BEST PRACTICES IN PRESENTING RESEARCH IN DIFFERENT VENUES AND FORMATS

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WAYS SCIENCE IS PRESENTED

1. Thesis or dissertation
2. Journal articles
3. Books and book chapters
4. Technical manuals/users guides
5. Research or grant proposals
6. Slide/ Poster presentation at regional, nationa, international meetings
7. Lectures in classrooms, conferences, grand rounds etc..

WHY PUBLISH OR PRESENT YOUR RESEARCH?

- Publishing is a necessary step in the scientific research process.
- It is the way scientists communicate
- It may be necessary for graduation in certain programs.
- Promotion in academic medicine relies heavily on publications: how many, where, and what–all matter

TYPES OF ARTICLES TO CONSIDER?

- **Full articles / Original Research**: Substantial and significant results of completed pieces of research.

- **Letters / Rapid Communications/ Short communications**: Much shorter than full articles. Usually used for quick and early communication of significant and original advances.

- **Review papers**: summarize recent developments on a specific topic. Systematic reviews and Metanalyses can be published as original research.

- **Case series and case reports:** generally related to a rare syndrome or rare presentation but not always. For example, a case series can be about a new use of medication in a group of patients with a common disease

- **Consensus, guidelines, and position statements:** disease specific (eg JNC-8) or organizational specific (Diabetes and Hypertension: A Position Statement by the American Diabetes Association)

A SUCCESSFUL PUBLICATION STARTS AT THE RESEARCH INCEPTION

- **The Idea**: Having a clear research question
- **The methods**: appropriate design, early statistical advice early, and preconceived paper structure (Psuedo-tables at this stage is very helpful)
- **Research implementation**: data collection (training, QC, error surveillance), summary reports, interim review of study implementation
- **Documentation**: training, data collection SOP, Data QC and review, database versions
- **Results**: having a data analysis Plan (who, what how and when), what the news headlines will be of this paper…

NOW THAT MY DATA IS COLLECTED AND ANALYZED….

…Think about WHY would a journal decide to publish this study?

- Is it **new and interesting**?
- Is it a current **hot topic**?
- Has it **provided solutions** to an unresolved problem?
- If it is not providing a new solution or is similar to prior publications, what does it add, extend, negate?
- Will it attract a reader or a scientist?

COMMON PROBLEMS LEADING TO REJECTIONS

Top 20 Reasons (Negative Comments) Written by the Reviewers Recommending Rejection of 123 Medical Education Manuscripts*

Reason	No.	%	Cumulative %
Statistics: inappropriate, incomplete, or insufficiently described, etc.	118	11.2	11.2
Overinterpretation of the results	92	8.7	19.9
Inappropriate, suboptimal, insufficiently described instrument	77	7.3	27.2
Sample too small or biased	59	5.6	32.8
Text difficult to follow, to understand	41	3.9	36.7
Insufficient or incomplete problem statement	41	3.9	40.6
Inaccurate or inconsistent data reported	36	3.4	44.0
Inadequate, incomplete, inaccurate, or outdated review of the literature	33	3.1	47.1
Insufficient data presented	28	2.7	49.8
Defective tables or figures	26	2.5	52.3
Scores insufficiently reliable or unknown reliability	22	2.1	54.4
Unimportant or irrelevant topic	22	2.1	55.5
Intervention (independent variable) insufficiently described or confusing	21	2.0	58.5
Subjects insufficiently described	20	1.9	60.4
Lack of conceptual or theoretical framework	19	1.8	62.2
Underinterpretation of results; ignoring results	18	1.7	63.9
Potential confounding variables not addressed	18	1.6	65.5
Incomplete, insufficient information in abstract	17	1.6	67.1
Title not representative of the study	17	1.6	68.7
Sampling method inappropriate or insufficiently described	15	1.4	70.1
TOTAL	740/1,053		

*A total of 123 of 151 manuscripts reviewed for publication in the 1997 and 1998 Research in Medical Education conference proceedings received at least one recommendation for rejection ("questionable, probably exclude" or "definitely exclude").

Acad Med. 2001 Sep;76(9):889-96.

STEP-1: IDENTIFY THE RIGHT AUDIENCE FOR YOUR PAPER

- General audience: JAMA, NEJM, LANCET etc
- Specialty audience: JAMA-internal medicine
- Sub-specialty: Journal of American College of Cardiology (JACC)
- Sub-sub-specialty: Journal of Atrial fibrillation (JAFIB)

TOOLS TO HELP WITH JOURNAL SELECTION

- Tools to help:
  - https://journalsuggester.springer.com/
  - https://journalfinder.elsevier.com/
- Look at **your references**
- Review recent publications in a candidate journal.
- Key criteria:
  - Is the journal **peer-reviewed**?
  - Who is this journal's **audience**?
  - What is the **average time to print**?
  - What is the journal's **publication metrics**?
- DO NOT submit to multiple journals but expect to submit 2-3 times.

WHAT IS THE IMPACT FACTOR (IF)?

- Impact Factor: the average annual number of citations per article published over 2 years:

A= total cites in 1992

B= 1992 cites to articles published in 1990-91 (this is a subset of A)

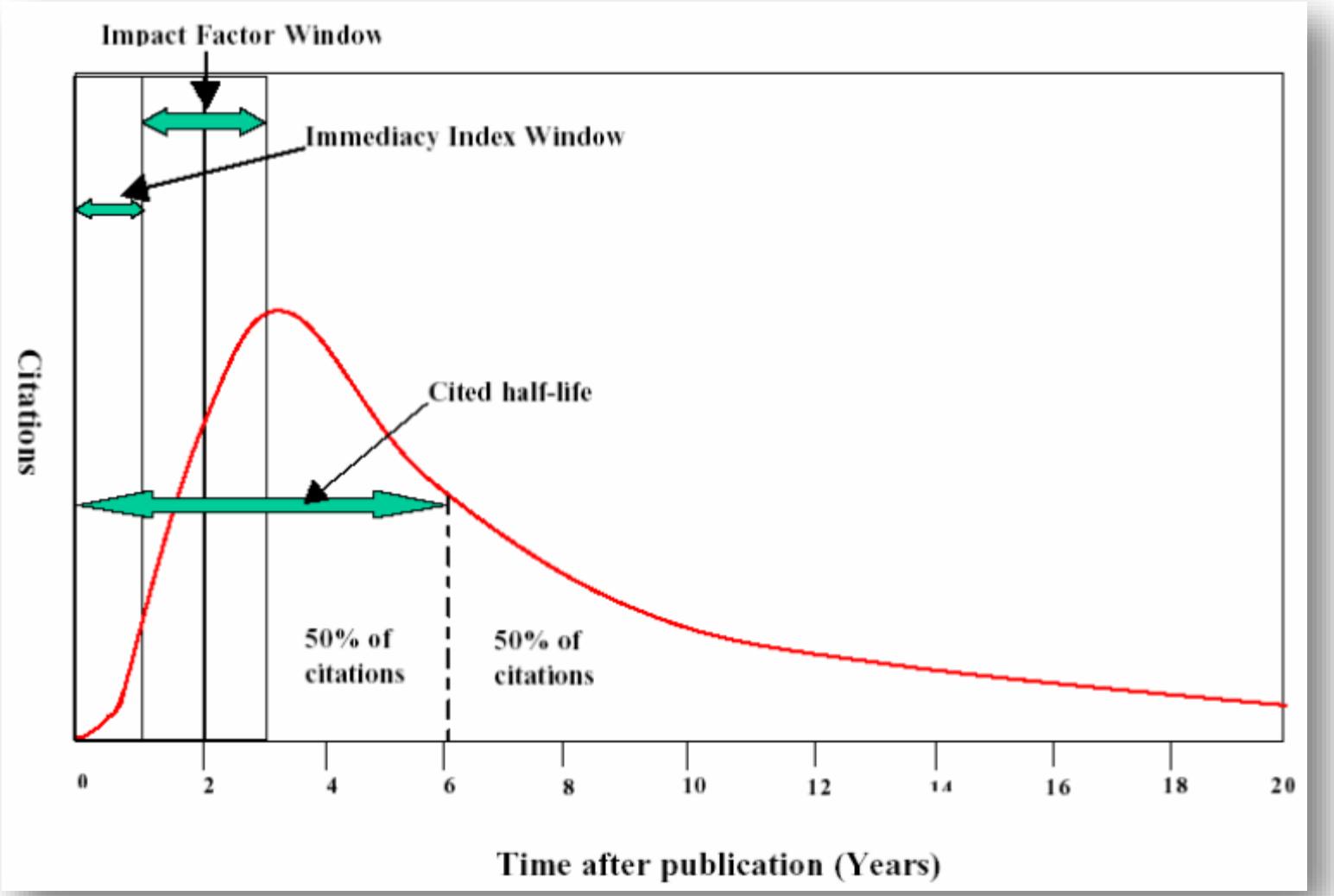
C= number of articles published in 1990-91

D= B/C = 1992 impact factor

- Provided by Clarivate Analytics (formerly ISI Thomson Reuters): http://mjl.clarivate.com

- Limitations:
  - Review articles
  - Self citation
  - Specialty vs general medical audiences

BIBLIOMETRIC PARAMETERS



OTHER PUBLICATION METRICS:

- **The Eigenfactor** measures the journal's overall importance by counting the total number of citations a journal receives over a five-year period.
- **Citescore**: average citation per document that a journal receives over a two-, three- and four-year period, with the additional analysis of Source Normalized Impact per Paper (SNIP) that measures the impact of a paper within a subject field.
- **Author-level metric (H index)**: the total citations generated from an individual author's publications based upon the most-cited articles.
- **Article-level metrics (relative citation ratio):**Total citations an article receives per year, divided by the average citations per year received by NIH-funded articles in the same field contemporaneously (benchmark of 1)

WHERE TO START WRITING?

- Write Backwards!
  - Abstract and title (draft)
  - Figures and tables
  - Methods, Results and Discussion
  - Conclusions and Introduction
  - Abstract and title (final)

WHAT'S IN A TITLE?

- This is your opportunity to attract the reader's attention.
  - Remember: readers are the potential authors who will cite your article
- Keep it informative and concise.
  - It should reflect the content of the manuscript.
- How to select your title:
  - Declarative (*Restaurant clients prefer hash brown over fries)*,
  - Descriptive (*A survey of restaurant clients' preferences of hash brown vs fries*) , or
  - Interrogative (*Do restaurant clients prefer Hash brown or fries?*).

THE ABSTRACT: THE MOVIE TRAILER

- Should stand alone!
  - describe, not defend, the paper.
  - brief statement of the problem
  - description of the research method and design,
  - the major findings, and the conclusions reached.

- It showcases your work
  - Avoid using jargon and uncommon abbreviations.
  - Movie trailers include the best scene of the movie

- Red flag for reviewers: data in the abstract is different than the body

THE INTRODUCTION: WHY SHOULD WE CARE?

- Your chance to convince readers of the importance of your work.

- Introduce the main issues so that by end of paragraph 2 the reader thinks: "This is the most important question in this area?"

- It is not a review of the literature or history lesson so be focused and problem oriented.

THE METHODS SECTION: COMMON REASON FOR REJECTION

- Details, details, details - a knowledgeable reader should be able to *reproduce* the experiment.
- Enhancing the QUAlity and Transparency Of health Research (EQUATOR: http://www.equator-network.org/)
  - Animal Research: Reporting of In Vivo Experiments **(ARRIVE):** https://www.nc3rs.org.uk/arrive-guidelines
  - Consolidated Standards of Reporting Trials (**CONSORT**):http://www.consort-statement.org/
  - STrengthening the Reporting of OBservational studies in Epidemiology (**STROBE**): https://www.strobe-statement.org
  - Preferred Reporting Items for Systematic Reviews and Meta-Analyses (**PRISMA**): http://www.prisma-statement.org/
- You can use references and Supplementary Materials for technical procedures.

RESULTS AND GRAPHICS!

- Only relevant findings for the narrative results to be included.
- Use tables and figures for results
- Graphics and Tables:
  - Use color ONLY when necessary. If different line styles can clarify the meaning, never use colors or other thrilling effects. (also too expensive!)
  - Color needs to be visible and distinguishable when printed out in black & white.
  - Do NOT scale axes to 'selectively adjust' any image to enhance visualization of results.

EXAMPLE OF RESULTS

3. Results

3.1. Factors affecting entrapment efficiency of flurbiprofen in niosomal formulations

3.1.1. Effect of surfactant structure

To investigate the influence of surfactant structure on flurbiprofen entrapment efficiency, niosomal formulations of different spans were prepared from proniosomes with the same total lipid concentration (100 μmol/ml). Results listed in Table 3 show that Sp 60 has significant higher entrapment efficiency than other span types ($P < 0.05$). This could be due to the surfactant chemical structure. All span types have the same head group and different alkyl chain. Increasing the alkyl chain length is leading to higher entrapment efficiency (Hao et al., 2002). The entrapment efficiency followed the

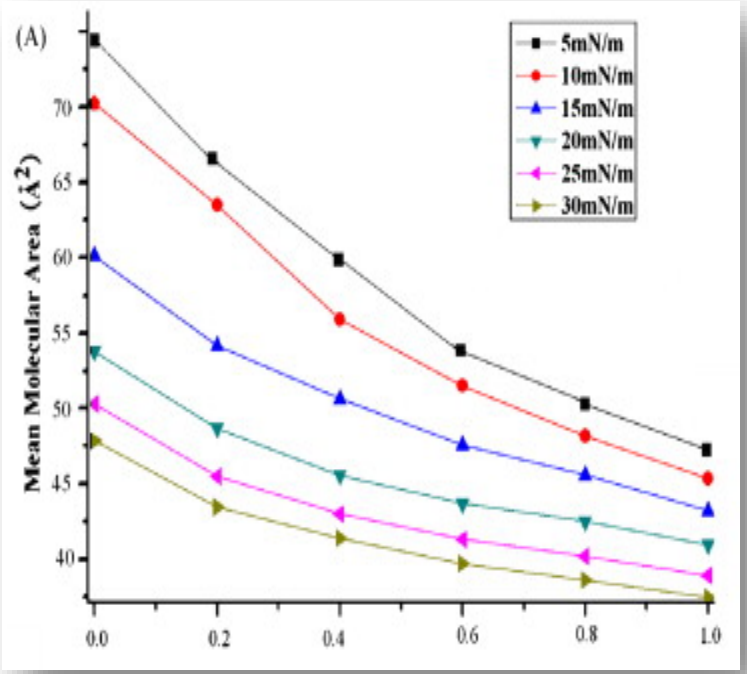
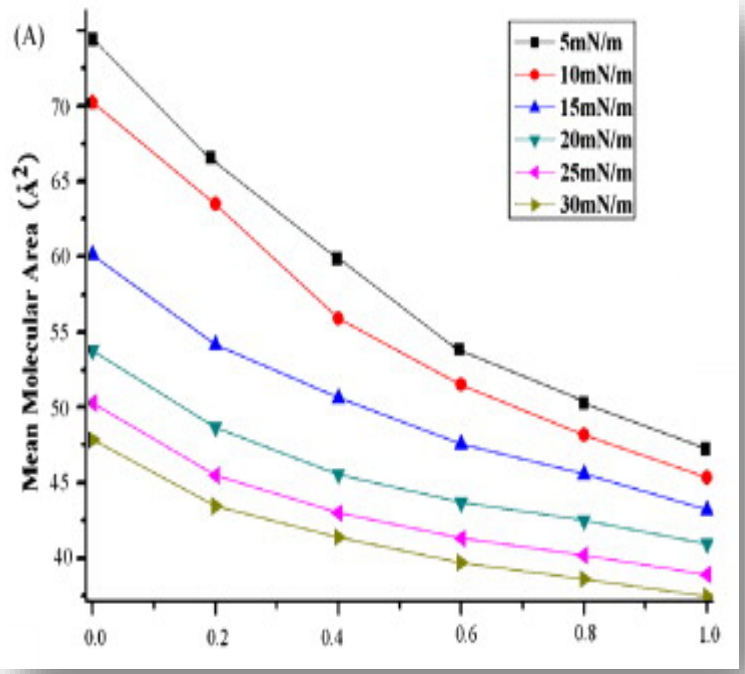


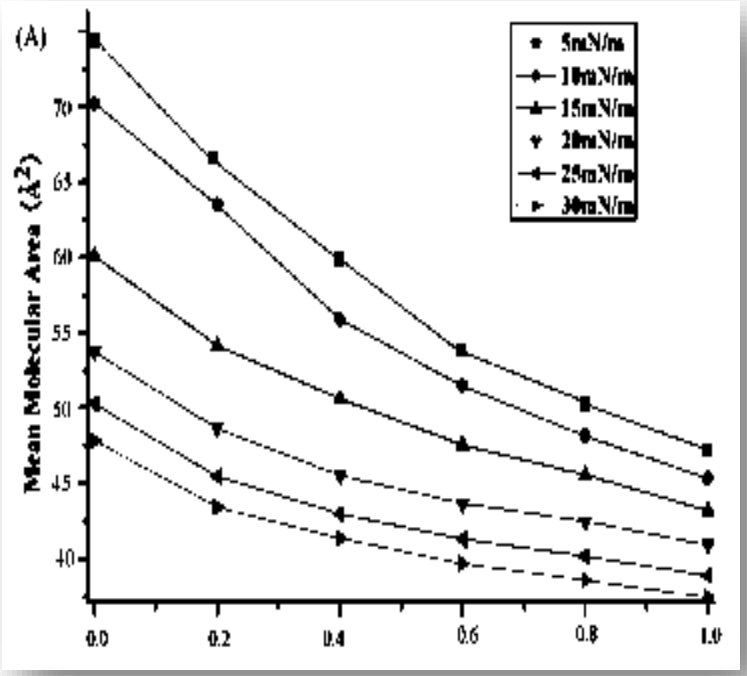
Table 1.

Performance of our approach compared with Kruithof's approach

PDB code	No. of atoms	Kruithof's approach			MetaMol		
		Nb of triangles	Computing time (s)	FPS (1024 × 1024)	Nb of triangles	Computing time (s)	FPS (1024 × 1024)
7tmn	33	23,424	1.1	800	7,116	0.02	200
1grm (*Gramicidin A*)	272	310,488	16.1	130	73,416	1.7	50
1g6x	509	481,856	28.7	95	146,476	3.6	25
1cbs	1091	1,664,184	93.1	30	325,076	8.2	12
1j4n	1852	2,165,268	137.4	25	558,372	15.4	7

GRAPHICS: COLOR VS B AND W





DISCUSSION – TALK TO YOUR AUDIENCE

- Discussion should correspond to the Results.
  - Do not introduce new results
  - Do not oversell this is not a car sale!
- Make your case and compare to published results
  - Do NOT ignore work in disagreement with yours – confront it
  - The reviewers are looking at it anyway
- Keep sections separate to ensure the manuscript flows logically from one section to the next
  - A mixed bag of results, discussion, and conclusion
- Novelty claims
  - Judging the work as being "novel", "first time", "first ever", "paradigm-changing" (use these sparingly!)
  - Is this really the first?

PEER REVIEW PROCESS

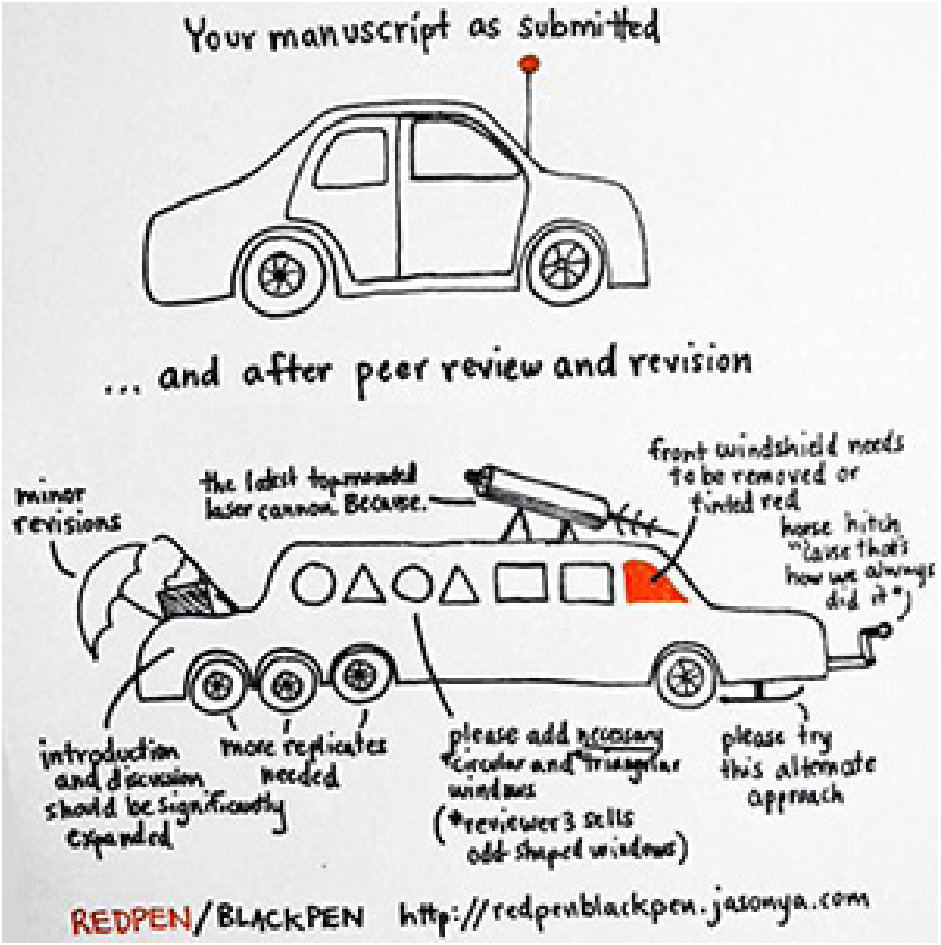
REVISION AFTER SUBMISSION

DO NOT resubmit elsewhere without revision!

- resubmitting a rejected manuscript directly to another journal may not save you time.. But don't dwell too much on the reviews
- The original reviewers might be your reviewers in the second journal.
- Never take it personally– but if you do have a "post-rejection routine".

REVISION AFTER SUBMISSION

Carefully study the comments and prepare a detailed letter of response.



REVISION AFTER SUBMISSION

- Prepare a detailed letter of response. NEVER ARGUE (the reviewer is always right– *well most of the times*)
- Provide a scientific response to the comment you accept; or a convincing, solid and polite rebuttal to the point you think the reviewer is wrong.
- Cut and paste each comment by the reviewer. Answer it directly below. Do not miss any point.
- State specifically what changes (if any) you have made to the manuscript. Give page and line number.

CAUTIONARY ISSUES: PREDATORY OR PSEUDO-JOURNALS

- Accept and publish almost all submissions and charge article processing (or publication) fees, often informing authors about this after a paper's acceptance for publication.
- They may state that they are members of ICMJE but are not (see www.icmje.org for current members of the ICMJE)
- Authors have a responsibility to evaluate the integrity, history, practices and reputation of the journals to which they submit manuscripts.
- Guidance: http://wame.org/identifying-predatory-or-pseudo-journals

ORAL COMMUNICATION METHODS

- Average not more than 1 slide per minute
- No more than 3-5 Points per slide
- Consistent slide appearance (font, colors)
- Avoid busy templates, animation, and sounds
- Dark letters against a light background work best in smaller venues. Reverse in bigger venues

RECOMMENDED GUIDES FOR POSTER AND SLIDE SCIENTIFIC PRESENTATIONS

- Society for Neuroscience: https://neuronline.sfn.org/Articles/Career-Advice/2018/Career-Skills-Toolkit-Designing-Effective-Science-Presentations

- Do's and Don'ts of Poster Presentation: *Biophysical Journal Volume 71 December 1996 3527-3529*

- *Scientific Poster Design How to keep your poster from resembling an abstract painting. Cornell University:* https://www.engineering.cornell.edu/…/departments/…/Scientific%20Posters%2008-20…

SUMMARY

- Prepare for publication early on in your research activities
- Follow guidelines appropriate for study design in manuscript presentations (CONSORT, PRISMA, and STROBE)
- Familiarize yourself with key issues about poster and slide scientific presentations from accompanied guides.

THANK YOU