

Using for Science Communication

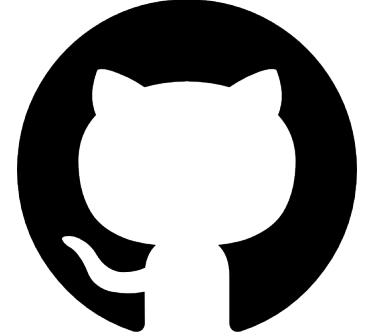
Bailey DeBarmore, MHS RD
PhD Student, Epidemiology
UNC Chapel Hill



@BaileyDeBarmore

Notes

Go to **github.com/baileydebarmore/sci-comm.git** for links and articles mentioned in this presentation and to download my Getting Started on Twitter guide

A thumbnail image of the "Getting started on Twitter" guide. It features a large title "Getting started on Twitter" in bold black font, followed by a subtitle "A guide for setting up your Twitter account and jumping in". Below the title, it says "Created by Bailey DeBarmore @BaileyDeBarmore" and "Feel free to circulate".

Getting started on Twitter
A guide for setting up your Twitter account and jumping in

Created by Bailey DeBarmore
@BaileyDeBarmore

Feel free to circulate

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2

Using Lists to Find People to Follow

- Here is the page for the #EpiTwitter List. You can see information about he list in the top left corner and recently added members in the top right corner. The feed in the center is activity by profiles that are on the list.
- To see the members list, click "List members" under "Tweets".

A screenshot of a Twitter list page titled "#EpiTwitter". The page shows a list of tweets from users like Paul Dawson and Jen Liang. On the right side, there's a sidebar for "Recently added members" featuring Jen Liang, Alexandra White, and Katie Lagedoll.

Table of Contents

- Science Communication
- 3 Reasons You Don't Have a Twitter
- Benefits of Having a Professional Twitter
- Twitter Lingo
- Tips for Tweeting

Science Communication



“Scientists pass the buck when it comes to communicating science. We write papers and then **we expect journalists to explain it to everyone else.**”



- Christie Wilcox

Don't pass the buck

Health professionals have an **opportunity** and a **responsibility** to adopt and harness these new [social media] formats as they engage a global audience.

- Esther K Choo et al.



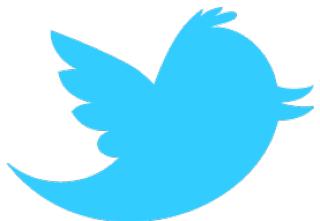
Choo et al. Twitter as a tool for communication and knowledge exchange in academic medicine: A guide for skeptics and novices. *Medical Teacher*. 2015. www.bit.ly/2MNghwE

Lay Media Presence

Journalists use online search functions
to find experts

Lay Media Presence

Twitter posts rank high
in search results



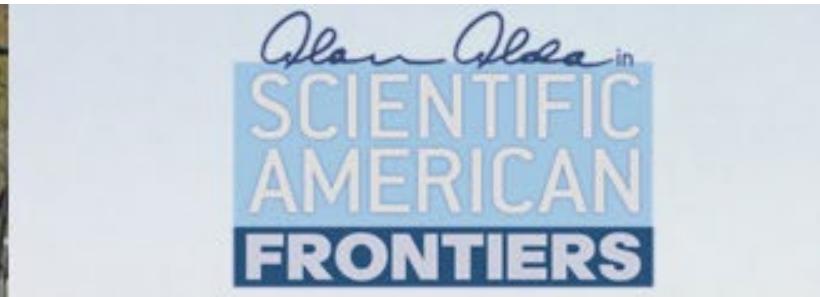
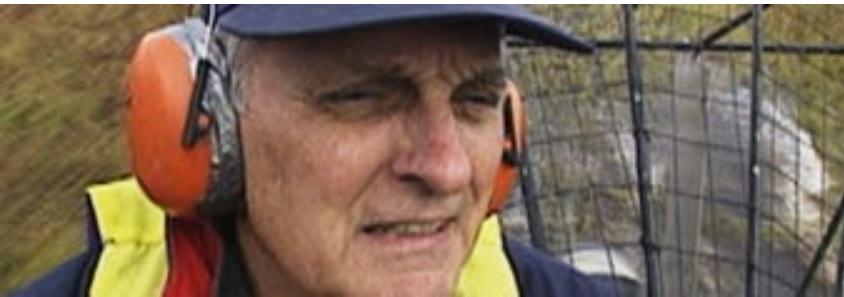
Gain recognition as an expert

1. Advance your public image
2. Provide credible information to the public
3. Improve perception of scientists by the public

"If scientists could communicate...in a familiar tone with a less specialized vocabulary, would a wide range of people understand them better?"

Would their work be better understood by the general public, policy-makers, funders, and even in some cases, other scientists?"

– Alan Alda



“Putting your head in the ground and ignoring [social media] adds to the ivory tower attitude that people have towards scientists.”



Atif Kukaswadia, PhD

@DrEpid Follows you

PhD (Epidemiology), writer @PLoSblogs,
@Senators fan and photographer, but
not a skin doctor :) Tweets my own.
More: goo.gl/nFgbUr



3 Reasons Why You Don't Have a Twitter Account

1

I don't have time

"The goal isn't for you to be the most well-read scientist in your field – the goal is for you and your research to be out there"

"It's about making you and your research searchable and accessible"

**If your research is worth doing,
it's worth talking about.**



"Social Media for Scientists" series written by Christie Wilcox, 2011 on Scientific American

If we want people to invest in science we have to show them why they should.

We have to make at least a little time to communicate.

- Christie Wilcox



②

It won't benefit me

Most of your readership will be other scientists

Being part of the conversation and having an online presence in the scientific community leads to:

- Speaking opportunities
- Project collaborations
- Job offers
- Many others



To Tweet or Not to Tweet: Twitter for Academics

Elaine Meyer

“Academics who master the 280-character art [of Twitter] reach a far wider audience than they could through academic publications alone.”

③

Distaste for social media



“Putting your head in the ground and ignoring [social media] adds to the ivory tower attitude that people have towards scientists.”



Atif Kukaswadia, PhD

@DrEpid Follows you

PhD (Epidemiology), writer @PLoSblogs,
@Senators fan and photographer, but
not a skin doctor :) Tweets my own.
More: goo.gl/nFgbUr



3

Distaste for social media

Teachers:

- your students use this platform
- your colleagues use this platform



3

Distaste for social media

Researchers:

- your colleagues use this platform
- your funding agencies use this platform
- your participants use this platform



3

Distaste for social media

Clinicians:

- your patients use this platform
- your colleagues use this platform



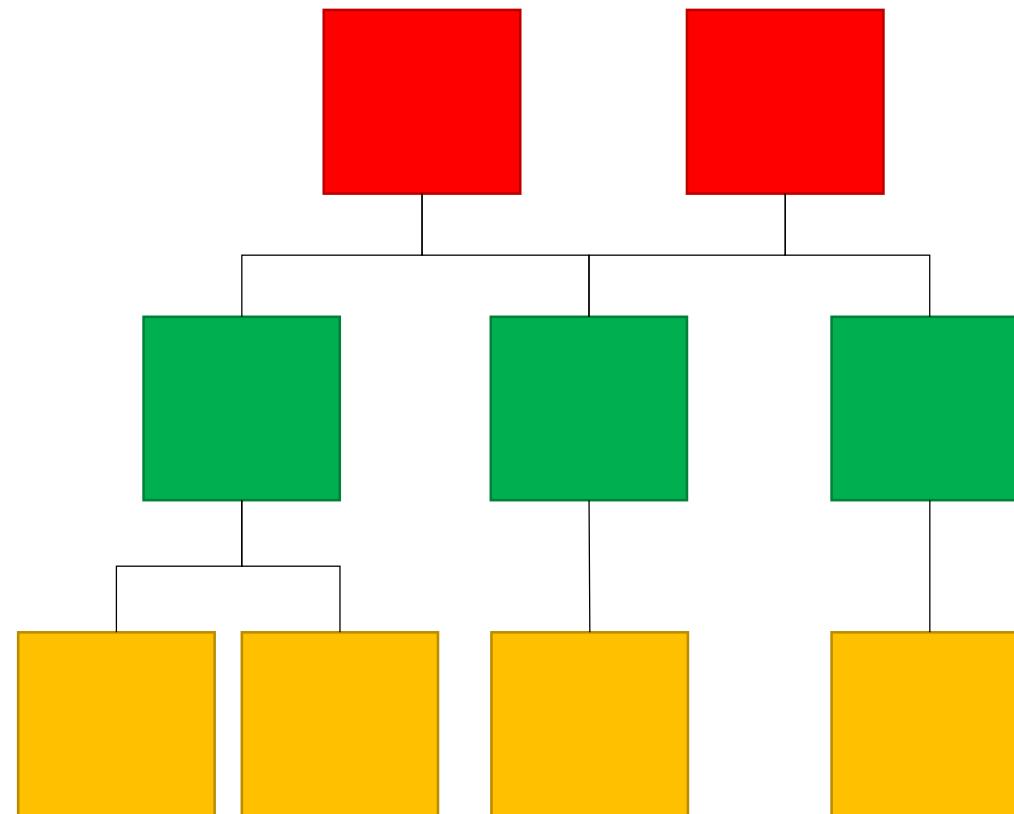
Benefits of Professional Twitter

Benefits of professional Twitter

- Increased engagement from trainees to senior faculty
- Stay up-to-date on field
- Participate in scholarly discussion
- Talk about important topics
- Learn about new resources
- Facilitate post-publication peer review
- Promote scholarly collaborations
- Build support networks
- Improve writing and communication skills

Increased Engagement

Increased engagement



Increased engagement

- “Flattens” the audience



“When I stop to think about it, the access that Twitter provides to [senior people in the field] just blows my mind...I've been in dozens of conversations on Twitter with the very people whose papers and books I read – people that I'd be starstruck by if I bumped into them at a conference.”



Darren L Dahly

@statsepi Follows you

Principal Statistician, Epidemiologist |
HRB @CRF_Cork | crfcasdau.github.io
#ClinicalTrials #EpiTwitter #StatsTwitter
Views mine



DRAW your assumptions
BEFORE your conclusions



Following

Miguel Hernán

@_MiguelHernan

Health researcher, Harvard professor.
Striving to make [#causalinference](#) less
casual. Using [#datascience](#) to learn what
works. Free course bit.ly/2uQssso



Following

Timothy L. Lash

@TimothyLash

Professor, RSPH, Emory University. Editor-in-Chief, Epidemiology. Bass guitar, Toasted Oak.



Following

lisa bodnar

@lisabodnar

epidemiologist studying maternal nutrition and adverse perinatal health outcomes | single mother of 3 | drinker of wine (see previous) | she/her



Following

Whitney R. Robinson

@WhitneyEpi

Epidemiologist. Using [#DataScience](#) and [#CausalInference](#) to understand health inequalities. Partner-in-crime w @lriversiii. Views my own.



Following

Sandro Galea

@sandrogalea

Doctor, scientist, dad, husband. Dean, professor @BUSPH. Immigrant.



Follow

Sander Greenland

@Lester_Domes



Following

Ken Rothman

@ken_rothman Follows you

#Epidemiology and other matters.



Following

Maria Glymour

@MariaGlymour Follows you

Professor, Department of Epidemiology and Biostatistics, UCSF

**Stay up-to-date &
participate scholarly
discussion**

Stay up-to-date

- Follow organizations and journals to use Twitter as an info curator or news crawler
 - CDC, NASW, PLOS
 - JAMA, JAHA, AJE, AJPH, IJE, NHLBI

Stay up-to-date

- Participate in or “listen in” on journal clubs and “Tweetorials”
 - @CircOutcomes hosts #CQOSpotlight every week or 2
 - Causal inference, general methods, and methods critiques as “tweetorial” threads.

Circulation: Cardiovascular Quality and Outcomes

[Circulation: Cardiovascular Quality and Outcomes](#)

Following



Circ: CQO

@CircOutcomes Follows you

Circulation: Cardiovascular Quality and Outcomes, an American Heart Association journal. RTs are not endorsements.

Participate in scholarly discussion



Bailey DeBarmore

@BaileyDeBarmore

Hey [#epitwitter](#), let's talk about your thoughts on pop health approaches a la Rose - 1) shift the distribution, 2) target high risk, 3) ??

What have you learned about it? What are your thoughts?

[@EpiEllie](#) [@BillMiller_Epi](#) [@usama_bilal](#) [@mad_sters](#)
[@l_farland](#)

David C. Norris, MD [@davidcnorrismd](#)

Replies to [@ErinMichos](#) [@BaileyDeBarmore](#) and 3 others

Such #PopHealth opportunism exalts collectivistic (bureaucratic & corporate) ends over those of individuals. Remarkably, it falls afoul simultaneously of the "careful and kind care" @vmontori advocates, and of @michelaccad's critique in 'Moving Mountains': [movingmountainsthebook.com](#)



Participate in scholarly discussion



Bailey DeBarmore

@BaileyDeBarmore

Hey #epitwitter, let's talk about your thoughts on pop health approaches a la Rose - 1) shift the distribution, 2) target high risk, 3) ??



Leslie V. Farland @l_farland · Dec 21

Replies to @BaileyDeBarmore @EpiEllie and 3 others

Great Qx. Not something we talk enough about in Epi. We definitely read and discussed Rose in social epi courses. Do causal folks think about Rose in the defining of well designed interventions?



Anders Huitfeldt @AndersHuitfeldt · Dec 21

If you find yourself in a situation where you want to reduce population risk by treating low-risk individuals, who have a lower absolute benefit of treatment and rationally choose to go untreated because harms outweigh benefits: Perhaps it is time to rethink your objectives



Jon Huang @jon_y_huang · Dec 21

This is a corollary of targeting intermediates rather than desired endpoints, their questionable causal role, and leaving the desired outcome implicit. E.g. do you want to reduce overall mortality? Disparities on absolute vs. relative scale? etc.



Usama Bilal @usama_bilal · Jan 7

Replies to @BaileyDeBarmore @EpiEllie and 3 others

Shifting the distribution of course! For those worried about inequalities I highly recommend [ncbi.nlm.nih.gov/pubmed/22904232](https://www.ncbi.nlm.nih.gov/pubmed/22904232)



Darren L Dahly @statsepi · Dec 21

Replies to @BaileyDeBarmore @EpiEllie and 4 others

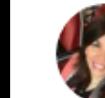
Its always been overly simplistic. If you only ever model the mean, and never consider how costs may vary across the distribution, shifting the entire thing will always sound sensible.



Jon Huang @jon_y_huang · Dec 21

Also uptake of the universal intervention will also vary in a socially-stratified manner in practice + shifting the distribution of a risk factor may do little for imp endpoints & disparities.

I feel @epi_kerrykeyes and @sandrogalea book Pop. Health Science updates Rose nicely.



Dr Nisreen Alwan @Dr2NisreenAlwan · Dec 22

Such an important point u make Jon. Shifting the distribution approach is likely to suffer from SES disparities. Even for interventions which r truly universal eg flour fortification or water fluoridation, the clustering of other risk factors prevents uniform distribution shift

Talk about important topics

Talk about important topics

“...There are **broader scientific topics** that come up on Twitter that I think are **largely absent from the day-to-day experience** of most researchers.

Yet it's these topics that are probably the most important ones for “us” to be having.”

– Darren Dahly, PhD @statsepi

Talk about important topics

- Science communication
- Open science



Talk about important topics

- Work-life balance in academia
- Bias and discrimination in academia



Talk about important topics

- Reproducibility
- Research integrity



Stelios @SteliosSerghiou · Jan 27

Probably the best written and most-accessible article I have ever read about p-values, confidence intervals, power and their misconceptions. Simply a MUST READ for any scientist! Thank you @goodmanmetrics !



Statistical tests, P values, confidence intervals, and...

Misinterpretation and abuse of statistical tests, confidence intervals, and statistical power have been decried for decades, yet remain rampant. A key probl...

ncbi.nlm.nih.gov

Learn about new resources



Dr. Cristina A. Fernández @DrCristinaF · Jan 6

Having trouble deciding what journal to send your next manuscript? Check out jane.biosemantics.org as a first step!

@PhDForum #AcademicTwitter #EpiTwitter #PsychTwitter #StatsTwitter
#phdadvice #postdoc





Andrew Heiss, PhD @andrewheiss · Jan 21

Whoa! Check out @VincentAB's new package for making side-by-side regression tables with the gt #rstats package [github.com/vincentarelbun...](https://github.com/vincentarelbundock/rmarkdown)

	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Donations		-0.000*		-0.000	
		(0.000)		(0.000)	
Infants	-0.001***		0.000		-0.000
	(0.000)		(0.000)		(0.000)
Constant	64.114***	4.218***	57.331***	4.384***	1.006
	(5.247)	(0.144)	(8.315)	(0.233)	(0.710)
R2	0.237		0.073		
Adj.R2	0.218		0.051		
AIC	718.8	720.2	797.9	803.2	123.0



**Facilitate post-publication
peer review**

Facilitate post-publication peer review



Ricky Turgeon PharmD

@Ricky_Turgeon

Follow

▼

@ESC_Journals Surprised that a meta-analysis with so many errors made it past peer review: bit.ly/2WG7NWi

hope that by raising awareness of these issues, this article can be withdrawn and revised before it makes it into print 1/n



Short-term and long-term effects of a loading dose.

AbstractAims. Whether a loading dose of atorvastatin (80 mg) can reduce major adverse cardiovascular events (MACE) in patients with acute coronary syndrome (ACS). academic.oup.com

1:28 AM - 8 Jan 2019



Ricky Turgeon PharmD @Ricky_Turgeon · Jan 8

4/n SECURE-PCI (the largest trial on this topic) was neutral, but if there are other relevant trials, a well-done meta-analysis could be enlightening. But here's the problem: The authors included a bunch of trials that they shouldn't have.



1



1



7



Ricky Turgeon PharmD @Ricky_Turgeon · Jan 8

5/n Authors included a total of 13 studies; at least 5 should have been excluded. The 1st trial that caught my attention was inclusion of a secondary publication of the MIRACL trial. MIRACL specifically included only ACS patients who hadn't been treated with PCI.

Link to Ricky Turgeon's thread: bit.ly/rickypharmdtweet

Facilitate post-publication peer review

Andrew Althouse Retweeted



Ricky Turgeon PharmD @Ricky_Turgeon · Jan 30

This meta-analysis was appropriately RETRACTED today. Thanks #CardioTwitter for helping spread the word. Hopefully outlets that disseminated the study's conclusions also update & correct their record.

Ricky Turgeon PharmD @Ricky_Turgeon

@ESC_Journals Surprised that a meta-analysis with so many flaws past peer review: academic.oup.com/eurheartj/advances/... . Given the lack of awareness of these issues, this article can be withdrawn from publication. This makes it into print 1/n

Show this thread

European Heart Journal

RETRACTED: Short-term and long-term effects of a loading dose of atorvastatin before percutaneous coronary intervention on major adverse cardiovascular events in patients with acute coronary syndrome: a meta-analysis of 13 randomized controlled trials FREE

Ziliang Ye, Haili Lu, Qiang Su, Manyun Long, Lang Li ✉

European Heart Journal, ehy833, <https://doi.org/10.1093/eurheartj/ehy833>
Published: 03 January 2019 Article history ▾

Link to Ricky Turgeon's thread: bit.ly/rickypharmdtweet

**Promote scholarly
collaboration**

Twitter connects experts
across **academic**
disciplines



Twitter connects experts
across **institutions** and
location



THE LANCET Diabetes & Endocrinology

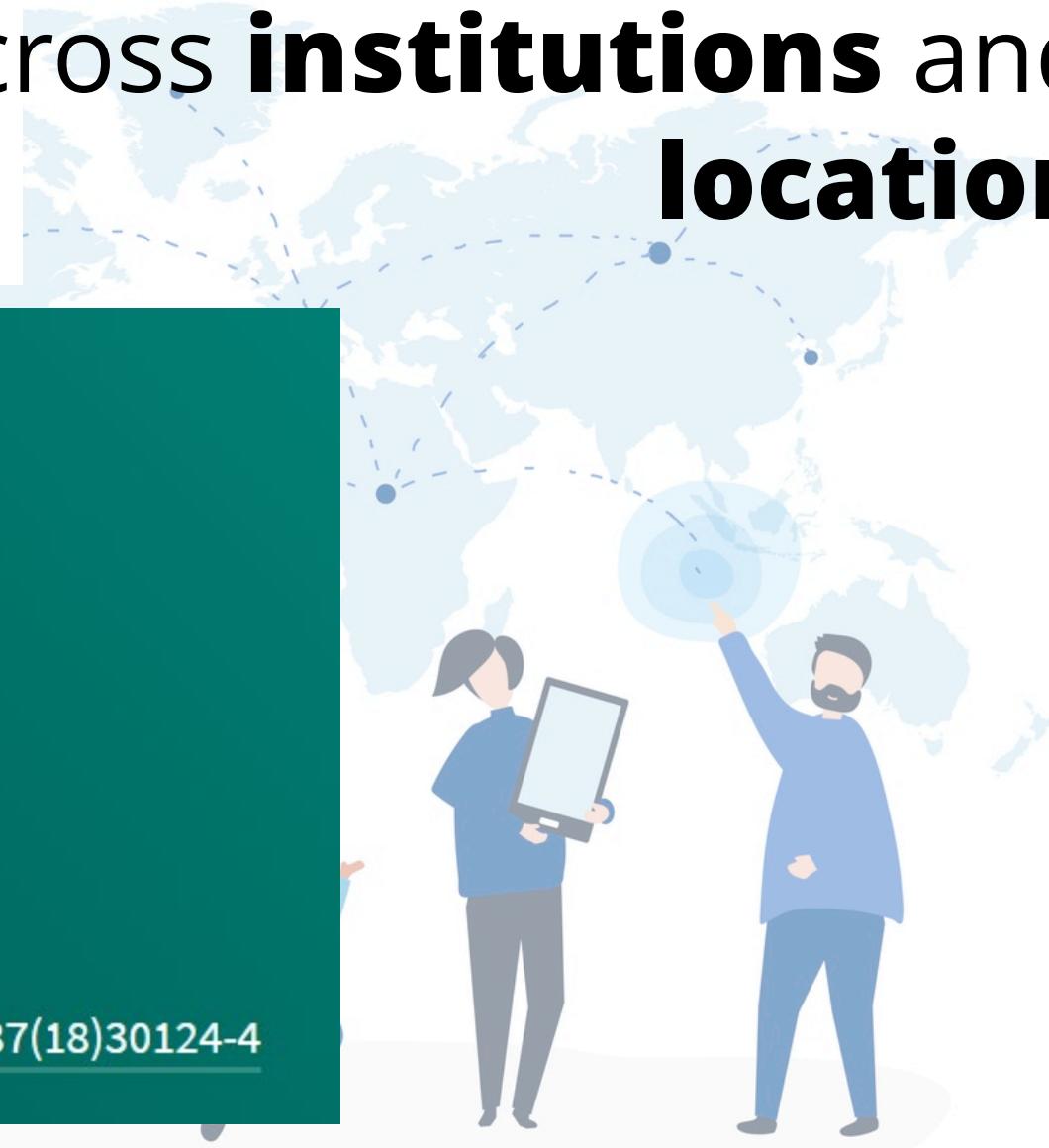
CORRESPONDENCE | VOLUME 6, ISSUE 6, P439-440, JUNE 01, 2018

Novel diabetes subgroups

Maarten van Smeden  • Frank E Harrell Jr • Darren L Dahly

Published: June, 2018 • DOI: [https://doi.org/10.1016/S2213-8587\(18\)30124-4](https://doi.org/10.1016/S2213-8587(18)30124-4)

Twitter connects experts
across **institutions** and
location





The most widely read and highly cited
peer-reviewed neurology journal

Twitter connects experts
across **institutions** and
location

January 01, 2019; 92 (1) CLINICAL/SCIENTIFIC NOTES

Estimating the prevalence at death of CTE neuropathology among professional football players

Zachary O. Binney, Kathleen E. Bachynski

First published November 28, 2018, DOI: <https://doi.org/10.1212/WNL.0000000000006699>



Build support networks

Build support networks

- Flattened hierarchy helps address imposter syndrome

Build support networks

- Share challenges and celebrations
- Teaching tips – examples for classes



Matthew Fox
@ProfMattFox

Looking for teaching examples, what is your best real world example of collider stratification bias? Anything published is even better, but doesn't have to be. Fun examples are even better.

Build support networks

- Share challenges and celebrations
- Teaching tips – examples for classes
- Coauthor / committee struggles
- Responding to reviewers



Kevin Kohl @KevinDKohl · Jan 29

Got reviewer comments back.

We report a P-values of 0.051 and 0.062. Reviewer: "If it's not significant, it's not significant. Delete."

Here's a response I've used in the past, sharing for anyone who might find it useful

The main criticism seems to be the inclusion of results where the P-value was between 0.05 and

Improve writing skills

Improve writing skills

- Practice expressing your ideas concisely
- 280 characters – what will you use them for?

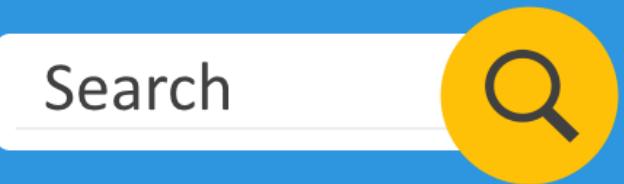
Twitter Lingo

Hashtags

Word or phrase prefixed with #

- Denote topic:
 - #CausalInference
- Identify community:
 - #EpiTwitter #Rstats #StatsTwitter #AcademicTwitter #PhDChat
- Group with a conference:
 - #AHA18 #EpiLifestyle19

Hashtags are searchable



#EpiLifestyle18

Top Latest People Photos Videos News

David Goff, MD, PhD @NHLBI_HEARTDir · 23 Mar 2018
Emelia Benjamin: HTN control may help prevent atrial fibrillation #EpiLifestyle18

Alvaro Alonso @alonso_epi · 23 Mar 2018
Fantastic presentation from Joel Kaufman on methodological issues in studying the impact of air pollution on CVD health #EpiLifestyle18

Challenges To Characterizing Exposure

- Correct Time of Exposure
 - “Critical Window”
 - Time of Interest Depends on Effect of Interest
- Correct Spatial Distribution of Exposure
- Individual Sources of Exposure Variation
- Often unreasonable fondness for biomarkers of exposure, and for new measurement technologies
 - Better to focus on understanding sources of variation and correlation structure with other risk factors

Q 2 3 8

Retweet

- Repost a message from another user and share with your own followers

Retweet with comment



R-Ladies Rdam @RLadiesRdam · 30m

If you are in Netherlands and interested in causal inference and machine learning, you don't want to miss this talk!

Original tweet

SERtalks – Netherlands

March 21, 2019
5:00pm – Netherlands
"Inference After Machine Learning
for Causal Effects"

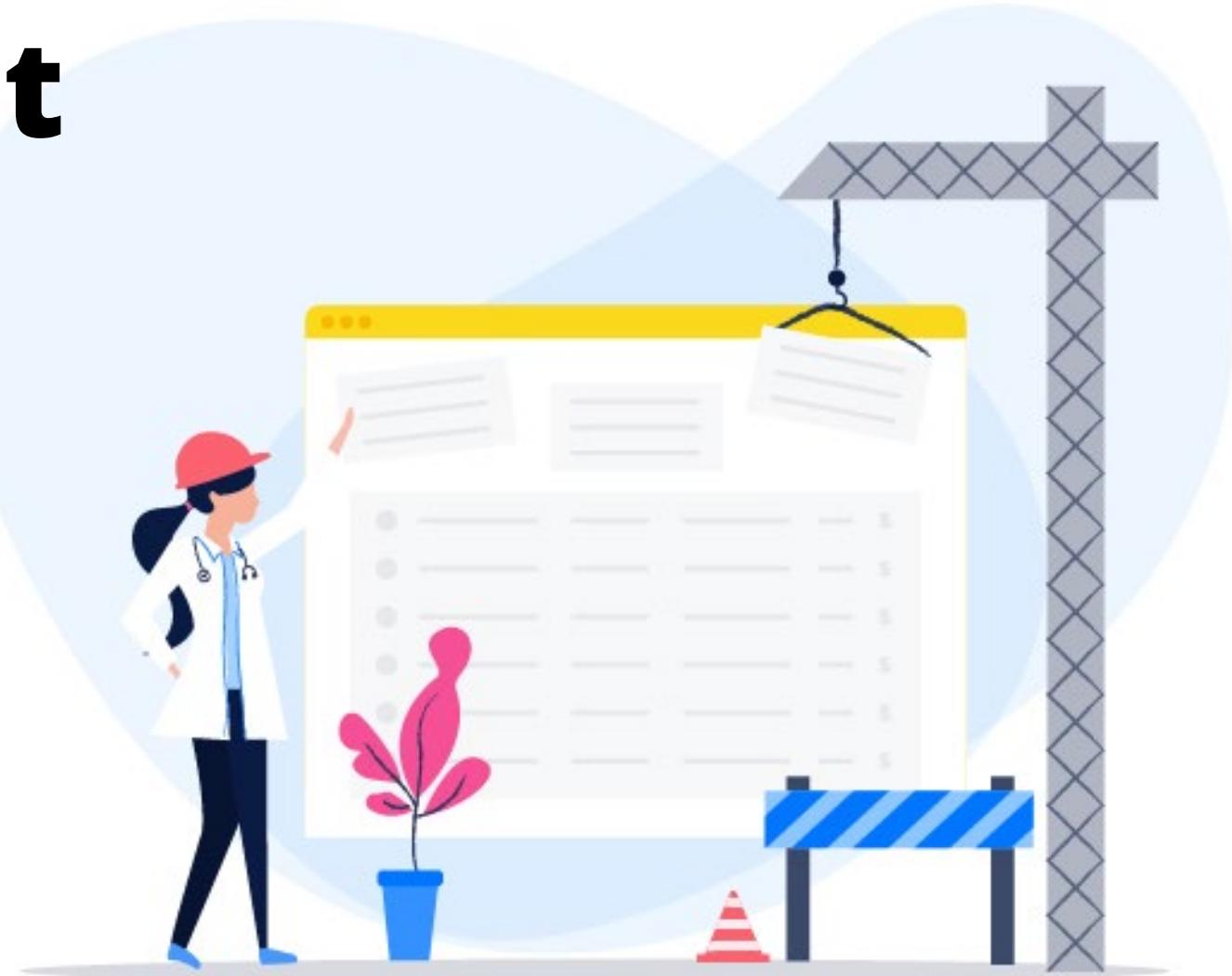
Dr. James M. Robins
Professor of Epidemiology
Harvard T.H. Chan
School of Public Health

This event will be held onsite:

Jeremy Labrecque @ja_labrecque_

Excited for the @ErasmusMC Epidemiology department to host our first SER event with none other than Dr. James Robins himself. Epidemiologists based in the Netherlands shouldn't miss this!...

Constructing a Great Science Tweet



Credit: dribbble.com/**MakiMiller**

Sharing science on twitter

papers

- How is science shared on Twitter?
- Typically through sharing science papers and abstracts

Sharing science ^{papers} on twitter

Ideally include 3 things

- Punchline (and maybe a hook)
- Link
- Visual

Great example

Hook
+
Punchline
+
Link
+
Visual

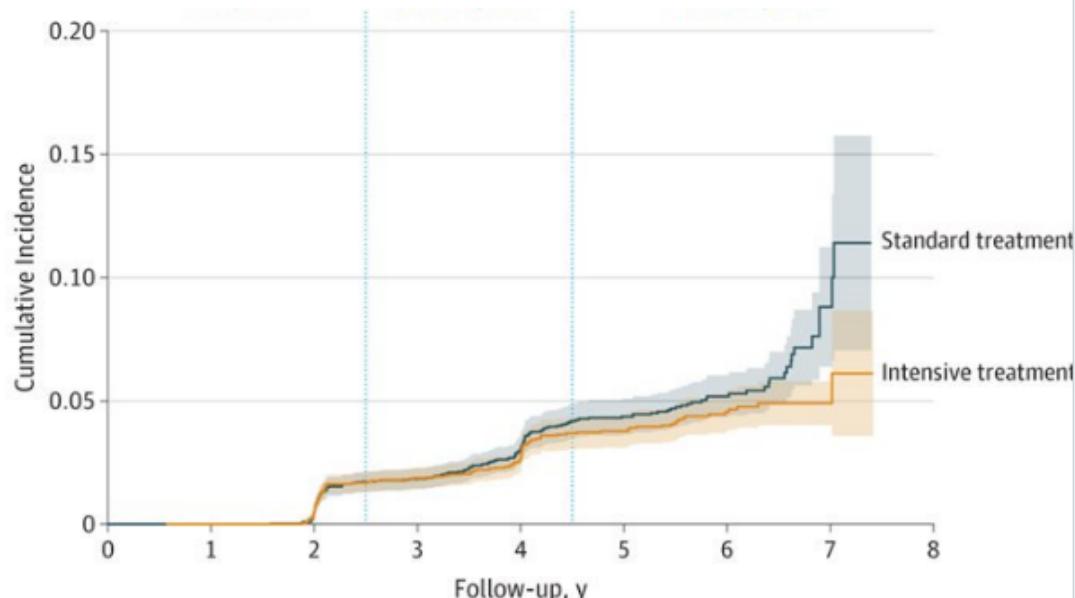


Clyde Yancy, MD @NMHeartdoc · Jan 28

Too important to overlook; SPRINT MIND: goal blood pressure reduction does not exacerbate dementia but rather reduces risk of mild cognitive decline. No reason not to treat to goal in the correct patient. [#preventheartfailure](#). The time is here to treat HTN [@JAMA_current](#)

JAMA ✅ @JAMA_current

Among ambulatory adults with hypertension, treatment to an SBP goal < 120 mm Hg did not reduce risk of #dementia compared with a goal < 140, but did reduce risk of mild cognitive impairment and risk of ...



Another great example

David Grabowski @DavidCGrabowski · Jan 7

New in @Health_Affairs on the Hospital Readmissions Reduction Program



Prior research has found program to be effective but we conclude reductions are illusory or overstated

[healthaffairs.org/doi/abs/10.1377...](https://healthaffairs.org/doi/abs/10.1377/hlthaff.2018.05378)

Paper with Chris Ody (@KelloggSchool) @LucilleMsall @LeemoreDafny
@cutler_econ

Hook

"So what?"

Link

**Tags authors
down here**

DOI: 10.1377/hlthaff.2018.05378
HEALTH AFFAIRS 38,
NO. 1 (2019): 36–49
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The People-to-People Health
Foundation, Inc.

HOSPITALS

By Christopher Ody, Lucy Msall, Leemore S. Dafny, David C. Grabowski, and David M. Cutler

**Decreases In Readmissions
Credited To Medicare's Program
To Reduce Hospital Readmissions**

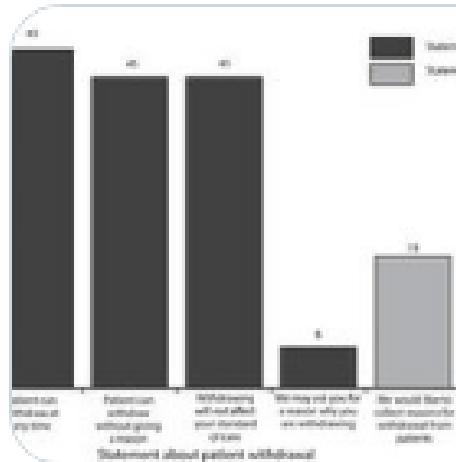
Visual

And another great example



Anna Kearney @msakearney · Nov 1

Patient information leaflets in research often fail to include info that might help retain patients



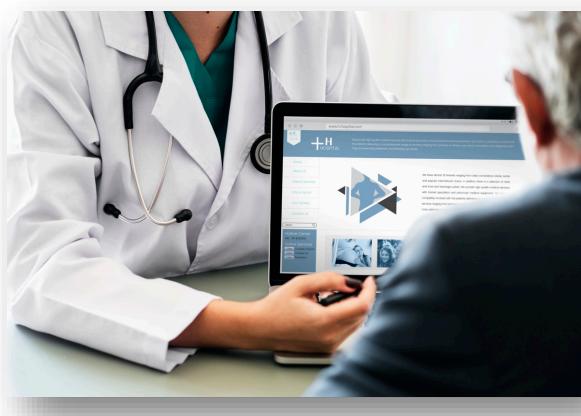
Reducing attrition within clinical trials: The communica...

Background The recruitment and retention of patients are significant methodological challenges for trials. ...

 journals.plos.org

Using visuals

- Screenshot the formatted paper or PubMed abstract
- Use compelling figure from the paper
- Find related free stock photo
 - Rawpixel.com
 - Pexels.com
 - Unsplash.com
- Retweet journal tweet that includes image



HOSPITALS

By Christopher Ody, Lucy Msall, Leemore S. Daftny, David C. Grabowski, and David M. Cutler

DOI: 10.1377/hlthaff.2018.05178
HEALTH AFFAIRS 38, NO. 1 (2019): 43–49
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The People-to-People Health Foundation, Inc.

Decreases In Readmissions Credited To Medicare's Program To Reduce Hospital Readmissions Have Been Overstated

Christopher Ody (c-ody@nleu.edu) is a research professor in the Kellogg School of Management, Northwestern University, in Evanston, Illinois.
Lucy Msall is a PhD candidate in the Booth School of Business, University of Chicago, in Illinois.
Leemore S. Daftny is the MBA Class of 1960 Professor of Business Administration at Harvard Business School, in Boston, Massachusetts.
David C. Grabowski is a professor in the Department of Health Care Policy, Harvard Medical School, in Boston.

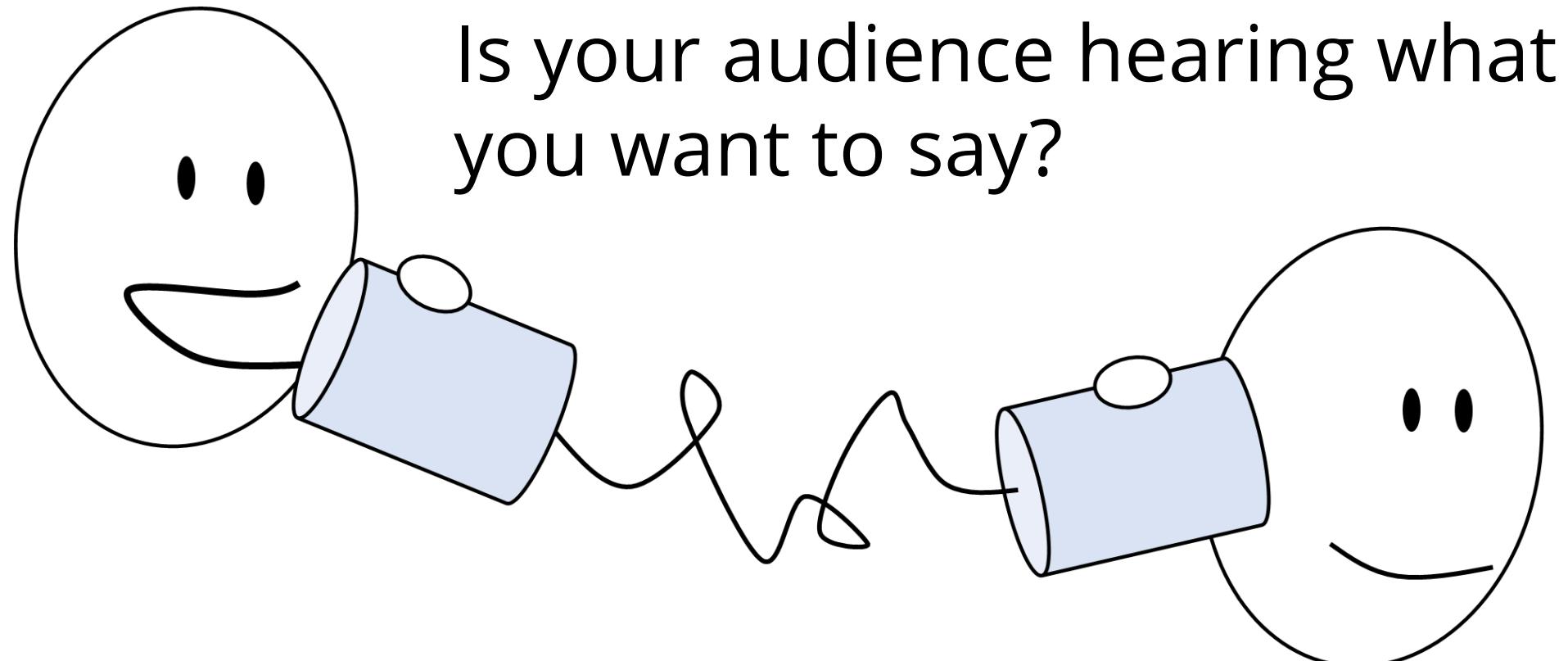
ABSTRACT Medicare's Hospital Readmissions Reduction Program (HRRP) has been credited with lowering risk-adjusted readmission rates for targeted conditions at general acute care hospitals. However, these reductions appear to be illusory or overstated. This is because a concurrent change in electronic transaction standards allowed hospitals to document a larger number of diagnoses per claim, which had the effect of reducing risk-adjusted patient readmission rates. Prior studies of the HRRP relied upon control groups having lower baseline readmission rates, which could falsely create the appearance that readmission rates are changing more in the treatment than in the control group. Accounting for the revised standards reduced the decline in risk-adjusted readmission rates for targeted conditions by 48 percent. After further adjusting for differences in pre-HRRP readmission rates across samples, we found that declines for targeted conditions at general acute care hospitals were statistically indistinguishable from declines in two control

JAMA @JAMA_current

Among ambulatory adults with hypertension, treatment to an SBP goal < 120 mm Hg did not reduce risk of #dementia compared with a goal < 140, but did reduce risk of mild cognitive impairment and risk of ...

A Kaplan-Meier survival plot showing the cumulative incidence of dementia over an 8-year follow-up period. The y-axis represents the Cumulative Incidence, ranging from 0 to 0.20. The x-axis represents the Follow-up time in years, ranging from 0 to 8. Two groups are compared: Standard treatment (blue line) and Intensive treatment (orange line). Both groups show a gradual increase in cumulative incidence over time. The Intensive treatment group appears to have a slightly higher cumulative incidence than the Standard treatment group, particularly after year 4.

Writing Effective Science Tweets



Is your audience hearing what you want to say?

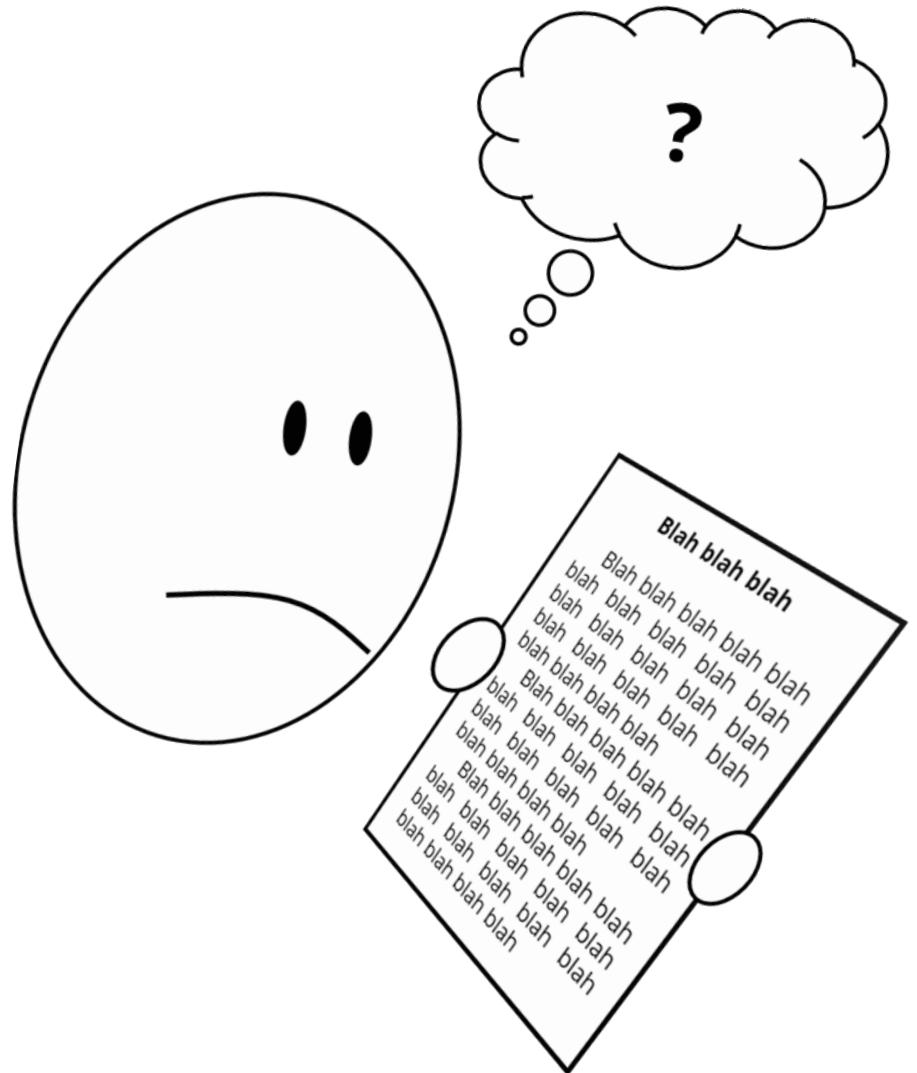
Who's your audience?

General Public

- Write like you're having a conversation
- Opt for simpler word choices
- What's the takeaway *for the general public?*
 - Why should they care?
 - How does it affect them?
 - Click-bait headlines vs *good science* headlines
- Simple communication will reach the broadest audience
 - Important for crossing science discipline lines



Write like you're having a conversation



We write differently than we speak

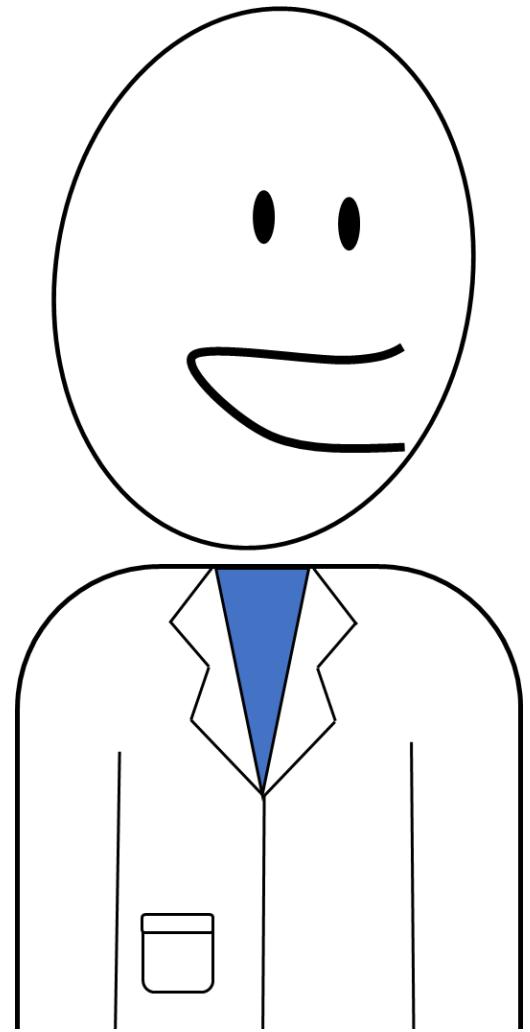
We use complex sentences
And unnecessary words

Resulting in “writerly” writing

Write like you're having a conversation

- Use active voice, contractions, and short sentences
- Replace complex language with simple vocabulary
- Engage the reader with questions and use “you”

Writerly and science-y



Previously called atypical myocardial infarction, myocardial infarctions presenting without classic chest pain are more common in certain patient groups, including those with more comorbidities.

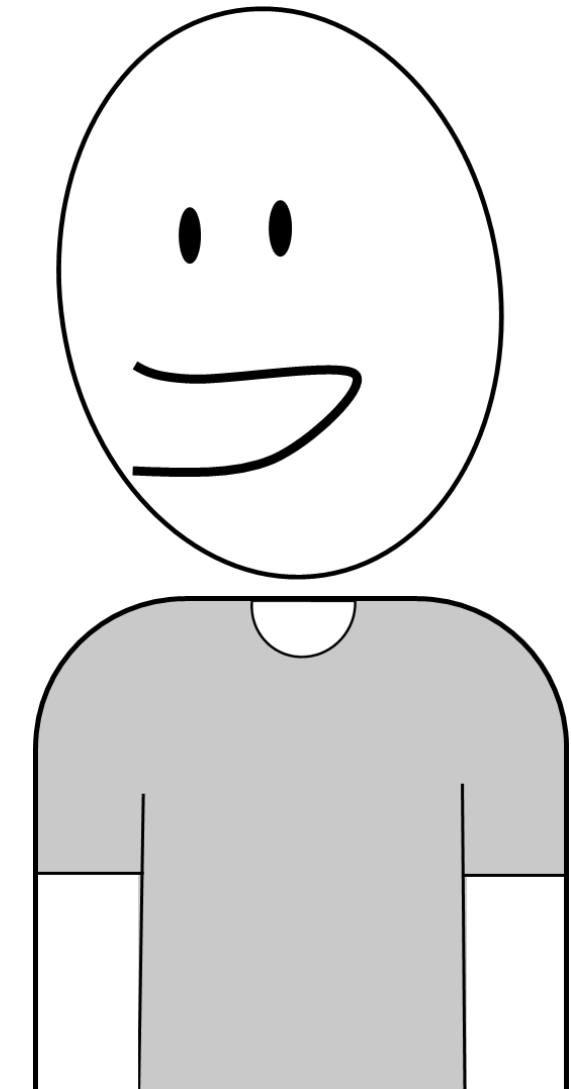
These myocardial infarctions without classic pain are associated with delayed hospital arrival time, delayed coronary revascularization, and poorer outcomes following the event.

Casual and approachable

Do you know someone who's had a heart attack?

We often think of someone having chest pain. But you might have different symptoms or no symptoms at all.

I study these different heart attack presentations to see if they are more common in certain groups.



Engage your audience with a question or statement that connects people with the science [hook]

Imagine if you couldn't afford your medications.

New study shows concerns over medication costs negatively affect BP med adherence and BP control, especially in low income areas.



Who's your audience?



Scientists & Researchers

- Topic-specific vocabulary may be OK
 - Myocardial infarction vs heart attack
 - Cardiovascular disease vs heart disease
 - CABG vs open heart surgery
- What's the takeaway *for scientists*?
 - Context with previous findings
 - Implications for moving forward
- Think “specific aims” page
 - Broad to narrow focus
 - “So what?”

Tips for finding the point

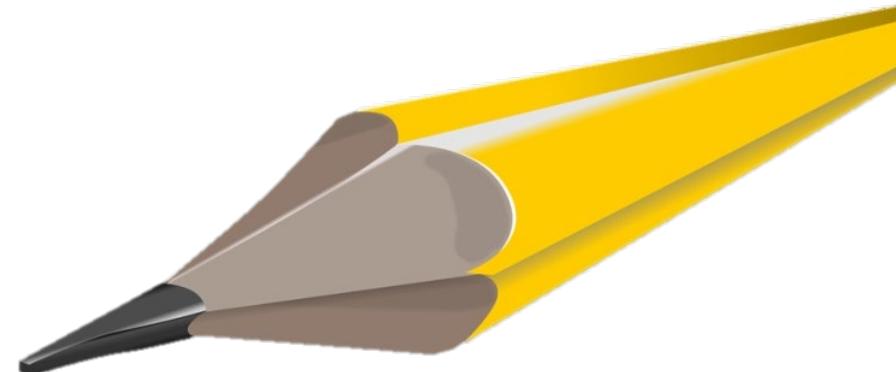
- Ask yourself
 - What did I take away from this article?
 - Why am I sharing this post?
 - What questions do I still have?

You've probably read through several articles.
Why did you stop on this one?
Did you think of another discussion you had?



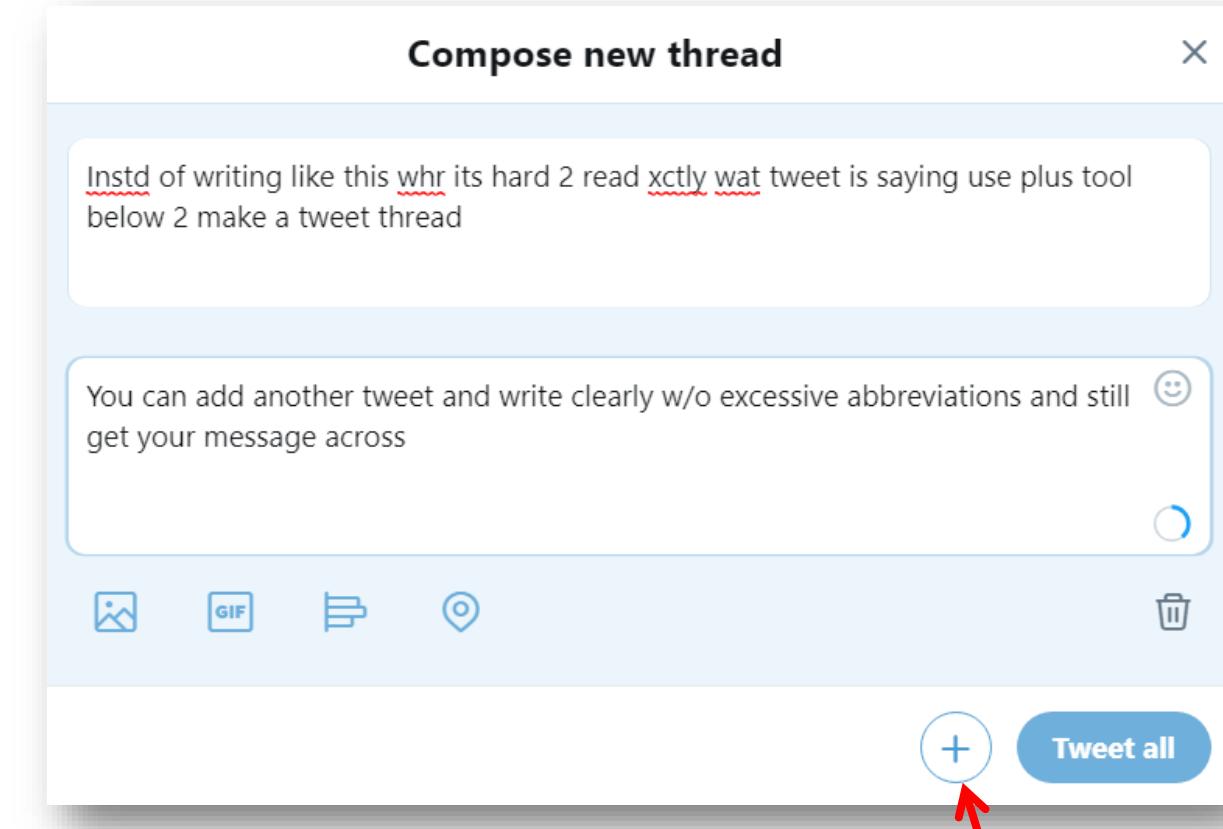
Tips for getting to the point

- Think about a friend asking, “What was the study about?”
 - Answer in 1-2 sentences
- Too many ideas and details confuse the reader
 - Start with your first thoughts
 - Drill down to the main point



Improving readability

- Not enough characters?
 - Use multi-thread tool instead of “txt msg”-style abbreviations
- Shy away from using ALL CAPS or too many #hashtags
- Avoid replacing words with emojis

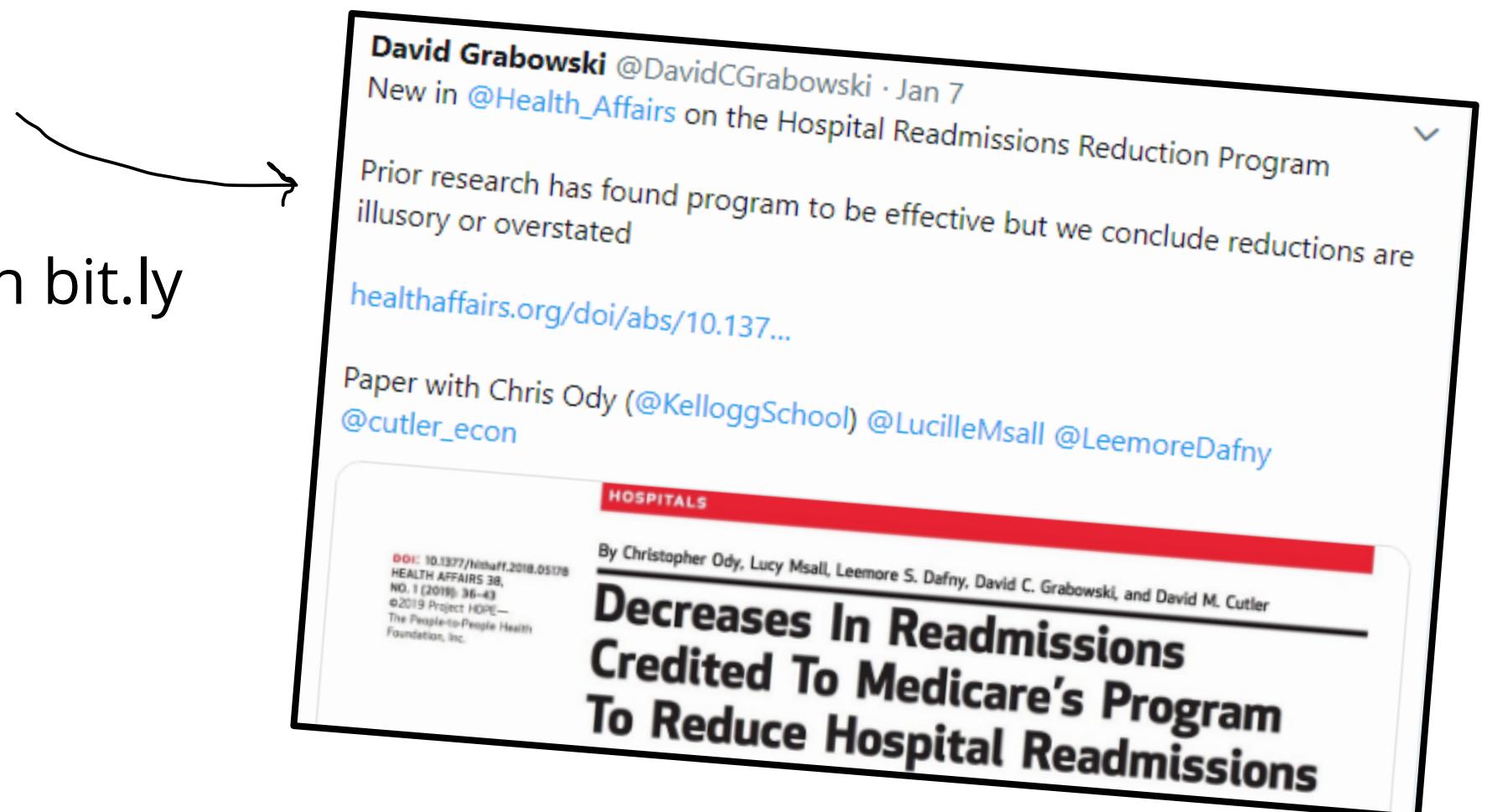


100,234 🧑 +84,002 🧑 without ❤ dz given 💊 or 💉

multi-thread tool

Other tips

- Tag authors and journal if on Twitter, but at the end of your tweet
- Use white space
- Shorten links with bit.ly or other services



Example & Group Activity



The Association Between Electronic Cigarette Use and Cardiovascular Disease According to Smoking Status: BRFSS 2016

Background: E-cigarettes are a consumer product designed to deliver nicotine by heating a liquid produced from tobacco. Usage in the US is growing rapidly and is common among combustible cigarette users (dual use). The impact of E-cigarettes on cardiovascular disease is unknown.

Aim: A cross-sectional examination of e-cigarette use with self-reported cardiovascular disease, according to smoking status, using the nationally representative health survey - the Behavioral Risk Factor Surveillance System (BRFSS) 2016

Methods: We included 404,332 BRFSS 2016 participants with information on the history of CVD and e-cigarette use. E-cigarette use was categorized as never (reference), occasional, and daily with daily +occasional e-cigarette users considered current e-cigarette users. The association of e-cigarette use and CVD (defined as self-reported coronary heart disease, myocardial infarction, or stroke) was assessed using multivariable logistic regression models stratified by smoking status (never, former, current [occasional or daily]), adjusted for age, sex and race.

Results: Of the total population, there were 15,240 e-cigarette users and 85,402 with CVD. Compared to those who never used e-cigarettes, current e-cigarette users had significantly higher odds of having CVD among current smoker groups (occasional smoker: Odds Ratio (OR)= 1.36 (95% CI= 1.06 - 1.76); daily smoker: OR=1.34 (1.12 - 1.62)). Daily use of e-cigarettes among occasional smokers was significantly associated with higher odds of having CVD (OR=1.64 (1.05 - 2.57)). (**Table**) There was no association between e-cigarette use and CVD among never and former smokers.

Strengths and Limitations: Because of large sample size, we were powered to stratify e-cigarette use by smoking status. However, BRFSS does contain directly measured risk factors or pack-years of smoking.

Conclusions: Dual use of e-cigarette and combustible cigarettes is a new pattern of tobacco product use that may be associated with more CVD.

Writing a great science tweet

- Punchline & hook
- Link
- Visual

Lay Audience

- Engage with questions
- Replace complex words

Science Audience

- What's the takeaway?
- What questions remain?

Every Audience

- Concise, get to the point
- Use active voice, contractions, short sentences

Example 1 of 3



Joe Smith @SuperHeartDoc · Mar 8

Congrats to [@Author](#) for paper published "The Association Between Electronic Cigarette Use and Cardiovascular Disease According to Smoking Status: #BRFFS 2016" [@SchoolofMedicine](#) [@SchoolofPublicHealth](#)

Example 2 of 3



John Doe, PhD @JohnDoe · Mar 8

New trends in smoking -

Dual use of e-cigarettes and regular tobacco cigarettes may be associated with more cardiovascular disease than tobacco cigarettes alone.

@Author @Author @Author @SchoolofMedicine
@SchoolofPublicHealth

ahajournals.org/doi/10.11...

Example 3 of 3



Janet Williams @JanetWilliamsPhD · Mar 8

Trying to quit smoking?

E-cigarettes often advertised as a way to quit tobacco cigarettes. But new survey data suggest use of both e-cigarettes and tobacco cigarettes associated with heart disease. ahajournals.org/doi/10.11...

@Author @Author @Author @SchoolofMedicine





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Using for Science Communication

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github.com/baileydebarmore/sci-comm.git