol
- Glamorizes or renormalizes tobacco use
- Results in poisonings among users or non-users
E-cigarettes are now the most commonly used tobacco product among U.S. youth.

Youth use of tobacco products in any form, including e-cigarettes, is unsafe.

Adults must quit smoking cigarettes completely to realize potential benefits of e-cigarettes. However, e-cigarettes are not currently an FDA-approved quit aid.

The tobacco product landscape continues to diversify, and it’s critical to modernize tobacco control strategies to adapt to these changes.
Washington State Department of Health
Vapor Product Prevention and Control Program

• Program website:
  http://www.doh.wa.gov/YouandYourFamily/Tobacco/VaporProducts

• Statutes:
  http://app.leg.wa.gov/RCW/default.aspx?cite=70.345
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