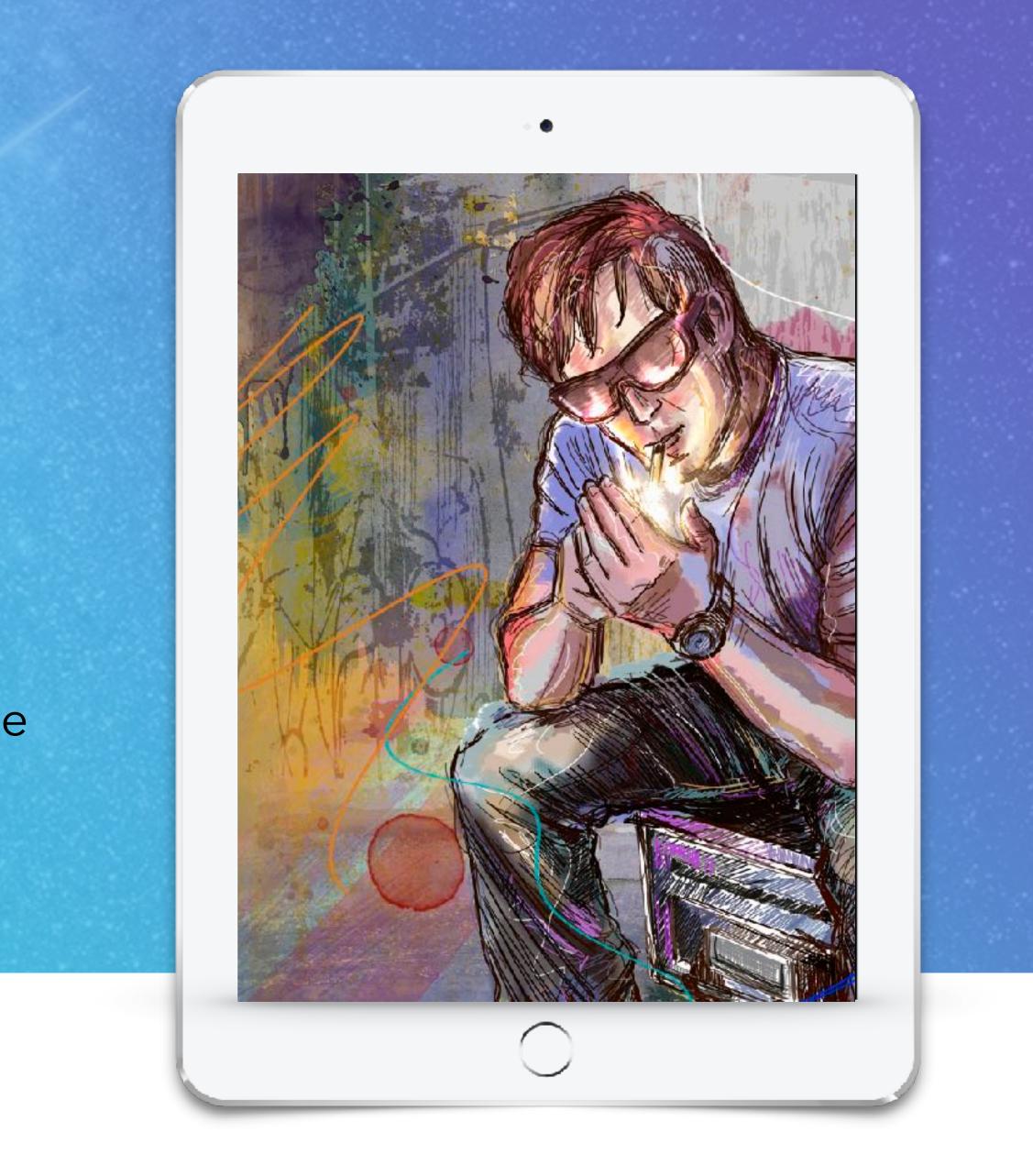
Factors Affecting Media Coverage of Tobacco Research News

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71st Tobacco Science Research Conference 29 November 2017





Analysis of journalists' coverage of tobacco-related research











WHAT ARE SOME COMMON SOURCES

CAN WE IMPROVE THE QUALITY OF MEDIA COVERAGE?

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EXAMPLE #1: COVERAGE OF LETTER TO NEJM

"Hidden Formaldehyde in E-Cigarette Aerosols"

The NEW ENGLAND IOURNAL of MEDICIN

"changes in the strong ion difference are a consequence of adding acid and base as strong-ion 1. Fencl V, Jabor A, Kazda A, Figge J. Diagnosis of metabolic salts; they do not cause pH to change." The de-hate about cause and affect and fact bate about cause and effect and fact and opinion 2. Adrogué HJ, Gennari FJ, Galla JH, Madias NE. Assessing is really a debate about interpretation, given that acid-base disorders. Kidney Int 2009;76:1239-47. causation is notoriously difficult to prove.⁴ Julian L. Seifter, M.D.

Brigham and Women's Hospital Boston, MA

interpretation by Boron and Vaughan-Jones that Since publication of his article, the author reports no further

3. Boron WF. Regulation of intracellular pH. Adv Physiol Educ 2004;28:160-79. 4. Hill AB. The environment and disease: association or causa-

tion? Proc R Soc Med 1965:58:295-300.

DOI: 10.1056/NEJMc1414731

Hidden Formaldehyde in E-Cigarette Aerosols

solutions of propylene glycol, glycerol, or both, formaldehyde was detected as formaldehydeplus nicotine and flavorant chemicals. We have releasing agents. Extrapolating from the results observed that formaldehyde-containing hemiac- at high voltage, an e-cigarette user vaping at a etals, shown by others to be entities that are de-rate of 3 ml per day would inhale 14.4±3.3 mg of tectable by means of nuclear magnetic resonance formaldehyde per day in formaldehyde-releasing (NMR) spectroscopy,¹ can be formed during the agents. This estimate is conservative because we e-cigarette "vaping" process. Formaldehyde is a did not collect all of the aerosolized liquid, nor known degradation product of propylene glycol did we collect any gas-phase formaldehyde. One that reacts with propylene glycol and glycerol dur- estimate of the average delivery of formaldehyde ing vaporization to produce hemiacetals (Fig. 1). from conventional cigarettes is approximately These molecules are known formaldehyde-releas- 150 μ g per cigarette,³ or 3 mg per pack of 20 ing agents that are used as industrial biocides.⁵ cigarettes. Daily exposures of formaldehyde as-In many samples of the particulate matter (i.e., sociated with cigarettes, e-cigarettes from the the aerosol) in "vaped" e-cigarettes, more than formaldehyde gas phase, and e-cigarettes from 2% of the total solvent molecules have converted aerosol particles containing formaldehyde-reto formaldehyde-releasing agents, reaching con- leasing agents are shown in Figure 1. group 1 carcinogen.^₄

mercial e-liquid vaporized with the use of a ated with inhaling gaseous formaldehyde, then "tank system" e-cigarette featuring a variable- long-term vaping is associated with an incremenvoltage battery. The aerosolized liquid was col- tal lifetime cancer risk of 4.2×10^{-3} . This risk is lected in an NMR spectroscopy tube (10 50-ml 5 times as high (as compared with the risk based puffs over 5 minutes; 3 to 4 seconds per puff). on the calculation of Miyake and Shibamoto shown With each puff, 5 to 11 mg of e-liquid was con- in Fig. 1), or even 15 times as high (as compared sumed, and 2 to 6 mg of liquid was collected. At with the risk based on the calculation of Counts low voltage (3.3 V), we did not detect the forma- et al. shown in Fig. 1) as the risk associated with tion of any formaldehyde-releasing agents (esti- long-term smoking. In addition, formaldehydemated limit of detection, approximately 0.1 μ g releasing agents may deposit more efficiently in per 10 puffs). At high voltage (5.0 V), a mean the respiratory tract than gaseous formaldehyde,

TO THE EDITOR: E-cigarette liquids are typically (\pm SE) of 380 \pm 90 μ g per sample (10 puffs) of

centrations higher than concentrations of nico- Inhaled formaldehyde has a reported slope tine. This happens when propylene glycol and factor of 0.021 kg of body weight per milligram glycerol are heated in the presence of oxygen to of formaldehyde per day for cancer (http://oehha. temperatures reached by commercially available ca.gov/risk/pdf/TCDBcas061809.pdf). Among pere-cigarettes operating at high voltage. How sons with a body weight of 70 kg, the incremenformaldehyde-releasing agents behave in the re- tal lifetime cancer risk associated with long-term spiratory tract is unknown, but formaldehyde is cigarette smoking at 1 pack per day may then be an International Agency for Research on Cancer estimated at 9×10⁻⁴. If we assume that inhaling formaldehyde-releasing agents carries the same Here we present results of an analysis of com- risk per unit of formaldehyde as the risk associ-

N ENGL J MED 372;4 NEJM.ORG JANUARY 22, 2015 The New England Journal of Medicine Downloaded from nejm.org on November 21, 2016. For personal use only. No other uses without permission. Copyright © 2015 Massachusetts Medical Society. All rights reserved.



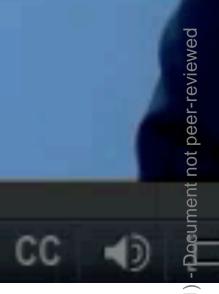
CBS This Morning

January 16, 2016



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DECIDING TO COVER THIS STORY

- How it's found (news) release)
- How to present it
- Angle: industry misleads public?
- Who gets interviewed



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ALARMING HEADLINES

"E-cigarettes Can Produce More Formaldehyde Than Regular Cigarettes, Study Says"

"Study Links E-Cigarettes to Formaldehyde, Cancer Risk; Research Found E- Cigarettes **Produce New Type of Formaldehyde When Heating Nicotine-Laced Liquid**"

"E-Cigarettes Can Churn Out High Levels Of Formaldehyde"

"Before You Vape: High levels of Formaldehyde Hidden in E-Cigs"

—Los Angeles Times, 1/21/15

—Wall Street Journal, 1/21/15

—National Public Radio, 1/21/15

—NBC News, 1/21/15



COMMON ERRORS IN NEWS COVERAGE

- Alarmism
- Credulity
- Poor choice of interview subjects
- Accuracy vs. "balance"



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COMMON ERRORS IN NEWS COVERAGE

- Non-specialist reporters
- Don't identify constraints of study
- Fail to grasp relative risks

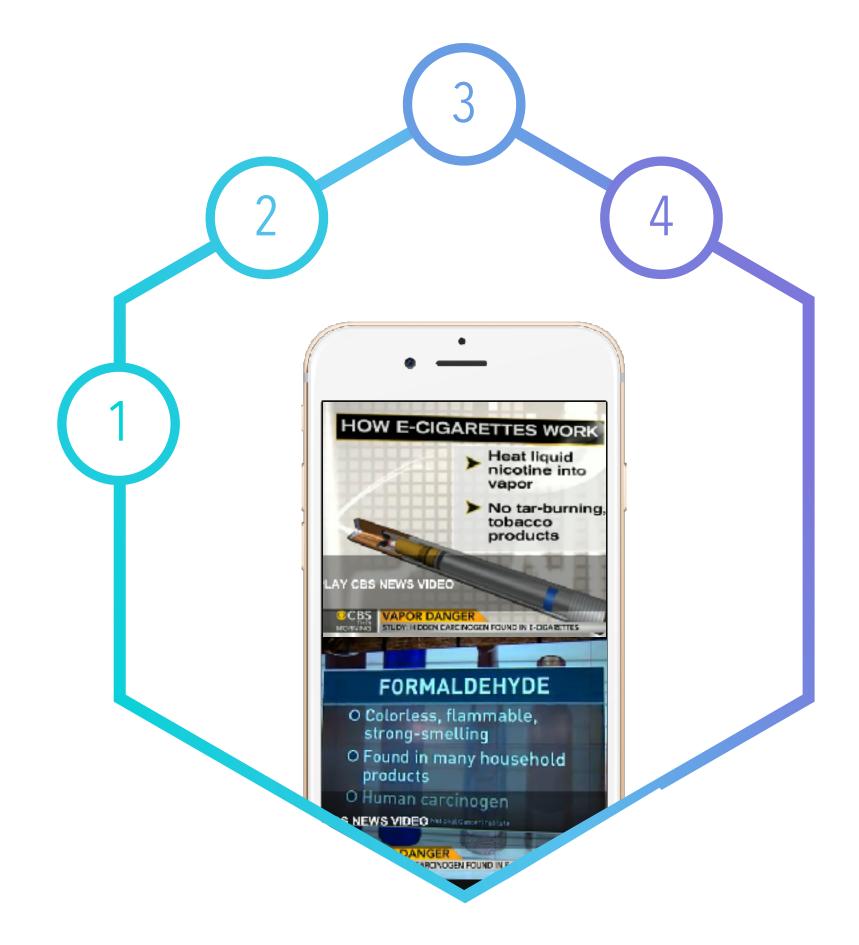


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KEY QUESTIONS JOURNALISTS SHOULD ASK:

- •Validity
- Reliability
- Lab vs. Real World
 Situation
- Relative Risks vs. Absolute
 Risks



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EXAMPLE #2: COVERAGE OF PEDIATRICS ARTICLE

"Flavored Electronic Cigarette Use and Smoking Among Youth" "Kids Who Use Flavored E-Cigs More Likely to Want to Try Cigarettes"

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—Reuters

"Flavored E-Cigarettes
May Entice Teens
to Smoke"

—HealthDay News



MORE QUESTIONS JOURNALISTS SHOULD ASK

- Correlation vs. Causation
- Statistical Significance vs.
 Real World Significance
- •Use of False Equivalencies (e.g., total abstinence as a reference point for assessing risk)
- Unclear Definitions
 (e.g., "regular user")

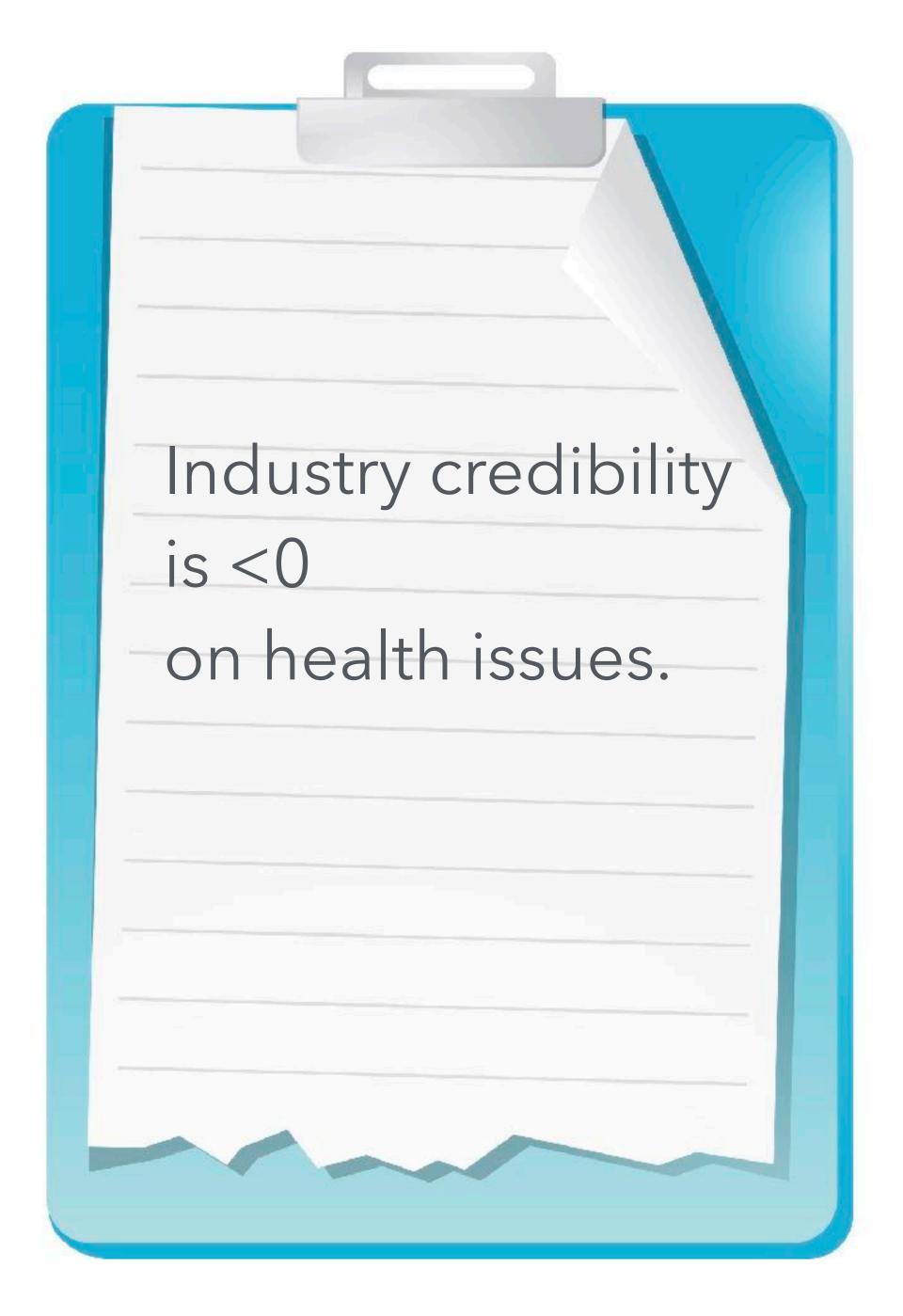


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MORE CHALLENGES:

 Protecting children from new technologies



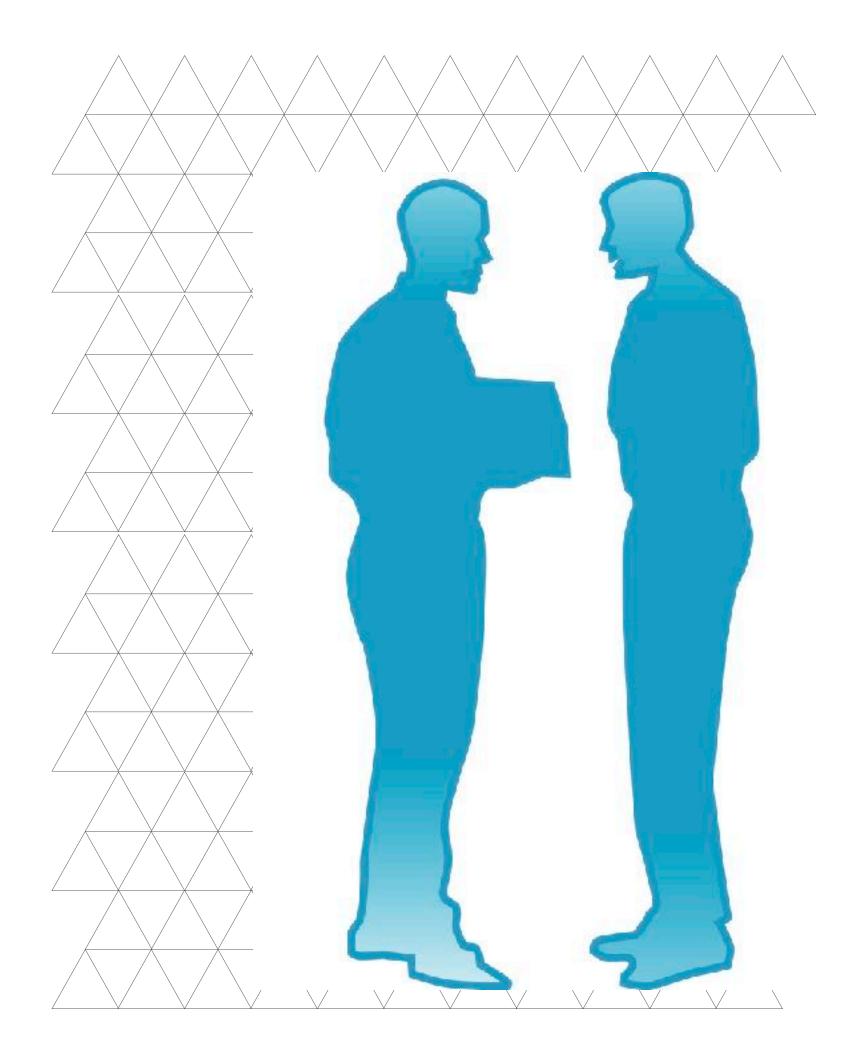
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WHAT COULD BE DONE:

- Keep focus on improving accuracy of reporting
- Build relationships with key journalists





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WHAT COULD BE DONE:

- Provide media training resources for researchers
- Refer press to credible non-industry researchers on harm reduction





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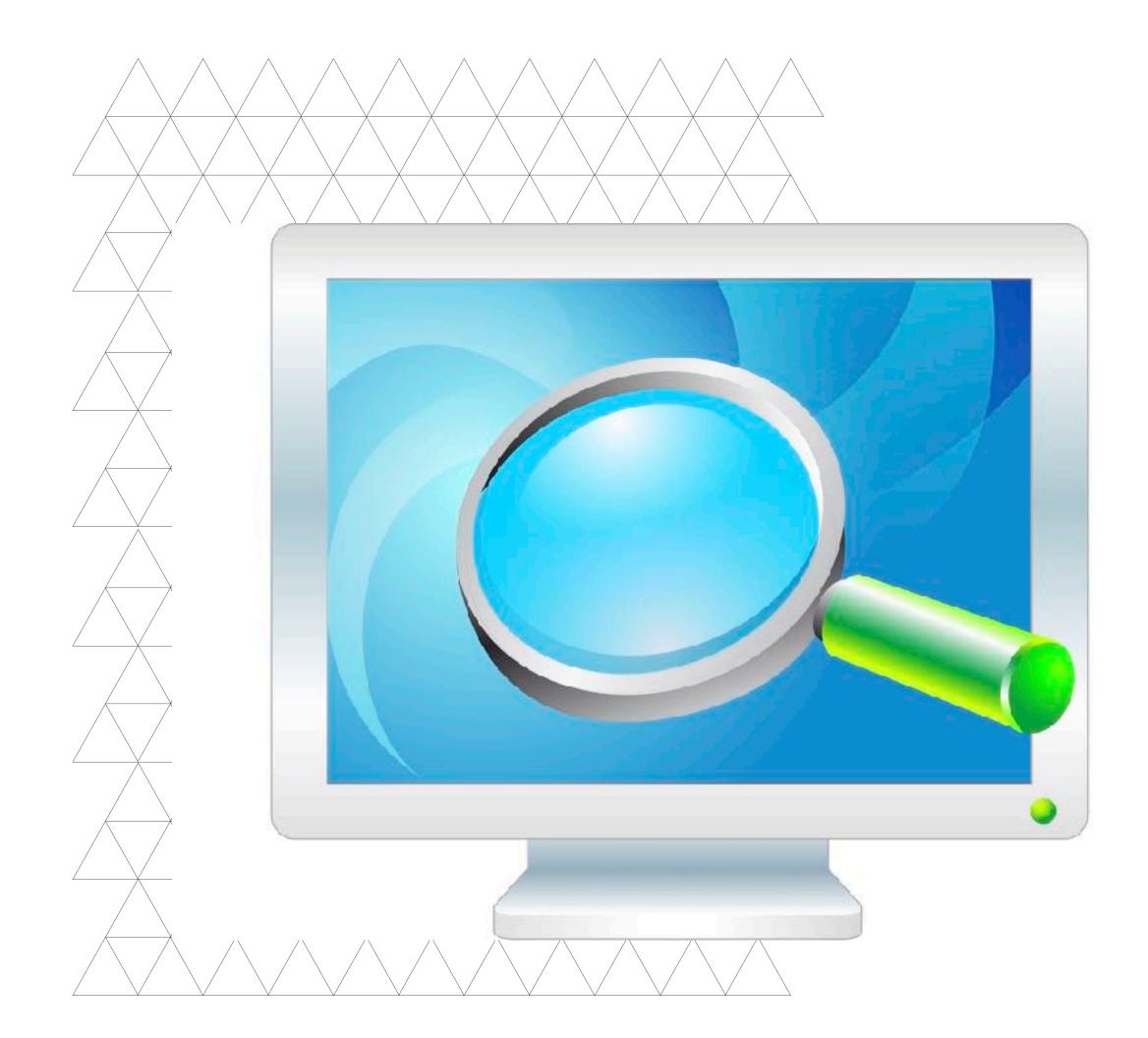


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WHAT COULD BE DONE:

- •Online resources to help journalists cover science
- Online repository of resources on nicotine, reduced-harm products, tobacco cessation (including plain-language summaries)





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Thank you.

