

# Preprinting and Publishing in the Life and Biomedical Sciences

IV: The communicating scientist: How  
to effectively and responsibly  
communicate scientific research



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# Prior knowledge

- Students should be aware of the major social media platforms and how to use them
- Students should understand what the different types of a scientific paper are
- Students should be aware of the basic scientific process and the publishing pipeline (as covered in earlier lessons in this series)

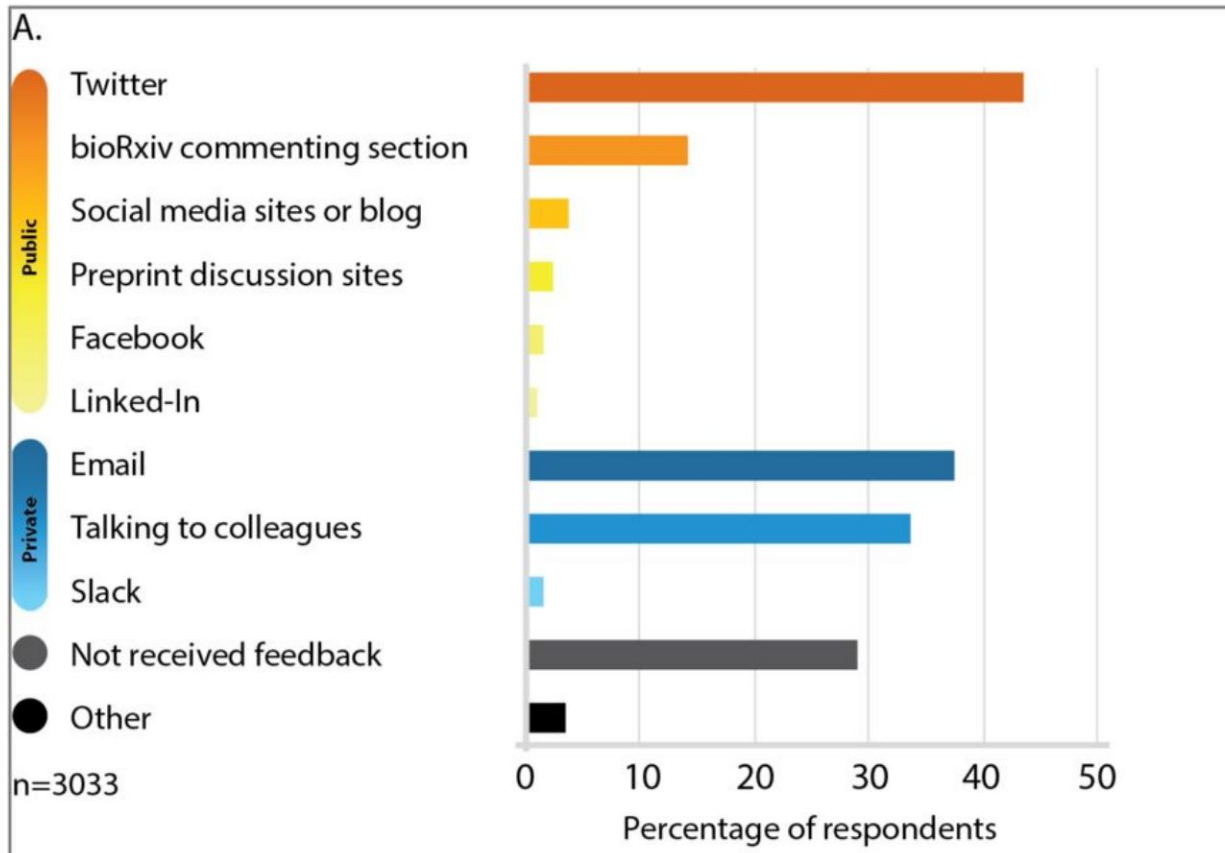
# What is sci-comm?

- The practice of informing, educating, sharing wonderment, and raising awareness of science-related topics
  - Reliably
  - Including correcting misinformation
  - Of both scientific findings and the scientific process
- Effective sci-comm will be tailored to the specific audiences and platforms used

# Why do it (as a scientist)?

- Benefits:
  - increased visibility of research, publications
  - Raise your own, independent, profile
  - Enjoyment and engagement with other scientists and the general public
- Moral / funder responsibility
  - Part of being a scientist is sharing knowledge
- Different measure of impact (Check out [Altmetric.com](https://www.altmetric.com) or [ImpactStory](https://www.impactstory.com))

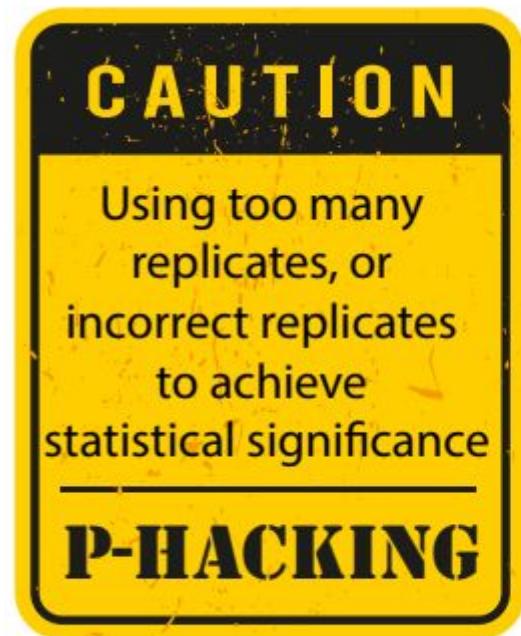
# Feedback for your work



In a survey of bioRxiv users, most respondents said that feedback on papers posted on bioRxiv came from Twitter.

<https://www.biorxiv.org/content/10.1101/833400v1.full>

Share responsibly!



Whose responsibility is sci-comm?

# Scientists



Experts in their field

Can be difficult to step back and communicate with a broader audience

May have bias against “competitors”

Already very busy running a lab, training and writing papers

Responsibility as part of public-funding



# Journalists



Not-experts

Trained to communicate with the general public

May sensationalise or have political agendas

# Politicians



May misuse science for political gain

Not experts but surrounded by advisors

Often balance science with many other aspects

Universities



Not everybody can or wishes to go to university

Open-days and outreach events run 1-2x a year

Specialised events and experts from a wide range of fields

Community responsibility

General  
public



Everybody has an obligation to further mankind

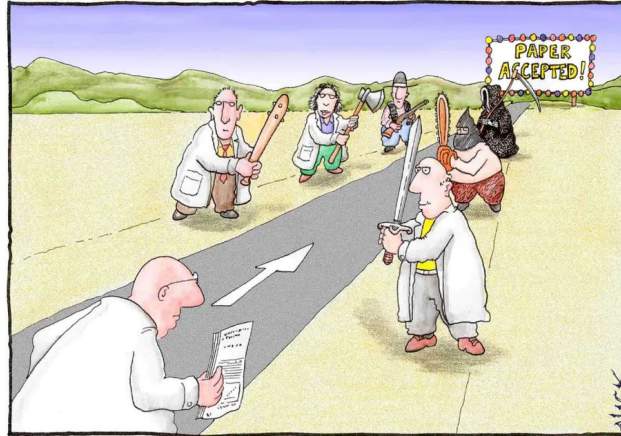
Anybody can tackle misuse of science

Not experts but adept at  
communicating with family and friends

# When to sci-comm

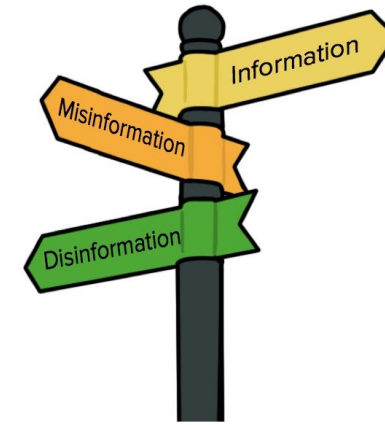


Posting a preprint

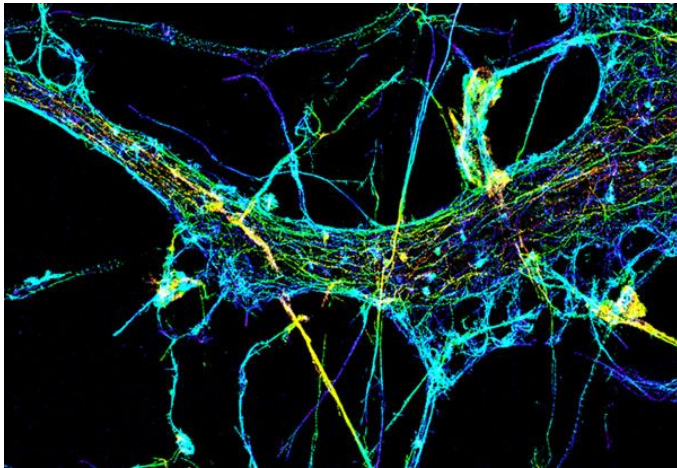


Most scientists regarded the new streamlined peer-review process as "quite an improvement."

Paper accepted



Combat misinformation



Share a cool image/movie of your research

## Preprinting the COVID-19 pandemic

 Nicholas Fraser,  Liam Brierley,  Gautam Dey,  Jessica K Polka,  Máté Pálffy,  
 Federico Nanni,  Jonathon Alexis Coates

doi: <https://doi.org/10.1101/2020.05.22.111294>

This article is a preprint and has not been certified by peer review [what does this mean?].

Read a cool paper you want to share

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# How to sci-comm

- Include images / videos
- Share responsibly
- Avoid getting into arguments or interacting with “trolls”
- Tailor your content to the platform
- Avoid scientific jargon, instead using language that can be easily understood by non-scientists

# Platforms







- Platform for Early Career Researchers who write News & Views type articles to highlight interesting preprints
- For example;  
<https://prelights.biologists.com/highlights/the-effect-of-biorxiv-preprints-on-citations-and-altmetrics/>
- Recruits new ECRs 1-2x a year (or upon enquiry)
- Good platform for raising your profile and demonstrating wider writing skills
- More formal than some other sci-comm platforms

# Twitter



- Popular platform for scientists and sci-comm
- Can be formal or informal, depends on the personality of the user or have multiple accounts
- Character count can be limiting, though overcome with threads
- Very useful for sharing newly published work or interesting images/movies
- Useful tools – Tweetdeck (for scheduling tweets, multiple accounts), gif creator, etc...

**Dan Quintana** @dsquintana · 12 Mar 2019  
There are four ways to get your research known, but only only one of these is an option for every early career researcher:

1. Already be famous
2. Have a famous mentor
3. Repeatedly win the peer-review lottery
4. Actively contribute to social media

6 82 363

**Dan Quintana** @dsquintana · 12 Mar 2019  
The peer-review process is full of gate-keeping, which is exacerbated by this process being behind closed doors. There's nothing stopping you from sharing your research & ideas on Twitter. There's also less friction reaching out to other academics via Twitter compared to email

3 9 57

**Dan Quintana** @dsquintana · 14 Mar 2019  
In which I give a LIVE follow up to this thread, covering how social media has benefited my career, how you can use it to test ideas, ways to get started, how it eliminates gate-keeping + more 🙌

**Dan Quintana** @dsquintana · 14 Mar 2019  
Some thoughts on social media for scientists...  
[pscp.tv/w/b1ol9DMxNjM3...](https://pscp.tv/w/b1ol9DMxNjM3...)

# Exercise

Take recent preprint and write a thread to share the key findings.  
What did you choose to include?



- Name your collaborators and co-authors (tag them if they have Twitter)
- Link to your preprint or paper directly (bit.ly is useful for this)
- Include key results in individual tweets, use images and figures if possible – consider making a gif of the paper figures if allowed
- Tag those who helped but may not be authors and any relevant societies or people who would be interested in the work

## 10 tips for tweeting research

<https://www.natureindex.com/news-blog/ten-tips-tweeting-research-academic>



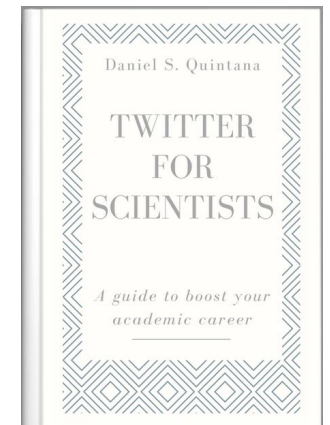
*PLoS Comput Biol.* 2020 Feb; 16(2): e1007513.  
Published online 2020 Feb 10. doi: [10.1371/journal.pcbi.1007513](https://doi.org/10.1371/journal.pcbi.1007513)

PMCID: [PMC7010239](https://pubmed.ncbi.nlm.nih.gov/32040507/)  
PMID: [32040507](https://pubmed.ncbi.nlm.nih.gov/32040507/)

Ten simple rules for getting started on Twitter as a scientist

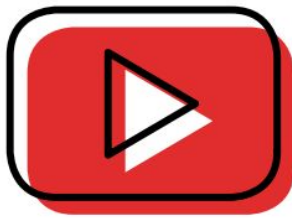
[Veronika Cheplygina](#),<sup>1</sup> [Faliene Hermans](#),<sup>2,3,\*</sup> [Casper Albers](#),<sup>4</sup> [Natalia Bielczyk](#),<sup>5</sup> and [Ionica Smeets](#)<sup>6</sup>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7010239/>



<https://t4scientists.com/>

Youtube



- Increasingly used following journal acceptance
- Often in the form of “whiteboard” time lapse videos
- Requires a camera, high-quality audio and some artistic skill
- Tools are available ([doodly.com](https://doodly.com) or [animaker.com](https://animaker.com)) although these are not tailored towards scientists

# Exercise

Create a graphical/whiteboard summary on an A3 sheet of paper for a given preprint / your research (discuss what everyone likes about the different summaries)

# Youtube exercise tips

- Make a script and ensure that it is accessible to non-experts or your target audience
- Plan out the final whiteboard image
- Keep videos concise (5 minutes max)
- Maintain quality throughout, removing distracting background audio and avoiding low quality editing or transitions

Some good examples

[https://www.youtube.com/watch?v=frsYEt3GAhA&feature=emb\\_title](https://www.youtube.com/watch?v=frsYEt3GAhA&feature=emb_title)

[https://www.youtube.com/watch?v=soWx\\_tuJm\\_g](https://www.youtube.com/watch?v=soWx_tuJm_g) <- A particularly creative approach

# Outreach events



- Pint of science / Taste of science
- University run outreach events or “discovery” days
- These events can be quite varied and creative
- Often aimed at people with an interest in science but not experts
- Most often in person talks with some questions afterwards

# Exercise

Prepare a pint of science talk (5-10 mins) that should be aimed at the general public. Did you convey your message in an easy to understand manner?

# Specific points for communicating a preprint

- Always communicate that the work has not been peer-reviewed
- Link to the full text - preprints are always free to access - and encourage others to read the full article
- Utilise hashtags associated with preprints (#preprint), such as the server (#biorxiv)
- Ensure you include any necessary caveats to the data, such as limitations to the experiments
- If you're an expert offer critical, but fair and respectful, feedback to the authors
- Don't share if the findings are dubious or if the authors have serious conflicts of interest

# Miscommunication and challenging incorrect beliefs/conspiracy theories

- First try to understand the root of the conspiracy theory
- Focus your counter-argument on the root of the person's belief, not the specific details
- Remain calm and do not get personal. Make sure to always be respectful
- Sometimes it is simply better to not engage, particularly if the person is trolling or looking for an argument
- Use questions to help the other person probe their own beliefs
- Always use reliable sources, don't over-state your position or expertise



# Conclusion

- Choose the most appropriate platform for sharing
- When you post a preprint / paper create a twitter thread of the key points and behind-the-scenes extras
- Ensure you share responsibly
- Tag any experts or people/groups who might be interested
- If you're comfortable then, respectfully, tackle misinformation