#### **Global Digital Health Forum 2017**

The Evolving Digital Health Landscape: Progress, Achievements, and Remaining Frontiers

How today's digital media ecosystem impacts evidencebased health communication efforts for policy and practice:

# Messages, messengers, experts, OH MY!

The views expressed during this panel do not necessarily reflect the views of the Robert Wood Johnson Foundation.









#### **Global Digital Health Forum 2017**

The Evolving Digital Health Landscape: Progress, Achievements, and Remaining Frontiers

# Messages, messengers, experts, OH MY!

#### **Brittany Seymour, DDS, MPH**

Assistant Professor, Harvard School of Dental Medicine Public Health Consultant, MIT Center for Civic Media Faculty Associate, Harvard Berkman Klein Center for Internet and Society

#### **Natalie Gyenes, MPH**

Researcher and Community Lead MIT Center for Civic Media, Media Cloud Project

#### Matthew Trujillo, PhD

Research Associate
Robert Wood Johnson Foundation









### The Media Cloud Project

#### MediaCloud.org

- Media Cloud project led by PIs Ethan Zuckerman at the Center for Civic Media at the MIT Media Lab and Yochai Benkler at the Berkman Klein Center for Internet & Society at Harvard University
- Funding by the Ford Foundation, the Pershing Square Fund for Research on the Foundations of Human Behavior the Open Society Foundations, the John D. and Catherine T. MacArthur Foundation, Bill and Melinda Gates Foundation, and the Robert Wood Johnson Foundation.
- The views expressed during this panel do not necessarily reflect the views of the Robert Wood Johnson Foundation.



















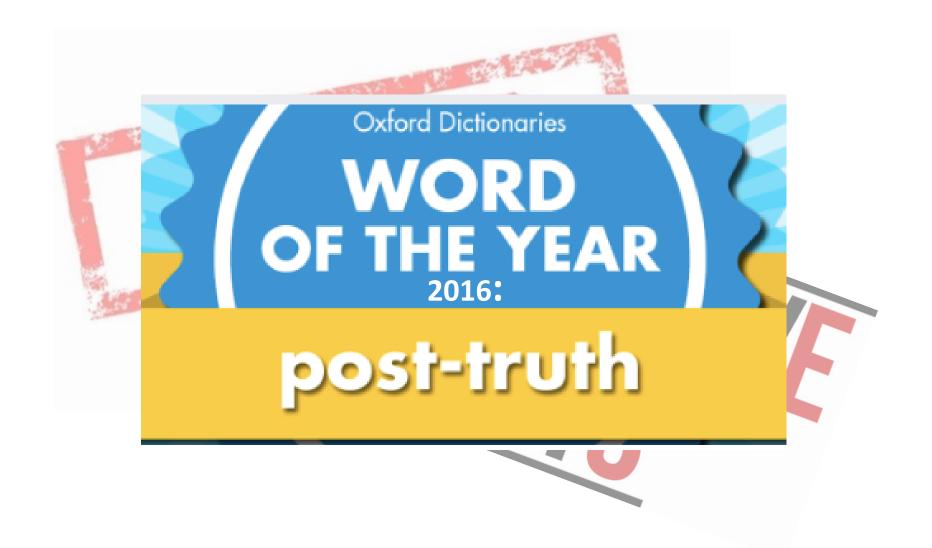




















### ford Dictionaries

# post-truth

"RELATING TO OR DENOTING CIRCUMSTANCES IN WHICH
OBJECTIVE FACTS ARE LESS INFLUENTIAL IN SHAPING PUBLIC
OPINION THAN APPEALS TO EMOTION AND PERSONAL BELIEF"
- OXFORD DICTIONARY



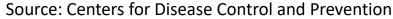






#### 10 Great Public Health Achievements of the 20th Century

- 1. Vaccines
- 2. Motor vehicle safety
- 3. Safer workplaces
- 4. Control of infectious diseases
- 5. Decline in deaths for coronary heart disease and stroke
- 6. Safer and healthier foods
- 7. Healthier mothers and babies
- 8. Family planning
- 9. Fluoridation of drinking water
- 10. Recognition of tobacco use as a health hazard











Lancet. 1998 Feb 28;351(9103):637-41.

Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children.

Wakefield AJ<sup>1</sup>, Murch SH, Anthony A, Linnell J, Casson DM, Malik M, Berelowitz M, Dhillon AP, Thomson MA, Harvey P, Valentine A, Davies SE, Walker-Smith JA.

#### Author information

#### Retraction in

Retraction--Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. [Lancet. 2010]

#### Partial retraction in

Retraction of an interpretation. [Lancet. 2004]

#### Abstract

BACKGROUND: We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

**METHODS:** 12 children (mean age 6 years [range 3-10], 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

FINDINGS: Onset of behavioural symptoms was associated, by the parents, with measles, mumps, and rubella vaccination in eight of the 12 children, with measles infection in one child, and otitis media in another. All 12 children had intestinal abnormalities, ranging from lymphoid nodular hyperplasia to aphthoid ulceration. Histology showed patchy chronic inflammation in the colon in 11 children and reactive ileal lymphoid hyperplasia in seven, but no granulomas. Behavioural disorders included autism (nine), disintegrative psychosis (one), and possible postviral or vaccinal encephalitis (two). There were no focal neurological abnormalities and MRI and EEG tests were normal. Abnormal laboratory results were significantly raised urinary methylmalonic acid compared with age-matched controls (p=0.003), low haemoglobin in four children, and a low serum IgA in four children.









Early Report

# RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

Dr AJ Wakefield, FRCS, SH Murch, MB, A Anthony, MB, J Linnell, PhD, DM Casson, MRCP, M Malik, MRCP, M Berelowitz, FRCPsych, AP Dhillon, MRCPath, MA Thomson, FRCP, P Harvey, FRCP, A Valentine, FRCR, SE Davies, MRCPath, JA Walker-Smith, FRCP























Autism and Vaccines

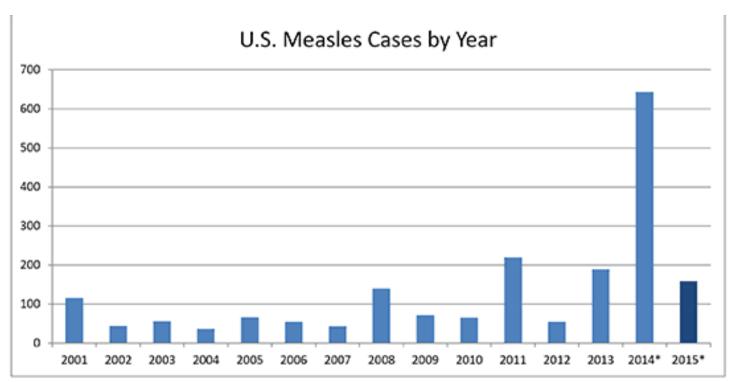
- Vaccine Adjuvants (Additives)
- Autism and Vaccines
- Fainting (Syncope)
- Febrile Seizures after Childhood Vaccinations
- Guillain-Barré Syndrome (GBS)
- Sudden Infant Death Syndrome (SIDS)
- <u>Thimerosal</u> (Preservative used in Some Flu Vaccines)
- Multiple Vaccines and the Immune System
- Vaccines During Pregnancy
- Vaccine Recalls
- Historical Vaccine Safety Concerns











<sup>\*</sup>Provisional data reported to CDC's National Center for Immunization and Respiratory Diseases













#### Vaccines Do Not Cause Autism Concerns | Vaccine Safety | CDC

https://www.cdc.gov/vaccinesafety/concerns/autism.html ▼
Nov 23, 2015 - Studies have shown there is no link between autism and any vaccine or vaccine ingredient.

#### NOVA - Official Website | The Autism-Vaccine Myth - PBS

www.pbs.org/wgbh/nova/body/autism-vaccine-myth.html

The assertion that vaccines could be linked to autism burst onto the international stage with the 1998

#### The MMR vaccine and autism: Sensation, refutation, retraction, and fraud

https://www.ncbi.nlm.nih.gov > NCBI > Literature > PubMed Central (PMC)

by TSS Rao - 2011 - Cited by 25 - Related articles

Almost immediately afterward, epidemiological studies were conducted and published, refuting the posited link between MMR vaccination and autism.[3,4] The ...

#### [PDF] Vaccine Studies - American Academy of Pediatrics

https://www.aap.org/en-us/documents/immunization\_vaccine\_studies.pdf ▼ vaccines to read the evidence for themselves. These studies do not show any link between autism and MMR vaccine, thimerosal, multiple vaccines given at ...









#### 10 Great Public Health Achievements of the 20th Century

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- 8. Family planning
- Fluoridation of drinking water
- 10. Recognition of tobacco use as a health hazard

Source: Centers for Disease Control and Prevention











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#### Neurobehavioural effects of developmental toxicity

Dr Philippe Grandjean MD a b M Philip J Landrigan MD ⊆

#### Summary

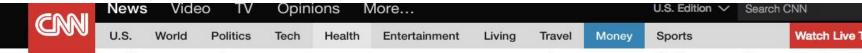
Neurodevelopmental disabilities, including autism, attention-deficit hyperactivity disorder, dyslexia, and other cognitive impairments, affect millions of children worldwide, and some diagnoses seem to be increasing in frequency. Industrial chemicals that injure the developing brain are among the known causes for this rise in prevalence. In 2006, we did a systematic review and identified five industrial chemicals as developmental neurotoxicants: lead, methylmercury, polychlorinated biphenyls, arsenic, and toluene. Since 2006, epidemiological studies have documented six additional developmental neurotoxicants—manganese, fluoride, chlorpyrifos, dichlorodiphenyltrichloroethane, tetrachloroethylene, and the polybrominated diphenyl ethers. We postulate that even more neurotoxicants remain undiscovered. To control the pandemic of developmental neurotoxicity, we propose a global prevention strategy. Untested chemicals should not be presumed to be safe to brain development, and chemicals in existing use and all new chemicals must therefore be tested for developmental neurotoxicity. To coordinate these efforts and to











### 'Putting the next generation of brains in danger'

By Saundra Young, CNN

Updated 4:26 PM ET, Mon February 17, 2014









Waitress responds to LOL cheapskate

What CDC cou about brain-eat amoeba





Tropical Storm Erika heading toward













#### Fluoride - Dangers of Fluoridation | Mercola.com

fluoride.mercola.com/ ▼

Learn about the dangers of fluoride and why the practice of water fluoridation should be ended now. The Toxic Import from China ... · No Evidence That Fluoridated ...

#### The Spice That Prevents Fluoride From Destroying Your Brain

www.greenmedinfo.com/blog/spice-prevents-fluoride-destroying-your-brain ▼
Apr 7, 2014 - Fluoride is found everywhere today, from antibiotics to drinking water, no stick pans to toothpaste, making exposure inevitable. All the more ...

#### Fluoride, Industrial Chemicals, Linked To Brain Development Deficits ...

https://iaomt.org/fluoride-industrial-chemicals-linked-brain-development-deficits/ ▼
Jan 12, 2017 - New research finds exposure to fluoride in drinking water and several other common chemicals in early life diminishes brain function in ...

#### How to prevent fluoride from destroying your brain - WAKING SCIENCE

wakingscience.com/2016/09/prevent-fluoride-destroying-brain/ ▼

Sep 11, 2016 - Brain damage is perhaps one of the most concerning aspects surrounding fluoride consumption. In 2014, the journal Lancet Neurology ...









#### Recent Fluoridation Issues - American Dental Association

www.ada.org/public-programs/.../fluoride-and-fluoridation/recent-fluoridation-issues ▼ Identify new and trending issues regarding water fluoridation. ... Raymond Gist, D.D.S., Comments on Harvard Study Examining Fluoride Levels in Bone ...

#### Debunking Unreliable Claims: The "Harvard study"

ilikemyteeth.org/debunking-unreliable-claims-the-harvard-study/ ▼
Nov 17, 2015 - A new video featuring Dr Brittany Seymour, Harvard School of Dental Medicine, debunks unreliable claims about water fluoridation.

You've visited this page many times. Last visit: 3/27/17

#### Community Water Fluoridation and Intelligence: Prospective Study in ...

ajph.aphapublications.org > American Journal of Public Health > January 2015 ▼ by JM Broadbent - 2015 - Cited by 39 - Related articles

Dec 20, 2013 - Community Water Fluoridation and Intelligence: Prospective Study in New Zealand. American Journal of Public Health: January 2015, Vol. 105 ...

#### Community Water Fluoridation in the United States

https://www.apha.org/.../community-water-fluoridation-in-the-united-states ▼
This position paper provides updated evidence for the many supportive policies held by the American Public Health Association (APHA) on community water ...

Missing: iq

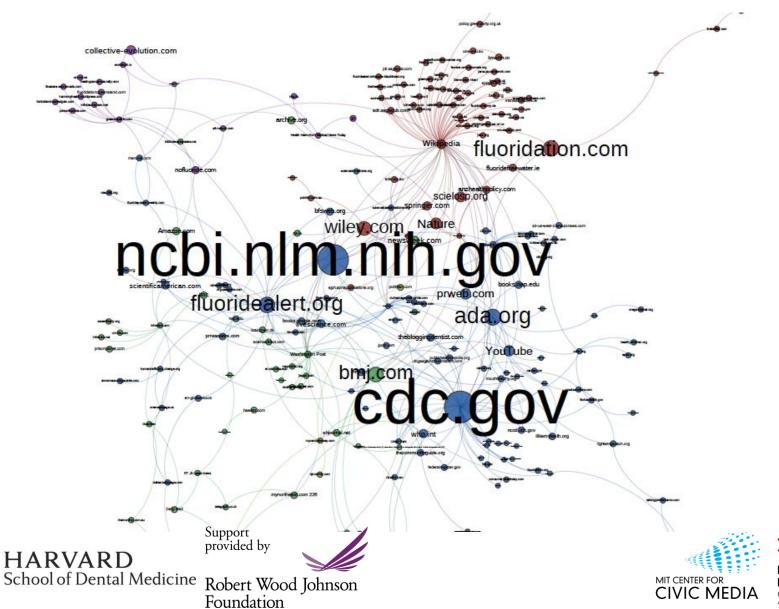


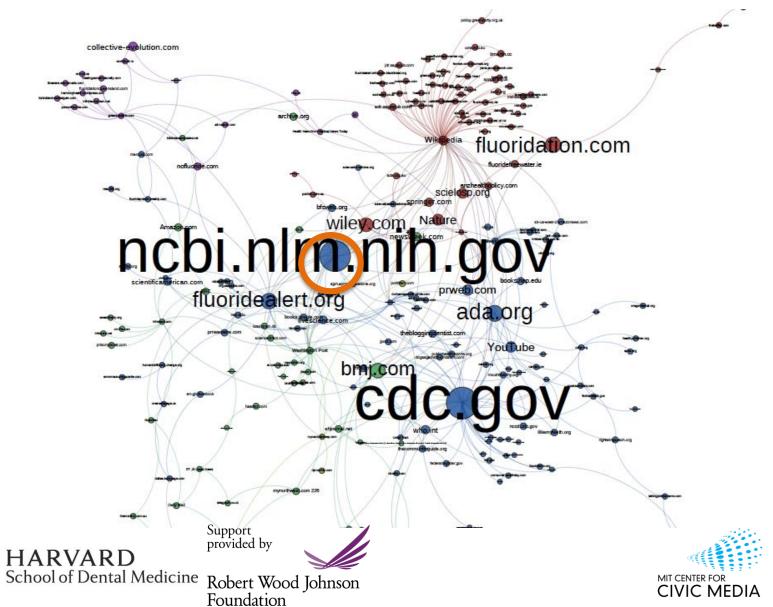


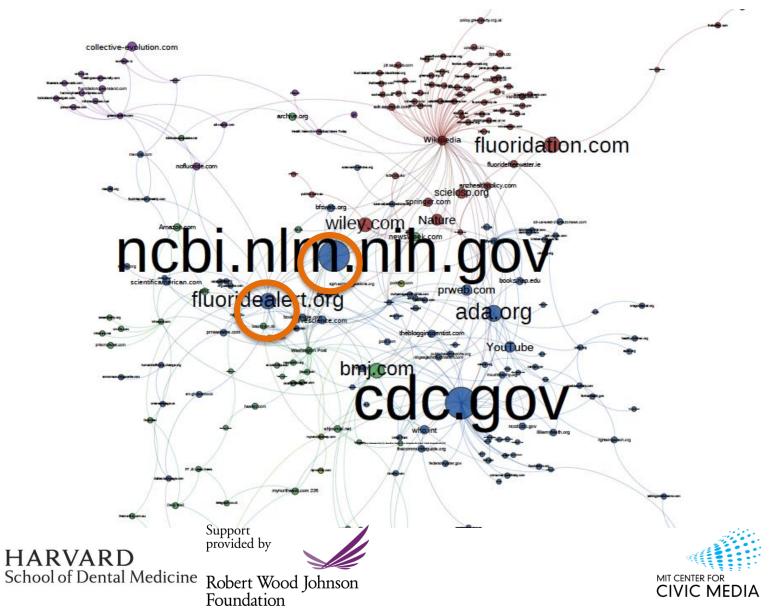


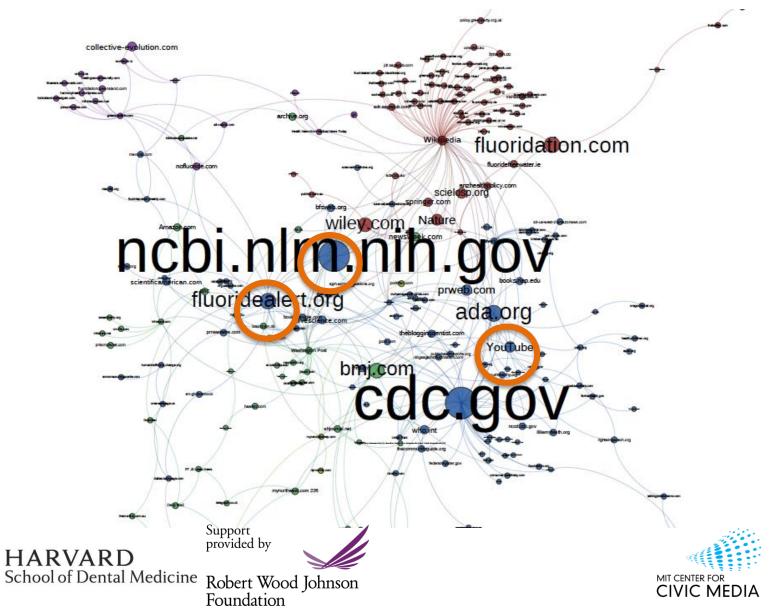


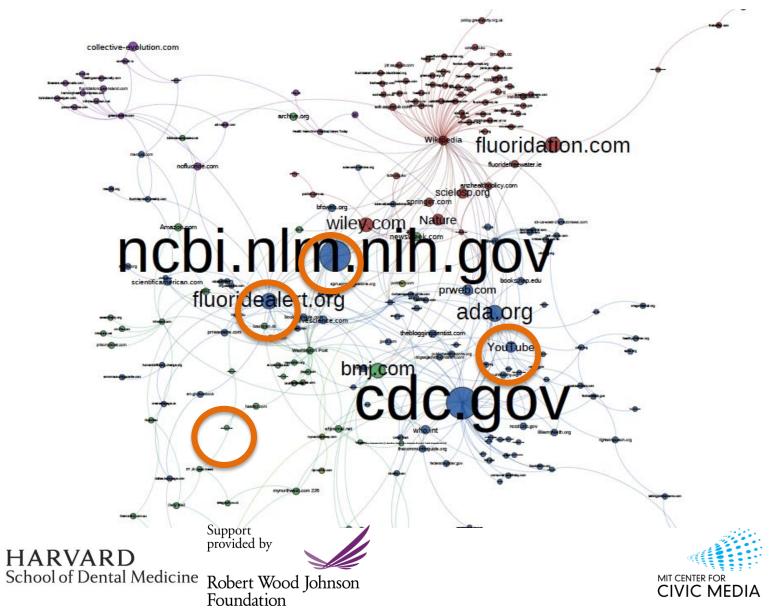
# A Fluoride Story: Media Cloud

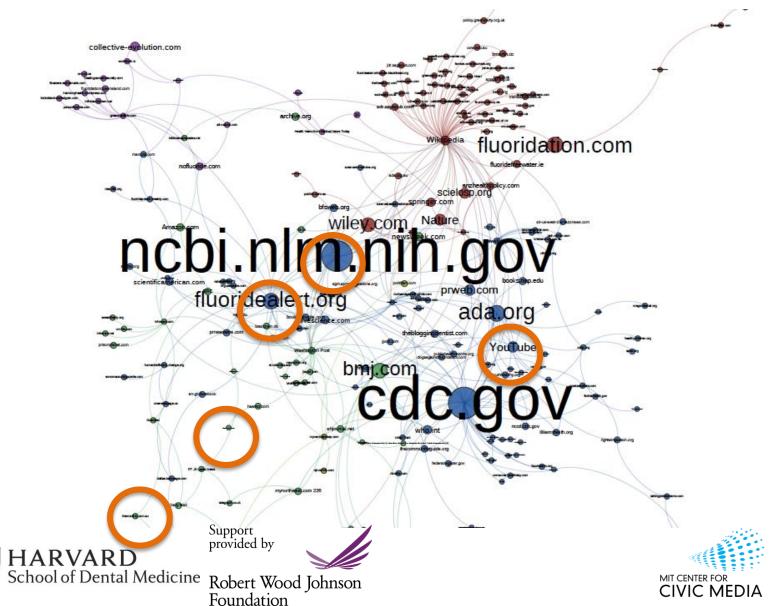




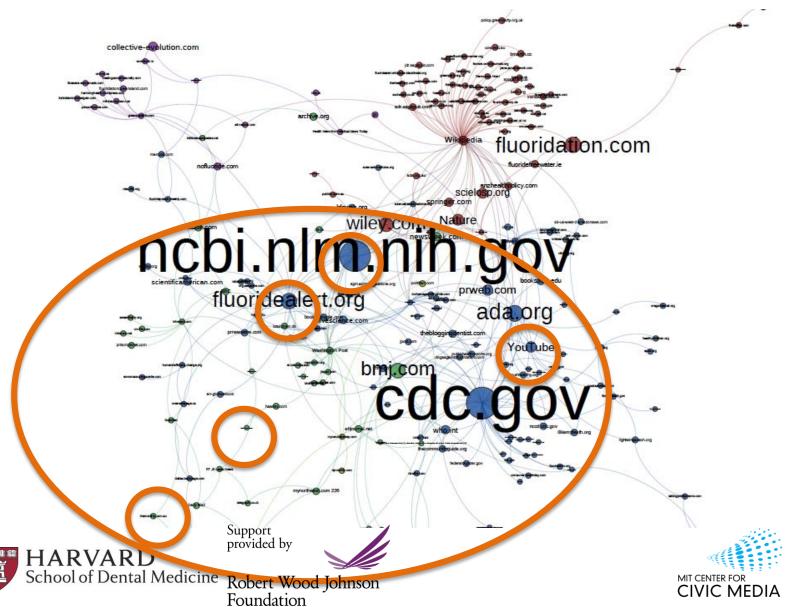


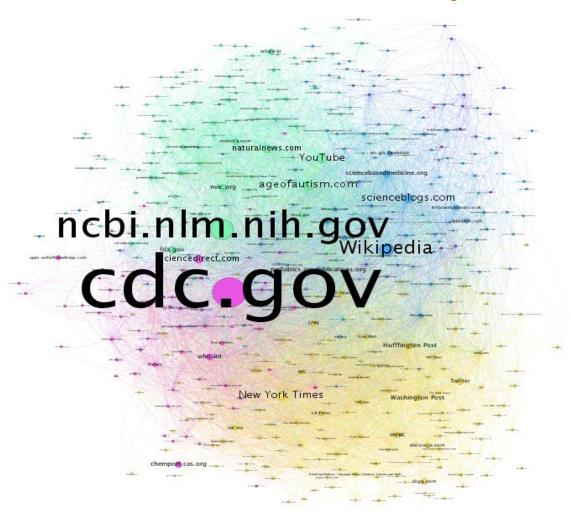












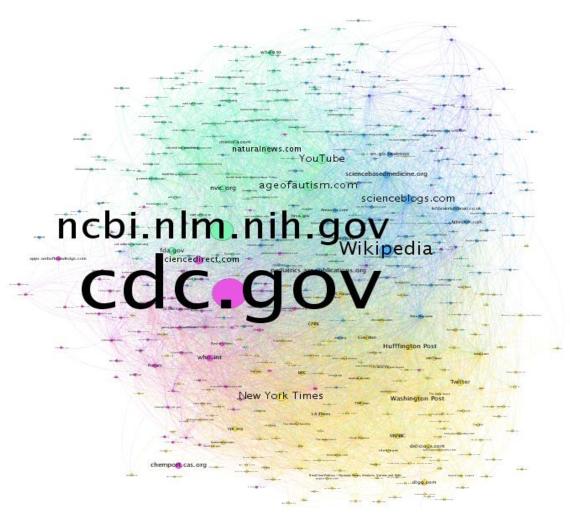








### Social Networks?



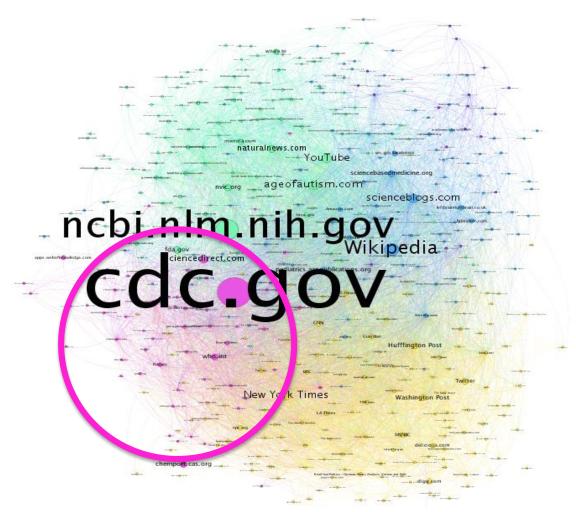








### Public Health Network?



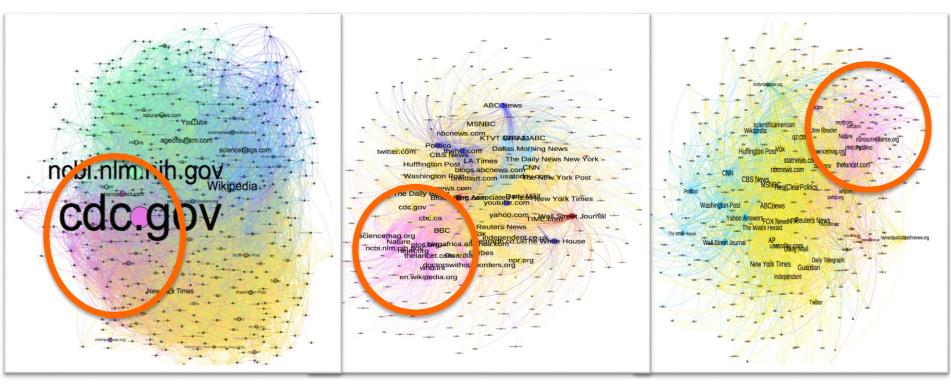








### Public Health Echo Chambers



Vaccines Case Study

Ebola Case Study

Zika Case Study









### **Questions for Public Health:**

How can we break out of our own echo chambers and effectively reach broader audiences?









### **Questions for Public Health:**

#### From

'How can we get our evidence based information to our target audiences?'

to

'How can we get our audiences to share our evidence based information?'









# Thank you!



Please stay in touch:

brittany\_seymour@hsdm.harvard.edu

Follow me on Twitter:

@BrittGlobHealth

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#### **Global Digital Health Forum 2017**

The Evolving Digital Health Landscape: Progress, Achievements, and Remaining Frontiers

#### **Democratizing Digital Media Analysis Tools:**

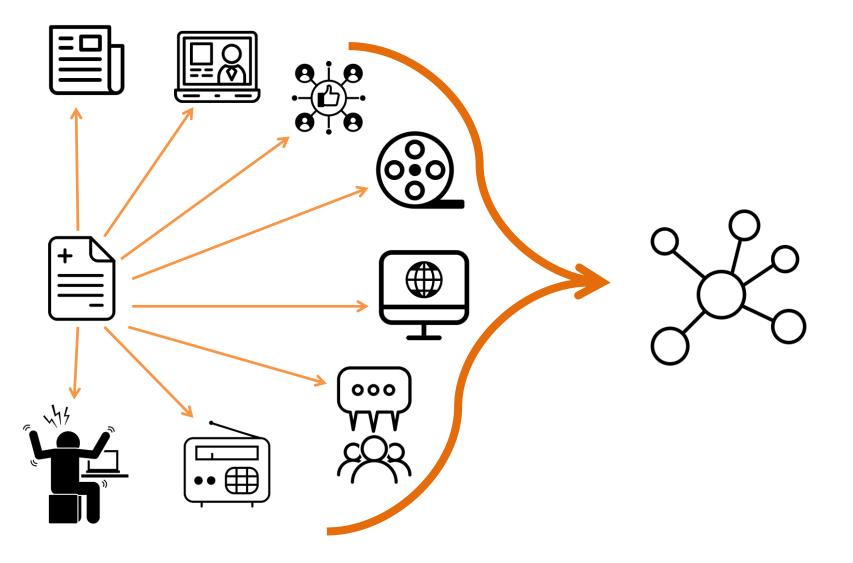
# **Media Cloud**









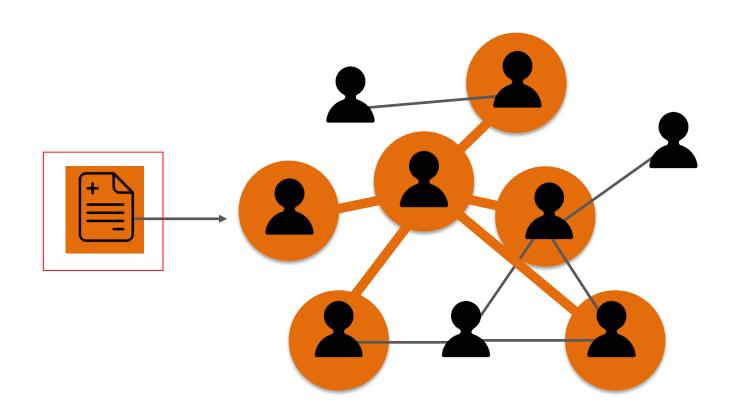




















### Media

- A. Sets the agenda
- B. Can shape our perceptions of norms

The media does not tell us what to think, but rather what to think about









# **Attention**









# Influence









# Media Analysis: the Data











# Media Cloud Data

### Metrics for understanding influence & attention:

- ✓ Coverage overtime
- ✓ Language use & word frequency
- ✓ Inlinks (In-text embedded citations)

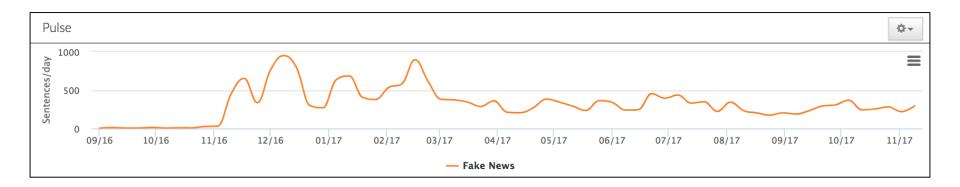


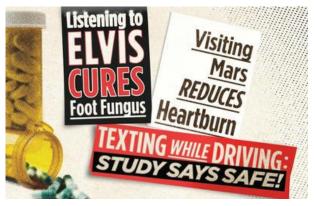






# **Coverage Overtime**





Health - Science - World

### World's First Head Transplant A Success After Nineteen Hour Operation



1 month ago + by Darius Rubics + 104 Comments







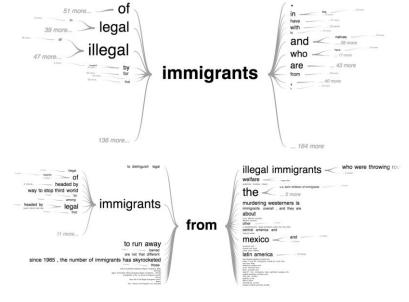
Foundation '

# Language Use & Word Frequency

# \*\*HEAD START Search for: (("head start" AND (food OR nutrition OR feed\* OR breakfast OR lunch)) OR (WIC AND (school OR "pre school" OR "pre-school" OR "elementary" OR charter or "pre-k")) OR NSLP OR "national school lunch program" OR "Hunger-Free Kids Act" OR "School Breakfast Program" OR "Snack Program" OR "Child and Adult Care Food Program" OR "Summer Food Service Program")

### **Top Words**

decrease media vegetables childhood medicaid hispanics nonprofit wic hunger agriculture mative michelle michelle nutrients sodium Congress complying crisis | legal trump americans fact Opama refugees obesity disabilities true college taxpayers
snack
teacher virginia soda assets students
texas website america donated nutrition
texas website wealth wealth enrollment foundation census hillary guidelines stockman michigan falsely environmental implementation stamps reauthorize nuclear robert healthier chicago











# **Inlinks**

### Net Neutrality in 2017

Title		Media Source	Publish Data	Media Inlinks -	Outlinks	Bit.ly Clicks	Facebook Shares
FCC Chairman Tom Wheeler: This Is How We Will Ensure Net Neutrality   WIRED	4	Wired	12/11/2014?	74	0	14,650	41,499
Last Week Tonight with John Oliver: Net Neutrality (HBO)	0	YouTube	Undateable	40	1	?	11,579
The FCC wants to destroy net neutrality and give giant cable companies control over the Internet	#	battleforthenet.com	7/7/2017?	38	6	24	75,452
Net Neutrality: A Free and Open Internet	WH	The White House	Undateable	36	0	5	81,806
Blog: Free Basics protects net neutrality	#	indiatimes	12/27/2015?	26	0	1	239,144
The Internet needs YOU	0	savetheinternet.in	Undateable	24	2	?	384,148
Title II Closing Arguments   AT&T Public Policy Blog	•	attpublicpolicy.com	Undateable	20	0	0	8
Net Neutrality: How White House Thwarted FCC Chief	WSI	Wall Street Journal	1/2/2011?	19	0	0	2
Think Tank Scholar or Corporate Consultant? It Depends on the Day	T	New York Times	8/8/2016?	18	7	0	5,432









# **Inlinks**

46,113

### Top Media

50

Nar	me	Stories	Media Inlinks -	Outlinks	Bit.ly Clicks	Facebook Shares
<b>(</b> )	Washington Post	495	107	254	27,292	498,062
1	Wired	75	100	90	18,875	290,491
E	New York Times	287	97	78	55,745	1,197,108
ars	Ars Technica	306	83	259	7,458	340,964
0	YouTube	54	79	14	430	152,438
WSJ	Wall Street Journal	271	78	45	72,868	136,599
<b>4</b>	The Verge	164	66	209	113,249	337,869
H	The Hill	183	65	70	4,161	185,322

60

7	Inlinks 🙆	
	Title	

	Title		Media Source
	On this day of action, the internet needs a law, not a regulation	<b>〈</b> ›	Re/code
	The FCC OKs Streaming for Free— But Net Neutrality Will Pay	4	Wired
	Net Neutrality: A Guide to (and History of) a Contested Idea	A	The Atlantic
	What's up with all of those identical comments on the FCC net neutrality docket?	M	Medium
	Op-ed: Protect the Open Internet with a bipartisan law	ars	Ars Technica
	Here's What People Are Saying About the Net Neutrality Proposal	WSI	Wall Street Journal
	FCC chairman finally gets fully behind net neutrality	M	Mother Jones
	People of the Internet: 1, Cable Industry: 0	$\boldsymbol{A}$	The Atlantic
	FCC approves landmark net neutrality policy	dla	MSNBC



what...







Politico



24

51,694

# Democratizing Media Analysis

### Why?

Media analysis enables better monitoring of media coverage about key topics and events, understanding of public opinions, and mapping of digital communication networks. Everyone should have access to this information.

### An open source tool for media analysis would mean:

- Any individuals, community or organization can easily learn about how topics you care about are covered in the media
- There is an additional way of understanding the gaps between where you want media coverage & public perception about a topic to be and where it currently stands
- There are new metrics and data available for you to monitor and evaluate programs and campaigns in novel ways









# Media Cloud: An Overview

an open-source platform for studying media ecosystems

46,000 sources

195 countries

17+ languages

over half a billion stories









# Background of the Media Cloud Project

Media Cloud is an open-source suite of tools designed to help researchers, communications professionals, content creators, activists and others better understand the digital media landscape around issues that we care about.

A project hosted by the MIT Center for Civic Media and the Harvard Berkman Klein Center, the platform contains a large database of news stories, blog posts and other online media updated daily from more than 46,000 sources. We use big data to aggregate and analyze this content.

We support three main tools for investigating data.





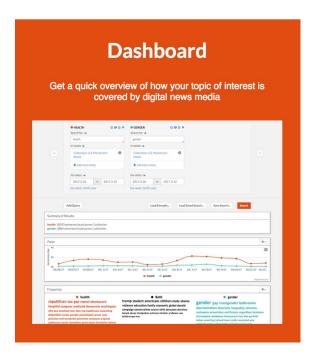




# Media Cloud Tools

Explore our tools:

https://tools.mediacloud.org















# Media Cloud: How we analyze the media

Define & Capture Media Ecosystems

Creation of media collections and content retrieval via open web

**Explore Topics** 

Examining coverage over time, identify peaks & key events, comparing sources, viewing most frequently used terms

In-Depth Analysis

Crawling the web, adding social media data, capturing linking information, viewing key words in context, identifying communities of language, analyzing subtopics/frames

Source Manager Dashboard Topic Mapper

1 2





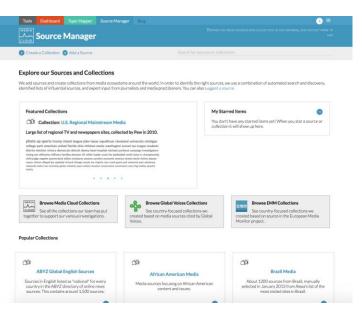


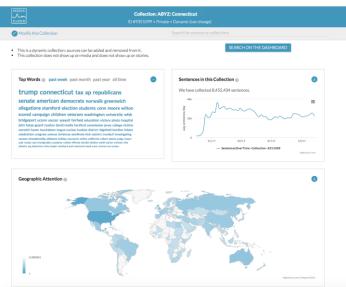


# Source Manager

### **Define & Capture Media Ecosystems**

https://sources.mediacloud.org/#/home





- Explore existing source collections
- Review individual sources in our database
- Suggest new sources







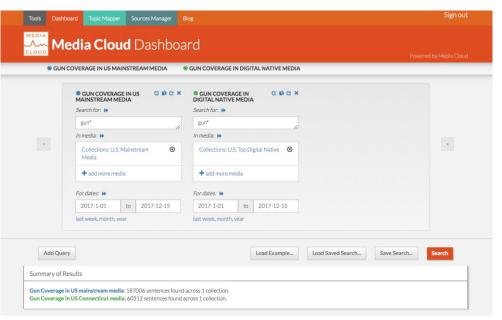




# Dashboard

### **Explore Topics**

https://dashboard.mediacloud.org/



- Explore topic coverage overtime
- Examine top words & sample sentences Download all data into CSV files







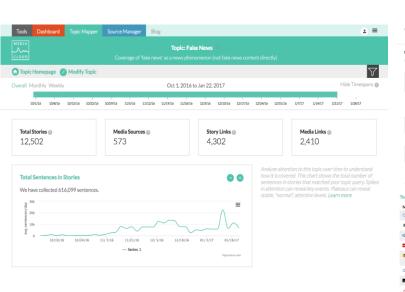




# **Topic Mapper**

### **In-Depth Analysis**

https://topics.mediacloud.org/



• Investigate most influential sources & stories

363.183

- Examine media inlinking behavior
- Explore frames through language use & media networks
- Create subtopics to disaggregate your existing database











### Feel free to try out our tools: www.mediacloud.org

Join the community group, check out our blog, and learn more about what we do through our press and publications.

And please reach out!

support@mediacloud.org ngyenes@media.mit.edu

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### **Democratizing Digital Media Analysis Tools:**

# **Robert Wood Johnson Foundation**









 Building a Culture of Health where everyone in the U.S. has the opportunity to live their healthiest lives possible









- Use cases
  - Exploring an issue
  - Monitoring a topic
  - Identifying influencers
  - Designing messages
  - Evaluating interventions









- What narratives are driving the topic of health equity?
- Who are the most influential actors in publishing content about health equity?
- What agendas and frames are driving online media related to health equity?









Culture of Health - Health Equity

disparities discrimination education children

american families study ethnic equity underserved inequalities

students gender hiv economic transgender cdc cancer racism anti child chronic
environmental foundation socioeconomic violence campaign disadvantaged non disabilities
healthcare medicaid obama youth lgbt global hospital immigration hispanic climate orientation tax
reproductive vulnerable gap hunger california discriminatory mortality abortion diabetes homelessness priority free abuse trans
unemployment violation sanders sustainable native tobacco harassment indian overall persist prohibits bisexual african advocates injustice pre obesity
obamacare tackle fact stigma college oregon nutrition wellbeing lifestyle professor barriers census science advocacy deprivation eradicated racist teens agenda michigan latinos alcohol
ensure republican campus infection oriminal









- Top influencers:
  - 1. National Center for Biotechnology Information
  - Centers for Disease Control
  - 3. Kaiser Family Foundation
  - 4. American Public Health Association
  - 5. New England Journal of Medicine
  - 6. Washington Post
  - 7. Human Rights Campaign
  - 8. Healthy People
  - 9. Springer
  - 10. New York Times









Cluster	Influencers	Top Words
Public Health & Medicine	NCBI, CDC, AJPH, NEJM,	Obesity, Cancer, study, HIV, diabetes, chronic
Government Services; LGBTQ Health	Federalregister.gov, EEOC, HHS, HRC, transequality.org	compliance, prescription, gender, abuse
Policy & Mainstream News	Think Progress, NYT, WaPo, The Guardian, Huffington Post	family, students, economic, America, college
Child Health; Minority Health; Global Health	HHS – Minority health, Pediatrics, White House, WHO, americanprogress.org	child(ren), infant, Hispanic, ethnic, African, American, equity,
Health Insurance; Reproductive rights	KFF, Kaiser Health News, Health Affairs Blog, NPR, Guttmacher	disparities, Medicaid, abortion, reproductive









# Health

Health Coverage

# clinton trump families education study hospital hillary americans children republican campaign cancer donald obama tax abortion texas democrats washington economic foundation florida medicaid students overall disorder infections premiums california environmental advocates america nursing immigration medicare obamacare hazard presidential crisis violations ministry miami science global free sector zika website tom option repeal subsidies minister healthcare chronic online nominee anti media suicide nhs ohio rep mosquito stigma innovation ensure reproductive childhood consultant pollution meanwhile marketplace john london virus enrollment addiction nutrition pension hiv diabetes congress sept professor journal gov boost can england inspectors labor caremony canceled apps economy organisation topic reuters mineral









# Health

- Top Influencers
  - 1. New York Times
  - 2. Washington Post
  - 3. Centers for Disease Control
  - 4. CNN
  - 5. Politico
  - 6. Guardian
  - 7. Huffington Post
  - 8. Wikipedia
  - 9. The Hill
  - 10. The White House









# Health

Cluster	Influencers
Research & Evidence	CDC, WHO, PAHO, PubMed, Guardian, BBC, Lancet, Scientific American
Politics & Mainstream Media	WaPo, NYT, CNN, The Hill, Politico, Wall Street Journal, Huffington Post, USA Today
Policy	KFF, The White House, Health Affairs blog, LA Times, Miami Herald, healthcare.gov

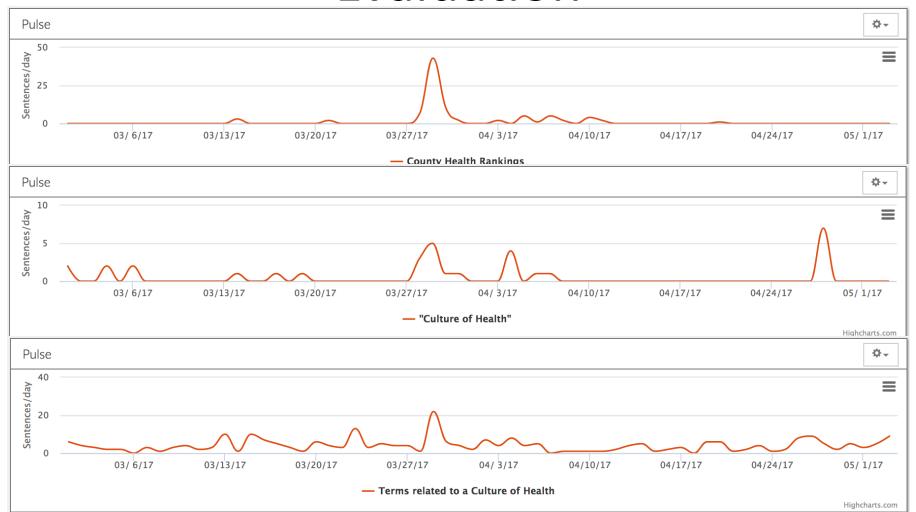








# **Evaluation**



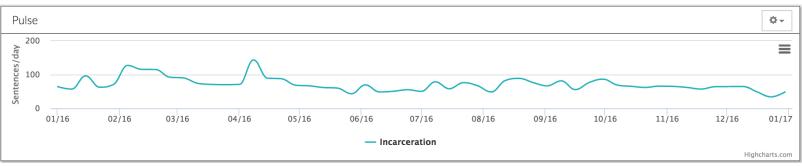












Frequency

### Incarceration

## incarceration crime clinton american criminal african

education america families offenders violence war disproportionately youth democratic economic hillary activists racism campaign children fact sanders study free republican offenses addiction inmates abuse welfare unemployment prosecutors jim obama immigrants mandatory alexander inequality detention bipartisan violent trump crow slavery nonviolent bail juvenile felony penalty disparity victims documentary brutality advocates agreement freedom pipeline texas prosecution hospital michelle bernie apologize conservatives devastating college fueled louisiana restore probation japanese recidivism crisis colorblindness john non perpetuates

washington agenda correlation unnecessary corruption harsh mexican epidemic solutions homeless coalition presidential students violation taxpayers marijuana paul debt indigenous childhood oklahoma wealth

# Other analyses

- Drinking water
- Health by partisanship
- School climate
- Achievement gap









# Focus group findings

- May be overwhelming for small organizations with limited capacity and staff
- Interest in state and local analysis
- Organization specific analysis
- Additional information
  - Location
  - Readership
  - Authorship









# **Takeaways**

- Make sure you do the upfront work
- More questions than answers
- Timing is important
- Role of media and communications in Culture of Health







