Vaping & Tobacco Secondhand Smoke

NH Health Officers Association
Spring Workshop
5/24/18

Susan Morrison, M.Ed.
NH Department of Health & Human Services
Tobacco Prevention & Cessation Program
# Nicotine Addition

## Physical
- Receptors in the brain absorb the nicotine
- Dopamine is released creating that reward (pleasure, calming feeling)
- Built up tolerance = needing more for same reward

## Psychological
(Mental & Emotional)
- Involves rituals or people associated with smoking
  - Smoking with Coffee/Meal
  - Smoking when Stressed
  - Breaks with Co-workers

## What Helps to Quit
- *Nicotine Replacement Therapy (NRT)*
- *The WANT to Quit*
- *Willingness to Change Behaviors*
- *Helpline Coaching*
- *Other Support System*
HOW DOES NICOTINE WORK IN THE BODY?

You smoke a cigarette or take a nicotine product. Nicotine is absorbed through the mucosal linings in the nose and mouth.

When you inhale, nicotine passes through the lung's membranes and into the bloodstream.

After it reaches the bloodstream, nicotine makes its way to your heart. There, it’s transferred to your arteries, and up to your brain.

Nicotine reaches the brain in 10-20 seconds. It stimulates the release of neurotransmitters adrenaline and dopamine.

Nicotine is extensively metabolized to a number of metabolites by the liver.

Nicotine is filtered by the kidneys and excreted in urine, with variable reabsorption depending on urinary pH.

NICOTINE PRODUCTS

- Cigarettes and e-cigarettes
- Chewing Tobacco and Snuff
- Pipes
- Dissolvable tobacco (lozenges)
Tobacco Facts...

- Tobacco use is the single most preventable cause of disease, disability, and death in the United States.

- More deaths are caused each year by tobacco use than by all combined deaths from:
  - HIV - Illegal Drug Use - Alcohol Use - Motor Vehicle Injuries
  - Suicides - Murders

- Cigarette smoking is responsible for more than 480,000 deaths per year in the United States:
  - Including more than 41,000 deaths resulting from secondhand smoke exposure

This is equivalent to 3 jumbo jets crashing each day for a year!
599 of the 4,000+ Chemicals Found in Cigarettes

- Acetone (nail polish remover)
- Ammonia (floor cleaner)
- Arsenic (poison)
- Butane (cigarette lighter fluid)
- Cadmium (rechargeable batteries)
- Carbon Monoxide (car exhaust)
- DDIT (insecticide)
- Formaldehyde (preserver)
- Hydrogen cyanide (gas chamber)
- Naphthalene (mothballs)
- Hexamine (barbecue lighters)
Health Effects of Smoking

Ears
- Hearing loss

Throat
- Cancer, voice deepening

Lungs
- Wheezing, trouble breathing or shortness of breath, pain and tightness in the chest, frequent coughing or heavy chest colds, emphysema, chronic bronchitis, chronic obstructive pulmonary disease or asthma, lung cancer

Stomach
- Stomach ulcers

Blood
- High blood pressure, increased white blood cell count, weakened immune system, taking longer to heal

Brain
- Stroke

Eyes
- Cataracts, blindness, loss of night vision

Mouth
- Oral cancer, cavities, bad breath, sores in the mouth

Heart
- Heart disease, heart attack, bad circulation, tingling in hands and feet

Bones
- Bone disease, bone density loss, more broken bones

Smoking affects many parts of the body

Smoking increases the risk of many types of cancer including:
- lung
- throat
- mouth
- esophageal
- stomach
- kidney
- bladder
- cervical

If you smoke, you are 10 times more likely to get cancer than a person who has never smoked.
Types of Smoke

- **Primary**
  - The smoke inhaled into the lungs while smoking

- **Secondhand**
  - The smoke exhaled from smoking or from the burning tip of a cigarette
Third-Hand Smoke or Particulate Matter

- The “Legacy” of SHS
  - The contaminates that remain after the smoke is gone

- Exposure occurs via
  - Inhalation of gases and particles
  - Dermal absorption from contact
  - Ingestion of particles

“Breathing air in a room today where someone smoked yesterday can harm your health”
Tobacco Smoke - No Limits

Tobacco smoke can move along/through...

- air ducts
- cracks in the walls and floors
- elevator shafts
- plumbing
- electrical lines

to affect units on other floors.
No Safe Level of Exposure

Secondhand Smoke is toxic

Cancer Causing Chemicals
All are extremely toxic

- Formaldehyde
- Chromium
- Benzene
- Polonium-210
- Vinyl Chloride
- Carbon Monoxide
- Hydrogen Cyanide
- Butane
- Ammonia

Toxic Metals
Can cause cancer
Can cause death
Can damage the brain and kidneys

- Arsenic
- Lead
- Cadmium
- Tin

Secondhand smoke has more than 4,000 chemicals.
Many of these chemicals are toxic and cause cancer.
You breathe in these chemicals when you are around someone who is smoking.

Poison Gases
Can cause death
Can affect heart and respiratory functions
Can burn your throat, lungs, and eyes
Can cause unconsciousness

- Carbon Monoxide
- Hydrogen Cyanide
- Butane
- Ammonia

Secondhand smoke
It hurts you. It doesn’t take much. It doesn’t take long.
Research Shows…


American Society of Heating, Refrigeration and Air-Conditioning Engineers

US Department of Housing and Urban Development (HUD)

It’s about the smoke NOT THE SMOKER!
ENDS- Electronic Nicotine Delivery Systems, Tanks, Mods, Pens, E-cigarettes

2007 – 2018
E-Cigarettes & Vape Pens Components

**Battery**
The battery is the energy source of the device and powers the atomizer.

**Atomizer**
The atomizer is the heating element that heats the e-liquid and is often coil shaped.

**E-Liquid**
Sometimes called e-juice, this is put into the device and often contains flavors and nicotine.

**Cartridge**
The cartridge (tank) holds the e-liquid and may also hold the atomizer.

**Aerosol**
Heating e-liquid inside the device creates an aerosol that is inhaled into the body and out into the air.

Tobacco Prevention Toolkit
Division of Adolescent Medicine, Stanford University
For more information go to: www.tobaccoprevention toolkit.stanford.edu
E-Liquid/Juices
is a liquid consisting of
- PG (propylene glycol)
- VG (Vegetable Glycerin)
- Flavoring and nicotine

Over 7000 flavors
- Menthol
- Fruit
- Alcohol
- Candy
- Chocolate
- Sweets

Nicotine Levels (mg/ml)
amount of nicotine in milligrams for each milliliter of E-Liquid
- 0 (no nicotine)
- 12 (light cigarettes)
- 24 (pack a day)
- 36 (2+ packs per day)

NH Price Range:
- Lowest $5 for 10ml bottle
- Highest $120 for 480ml bottle
E-liquid Flavors & Packaging
Our patented Drawstring™ vapor delivery system is now **vape ready**, meaning it’s compatible with virtually every vape cartridge. **Vape pen sold separately.**
More than 25 chemicals are found in both Cigarettes & E-Cigarettes

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Exposure Harmful</th>
<th>Secondhand Smoke</th>
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</thead>
<tbody>
<tr>
<td>2-butanone (MEK)</td>
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<tr>
<td>2-furaldehyde</td>
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<tr>
<td>Acetaldehyde</td>
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<tr>
<td>Acetic acid</td>
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<td>Acetone</td>
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<td>Acrolein</td>
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<tr>
<td>Aluminum</td>
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<tr>
<td>Barium</td>
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<td>Benzene</td>
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<td>Boron</td>
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<td>Butanal</td>
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<td>Butyl hydroxyl toluene</td>
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<td>Cadmium</td>
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<td>Chromium</td>
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<td>Copper</td>
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<td>Crotonaldehyde</td>
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<td>Diethylene Glycol</td>
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<tr>
<td>Formaldehyde</td>
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<tr>
<td>Glyoxal</td>
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<td>Isoprene</td>
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<td>Lead</td>
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<td>Limonene</td>
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<td>m,p-Xyelen</td>
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<td>Magnesium</td>
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<td>Manganese</td>
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<td>Nickel</td>
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<td>Nicotine</td>
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<td>N-Nitrosonomornicotine</td>
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<td>o-Methylbenzaldehyde</td>
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<td>p,m-Xylene</td>
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<tr>
<td>Phenol</td>
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<td>Polycyclic Aromatic Hydrocarbons</td>
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<tr>
<td>Potassium</td>
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<td>Propanal</td>
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<td>Propylene Glycol</td>
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<td>Sulfur</td>
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<td>Tin</td>
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<td>Toluene</td>
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<td>Valeraldehyde</td>
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<td>Zinc</td>
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<td>Zirconium</td>
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 ✔ = exposure can be especially harmful to the health. Chemicals in red are emitted in secondhand smoke.
Data from the National Poison Data System (1/2012 – 4/2017)

- 8,269 calls to US poison control centers reporting liquid nicotine exposures among children ages 6 or under.

- 92.5% of the children exposed to liquid nicotine ingested it.

- Around seven children a day accidentally swallow liquid nicotine from e-cigarette refills.
  - Even a few drops can be fatal.
Long Term Health Effects Not Known, But…
2009 – Family Smoking Prevention & Tobacco Control Act gives FDA authority to regulate the manufacture, distribution, and marketing of tobacco products

2016 – FDA proposes Deeming Regulation, to regulate e-cigs/ENDS as tobacco products

2017 – Senator requests review, repeal of proposed regulation resulting in delayed enforcement

April 24, 2018 – FDA Announces Enforcement Actions and a New Youth Tobacco Prevention Plan related to JUUL and other e-cigarettes

www.fda.gov/TobaccoProducts
RSA 155:64–77

- Indoor Smoking Act (ISA) (1991)
- Restaurants and Bars (2007)

Pre-emption State

- Local tobacco laws can not be stronger then state laws.
  - www.courts.state.nh.us/supreme/opinions/2003/coleb111.htm

No “Outdoor” Smoking Law

- Voluntary Policy Adoption
  - Smoke free Parks (Berlin, Laconia, Peterborough, Somersworth)
NH Policies

RSA 126–K:2 & K:7
- Youth access to and use of tobacco products

HB 1541 (2010)
- Prohibits the sale of electronic cigarettes and liquid nicotine to minors

NH Vape Shops
- No specific license required to sell e-cigarette products, e-juice or devices at this point
State of NH Secondhand Smoke Exposure Complaint Form

www.dhhs.nh.gov/dphs/tobacco
Particulate Matter is the air pollution that most commonly affects people’s health.

- The size of particles is directly linked to their potential for causing health problems.
- PM2.5 is particles smaller than 2.5 microns
  - Smoke
  - Smog
  - Fine Dust
  - Mold

FYI: A human hair is about 60 microns in diameter
NH HUD Building Smoke Free on 11-1-11
Testing date 12-5-11

Apt in Violation

Apt XXX Not in Violation

Lobby

Apts and Hallways

Date & Time

5 Mon Dec 2011
QuitNow-NH

www.QuitNowNH.org

1-800-QUIT-NOW

- Coaching Sessions
- FREE Nicotine Patches, Gum or Lozenges.
E-Cigarette Resources

Local

NH Department of Health and Human Services, Tobacco Prevention and Cessation Program
www.dhhs.nh.gov/dphs/tobacco
www.quitnownh.org/e-cigarettesvaping
603-271-6891

Breathe New Hampshire
https://www.breathenh.org/programs/vaping-unveiled
603-669-2411

Northern New England Poison Center
www.nnepc.org/poison-prevention-education/webinars-for-professionals/e-cigarettes-school-nurse-webinar

Partnership for a drug free NH
www.drugfreenh.org
E-Cigarette Resources

National

Centers of Disease Control and Prevention, Office on Smoking and Health
www.cdc.gov/tobacco

Surgeon General - Know the Risk of E-Cigarettes and Young People
https://e-cigarettes.surgeongeneral.gov/

Truth Initiative
www.truthinitiative.org

Campaign for Tobacco Free Kids
www.tobaccofreekids.org/what-we-do/industry-watch

Program/Curriculum

CATCH My Breath Youth E-cigarette Prevention Program
www.catchinfo.org/modules/e-cigarettes

Stanford Medicine, Tobacco Prevention Toolkit
www.med.stanford.edu/tobacco prevention toolkit.html
Susan Morrison, M.Ed.
NH Department of Health & Human Services
Tobacco Prevention & Cessation Program
Susan.Morrison@dhhs.nh.gov
603-271-6684