Lessons Learned from Tobacco in the E-Cigarette Epidemic

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Presentation Outline

- Understanding the scientific and political history of how combustible cigarettes were identified as harmful.

- Identify current concerns of electronic cigarettes.

- Understand the role of community in impacting the current epidemic of e-cigarette users.
Disclosures

• Recipient of Cigarette Restitution Funds
SMOKING and HEALTH

REPORT OF THE ADVISORY COMMITTEE TO THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE


Tobacco Consumption and Mortality From Cancer and Other Diseases

HAROLD F. DORN, Ph.D.
Cigarettes peril health, U.S. report concludes; ‘remedial action’ urged

Cancer link cited

Smoking is also found ‘important’ cause of chronic bronchitis.

By POLLY SULLIVAN
Special to the New York Times
WASHINGTON, Jan. 13—The long-awaited federal report on the effects of smoking issued today that the use of cigarettes contributed an unnecessarily to the American death rate like “apparition, hereditary disease” and called for

The conclusions that made the report give the special committee on smoking for action, health officials said that possible steps might include educational campaigns, the reorganization that cigarette packages carry warnings and refusal of advertising.
Tobacco Industry Research Committee

- Aim: Promote negative claims against cigarette hypothesis
  - 1954: Wilhelm Hueper
    - Strongly opposed the Cigarette-Cancer Hypothesis

Tobacco Industry Research Committee

• Aim: Promote negative claims against cigarette hypothesis
  – 1950s: Harold Stewart
    • Strongly opposed the Cigarette-Cancer Hypothesis
Tobacco Consumption and Mortality From Cancer and Other Diseases

HAROLD F. DORN, Ph.D.

A study of some 200,000 life insurance policyholders contributes striking evidence that regular cigarette smokers are subject to increased risk of dying from lung cancer, as well as cardiovascular disease, certain respiratory diseases, ulcers, and cirrhosis of the liver.
PRESSURE BUILDS

In the early 1960s, the new administration’s health leaders initially showed little enthusiasm for further action on tobacco.
The American Cancer Society
The American Heart Association
The American Public Health Association
The National Tuberculosis Association

All sent a joint letter to President Kennedy
Q. Mr. President, there is another health problem that seems to be causing growing concern here and abroad and I think this has largely been provoked by a series of independent scientific investigations, which have concluded that cigarette smoking and certain types of cancer and heart disease have a causal connection. I have two questions: do you and your health advisers agree or disagree with these findings, and secondly, what if anything should or can the Federal Government do in the circumstances?
PRESS CONFERENCE May 23rd, 1962

THE PRESIDENT. That matter is sensitive enough and the stock market is in sufficient difficulty *laughter* without my giving you an answer which is not based on complete information, which I don't have and, therefore, perhaps we could — I'd be glad to respond to that question in more detail next week.
That comment was the final push for the Kennedy Administration

- Formed:
  **Surgeon General’s Advisory Committee on Smoking and Health**
Electronic Cigarettes

• Modern electronic cigarette: 2003 by Hon Lik
  – A pharmacist
  – Intended to find a safer alternative to traditional cigarettes
  – 2004: Began to be sold in Asia
  – 2007: Introduced to US
Electronic Cigarettes

Royal Academy of Physicians
– 2007 Statement: Harm reduction in nicotine addiction
• Discussed nicotine is relatively harmless and if an alternative to tobacco could be used for nicotine delivery, many lives could be saved.
Royal Academy of Physicians

– 2014 Statement: Harm reduction in nicotine addiction

The RCP recognises that electronic cigarettes and other novel nicotine devices can provide an effective, affordable and readily available retail alternative to conventional cigarettes.

The RCP also recognises that these new products present potential risks as well as opportunities for individual and population health, and therefore advocates proportionate regulation to maximise the overall public health benefit.
Electronic Cigarettes

Royal Academy of Physicians
– 2016 Statement: Harm reduction in nicotine addiction

*E-cigarettes appear to be effective when used by smokers as an aid to quitting smoking.*

*E-cigarettes are not currently made to medicines standards and are probably more hazardous than NRT.*

However, the hazard to health arising from long-term vapour inhalation from the e-cigarettes available today is unlikely to exceed *the harm from smoking tobacco.*
Electronic Cigarettes

A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy

*NEJM 2019 February*

Reported 1-year abstinence was twice that (18%) in e-cigarette group versus nicotine replacement therapy (9.9%)
Electronic Cigarette – Rebuttal

Forum of International Respiratory Societies
2014 Statement of the 7 international societies:

• The safety of electronic cigarettes has not been adequately demonstrated.
• The addictive power of nicotine and its untoward effects should not be underestimated.
• The potential benefits of electronic nicotine delivery devices, including harm reduction and as an aid to smoking cessation, have not been well studied.

Electronic Cigarette – Rebuttal

Forum of International Respiratory Societies

2018 Statement of the 7 international societies:

• To protect youth, electronic nicotine delivery systems should be considered tobacco products and regulated as such. All forms of promotion must be regulated.

• The sale of electronic cigarettes to youth must be banned in all nations.

• Electronic cigarettes have been claimed to be safer than combustible cigarettes, but comparison to the most lethal product in the history of the world is faulty. The appropriate comparison would be to non-use of tobacco products.

A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy

*NEJM 2019 February*

Reported 1-year abstinence was twice that (18%) in e-cigarette group versus nicotine replacement therapy (9.9%)

**NRT + Bupropion 1-year abstinence rate: 20%**

**Vareniclince at 26-weeks has been reported at 26%**
Electronic Cigarettes - Rebuttal

A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy

*NEJM 2019 February*

Reported 1-year abstinence was twice that (18%) in e-cigarette group versus nicotine replacement therapy (9.9%)

80% of the e-cigarette arm was still using the product at 1-year, raising the concern for long-term use health risk
Electronic Cigarettes – Rebuttal

Pulmonary Illness Related to E-Cigarette Use in Illinois and Wisconsin — Preliminary Report

*NEJM September 2019*

Vaping may disrupt immune cells in the lungs, mouse study finds

*NBC Health News 2019*
Anatomy of an Electronic Cigarette

Klager et al. Env Sci & Techn. 2017
Based on information from e-cigarette manufacturers, a full e-cigarette cartridge provides approximately 300 puffs.

The average e-cigarette user may be inhaling formaldehyde at concentrations that would be unacceptable in the workplace, and they are doing this nearly 300 times each day.
Combustible Cigarettes & Electronic Cigarettes – A shared history

• Conflicting views from medical groups, outside forces influencing information, along with strong individual beliefs

• Concern for one public health issue (death from combustible cigarettes) may blind one from another (harm from e-cigarettes)
Stop Naturally!

Tobacco users, think a moment of the state of your body; the few steps you are taking.

That's Tobacco at Work On Your Heart.

Hold out your hand and watch it tremble—this is what tobacco irritates.

That's Tobacco at Work On Your Nerves.

Your vigor, the power to do the right thing at the right time, is slipping away.

That's Tobacco at Work On Your Manhood.

DON'T TOBACCO SPIT AND SMOKE YOUR LIFE AWAY,

when you can easily and forever destroy the evil effecting the harm which is doing to your system with NO-TO-BAC. Are you one of the thousands of tobacco users who want to stop and see if you can't improve your health? 

NO-TO-BAC GUARANTEED TOBACCO HABIT CURE.

What better proof than the sale of over a million boxes in three years. Start today and see how quickly No-To-Bac kills the desire for tobacco, makes the nerves, improves the weight, makes the blood pure and rich, imbues with new life and energy. The old man Poor Man's STOP.

Paying your money on the tobacco habit. You can't afford it. It is the best investment you can make.

POOR MAN STOP.

What's your health worth? Your money? Your life? If you are not poor in health—stop it. Stop it at once. If you are not poor in money—stop it. All you have is your health.

No-To-Bac is cheap. It is a highly advertised patent medicine. The success of No-To-Bac has shown us that men will pay for a cure.

DRUGGIST'S GUARANTEE.

The manufacturers of No-To-Bac guarantee that you will be entirely satisfied or money refunded. Send 50 cents for a trial box.

NEWELL PHARMACEUTICAL CO., St. Louis, Mo., Dept. 500.
• An active attempt to change belief and attitude
  – Caveat: Difficult!

• Elaboration Likelihood Model
  – Two Routes to Persuasion:
    • Systematic (central)
    • Superficial (peripheral) Processing
Persuasion

**Central Processing**: deeper, elaborative processing (effortful); attention to message content.

**Versus**

**Peripheral route**: little thought.
- Consumers do not process the message arguments carefully, but instead base their responses on some peripheral cue
- For instance the degree to which they like the source of the message, or background music
- The peripheral route is more temporary and shallow in its effects.
Tobacco Is Hurting You
Look at the facts square in the face, Mr. Tobacco User. You may think tobacco is not hurting you. That is because you haven't seen yet, perhaps, felt the effects of the nicotine poison in YOUR system. For you know that nicotine, as absorbed by the system through smoking and chewing tobacco, is a slow working poison. Slow, yes—but sure.

Tobacco is lowering your efficiency. It slows a man down. Makes it harder for you to concentrate your mind on your work. You haven't seen the amount of "pep" and energy you would have if you stopped using it. There's money in that, as old as you in years, who's twice as young in energy, simply because he has no tobacco alone. Someday you will realize to what an alarming extent tobacco has undermined your system.

Tobacco Habit Banished
Let Us Help You
It doesn't make a particulate difference whether you've been a user of tobacco for a single month or 40 years, or how much you use, or in what form you use it—whether you smoke cigars, cigarettes, pipe, these little five cent or two mill- inch sticks, or the big wonder, the cuban—there is absolutely no difference. Not the slightest shock to the nervous system. Your tobacco cravings will usually begin to decrease after the very first day—there's no long waiting for results. Tobacco Remover contains no habit-forming drugs of any kind and is made only with vegetable and mineral ingredients. It is to no one a substitute for tobacco. After finishing the treatment you have absolutely no desire to try tobacco again or to continue the use of the remedy. It helps to quiet the nerves and make you feel better in every way.

Free Book Coupon
NEWELL PHARMACAL CO.
Dept. 250 St. Louis, Mo.
Please send, without obligation to me in any way, your free booklet regarding the tobacco habit and proof that Tobacco Remover will positively work for you. From the tobacco habit or my money will be refunded.

Tobacco Remover
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Lighten Up.
Heuristic Cues: Peripheral Processing

• The Attractiveness Heuristic (Halo Effect).
• The Familiarity Heuristic (Mere Exposure Effect).
• The Expertise Heuristic (status of communicator).
• The Message Length Heuristic (number of arguments).
• Feelings as Cues to Attitudes (misattribution of source of mood).
The Four Stages of Systematic Processing:

- **Attention** to Message (it must be noticed to be effective).
- **Comprehension** of Message (if incomprehensible, message will have no effect or if misunderstood, an undesired effect).
- **Elaboration & Reaction** (cognitive & emotional response).
  - (Emotional/Cognitive reaction to message may induce bigger effect than actual message content).
- **Acceptance or Rejection** of message (or attitude shift in *opposite* direction: Boomerang Effect).
What Determines the Processing Mode? Peripheral or Central?

• **Motivational** Influences:
  – The Need for Accuracy (Accountability).
  – Self-Relevance (Ego Involvement).

• **Cognitive** Influences:
  – Ability to Process (Understanding).
  – Attention Resources (Cognitive Load).

• **Personality** Variables (Individual Differences):
  – The Need for Cognition (thinking/problem solving).
  – Self-Monitoring (concern with self-presentation).

• **Emotion** and Persuasion: evidence contradictory, but
  – Positive Moods tend to induce Peripheral Processing.
  – Negative Moods (e.g. Fear) induce Central Processing
    • BUT can induce defensive rejection if mood becomes extreme.
Exposure to Advertising

Motivated to Elaborate?

Peripheral Route

High Involvement

Ability to Elaborate?

Yes

Central Route

No
Reactions to message are as important as the message itself.
KEY ACTIONS

1. Understand the severity of the epidemic
   - Vaping-related health injuries
   - Vaping in youth epidemic

2. Partner with organizations
   - American Lung Association, American Thoracic Society
   - Local Health Department

3. Devise strategies to prevent and treat
Questions

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