Early Career Sessions:
10 Ways to Improve Your Scientific Writing

Robert Harrington, MD, FAHA

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Stanford, CA

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American Heart Association®

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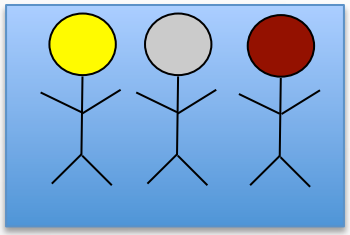
science is why

Improving Scientific Writing

1. Understand the purpose and the intended audience
2. Think, ponder, talk about, reflect on your data and what you want to convey
3. Take copious notes and outline/organize your thoughts
4. Block quiet time
5. Choose method that works for you
6. Get it on paper
7. Review, re-write, review, re-write….Work with co-authors
8. Get a trusted editor/reviewer
9. Read
10. Write, write, write, write some more

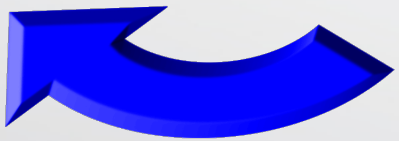
Why write ?



Help Patients

Contribute to scientific knowledge

Currency of academe



Ms is your voice

-Courtesy, Elliott Antman

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JACC Vol. 23, No. 4
March 15, 1994:891–8

Clinical Importance of Thrombocytopenia Occurring in the Hospital Phase After Administration of Thrombolytic Therapy for Acute Myocardial Infarction

ROBERT A. HARRINGTON, MD, DAVID C. SANE, MD, ROBERT M. CALIFF, MD, FACC, KRISTINA N. SIGMON, MA, CHARLES W. ABBOTTSMITH, MD, FACC,* RICHARD J. CANDELA, MD, FACC,† KERRY L. LEE, PHD, ERIC J. TOPOL, MD, FACC,‡ FOR THE THROMBOLYSIS AND ANGIOPLASTY IN MYOCARDIAL INFARCTION STUDY GROUP

Durham, North Carolina and Cincinnati, Columbus and Cleveland, Ohio

Immediate and Reversible Platelet Inhibition After Intravenous Administration of a Peptide Glycoprotein IIb/IIIa Inhibitor During Percutaneous Coronary Intervention

Robert A. Harrington, MD, Neal S. Kleiman, MD, Kandice Kottke-Marchant, MD, PhD, A. Michael Lincoff, MD, James E. Tcheng, MD, Kristina N. Sigmon, MS, Diane Joseph, BS, Gaddiel Rios, BS, Kathleen Trainor, RN, Dale Rose, BA, Charles S. Greenberg, MD, Michael M. Kitt, MD, Eric J. Topol, MD, and Robert M. Califf, MD

Careers in Cardiovascular Research

Careers for Clinician Investigators

Robert A. Harrington, MD; Robert M. Califf, MD; Patricia K. Hodgson, BA;
Eric D. Peterson, MD, MPH; Matthew T. Roe, MD, MHS; Daniel B. Mark, MD, MPH

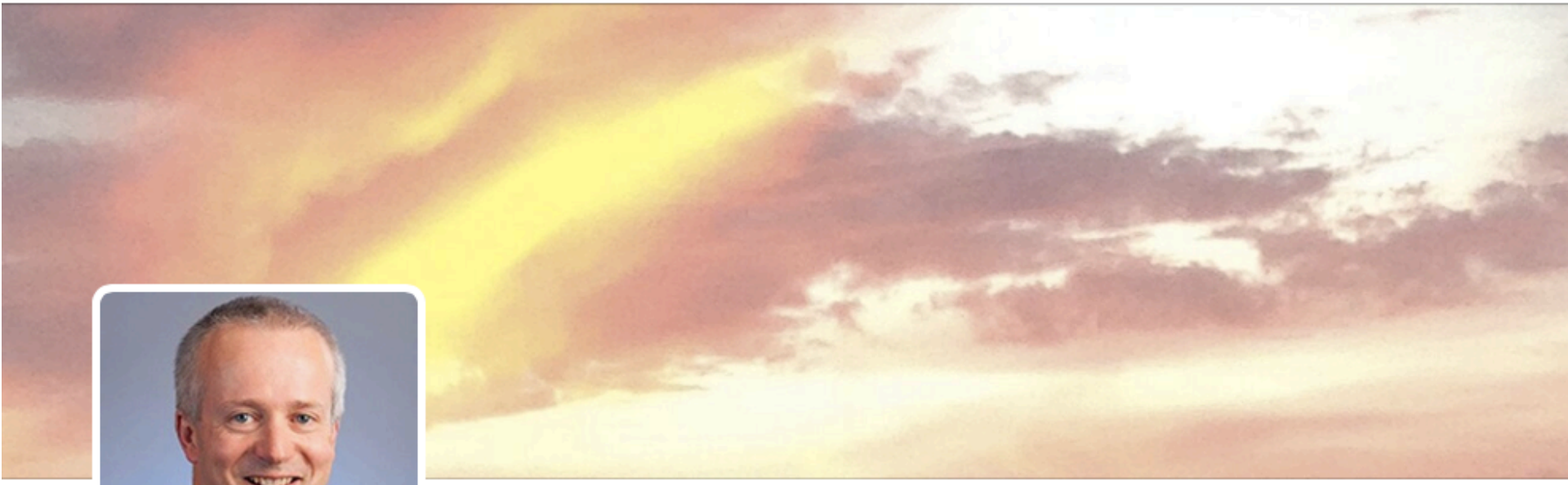
COMMENTARY

REGULATION

Biomedical Innovation: A Risky Business at Risk

Richard S. Stack[1,2*] and Robert A. Harrington[3]

Home Notifications Messages Discover Search Twitter



TWEETS 832 | FOLLOWING 479 | FOLLOWERS 2,296

Edit profile

Robert Harrington

@HeartBobH

Stanford University cardiologist and clinical researcher. Interested in health related research, policy and innovative learning tools.

Stanford, CA

medicine.stanford.edu

Tweets | Tweets & replies | Photos & videos

Robert Harrington retweeted

Stanford Dept Med @StanfordDeptMed · 3h

Tomorrow's Medicine Grand Rounds: Bernard Gersh of the @MayoClinic on "The epidemic of CVD in the developing world" stanford.io/1whJPv2

1

Robert Harrington retweeted

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A few suggestions

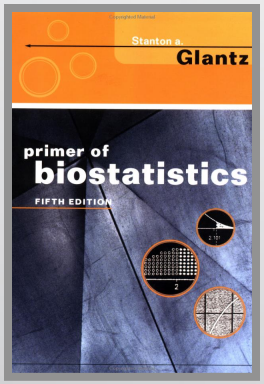
- Read, pay attention, and imitate.
- Let go of “academic” writing habits.
- Talk about your research before trying to write about it.
- Develop a thesaurus habit: search for the right word rather than settling for any old word.
- Respect your audience—try not to bore them.

-Courtesy, Penny Hodgson

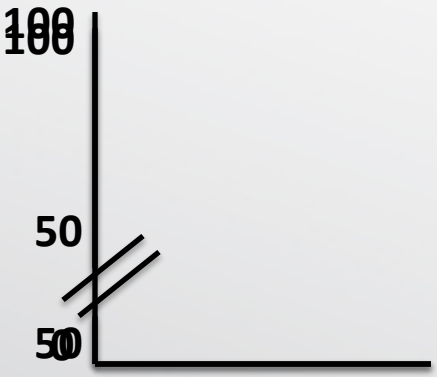
The Manuscript: “Numbers”

Essential Data Only

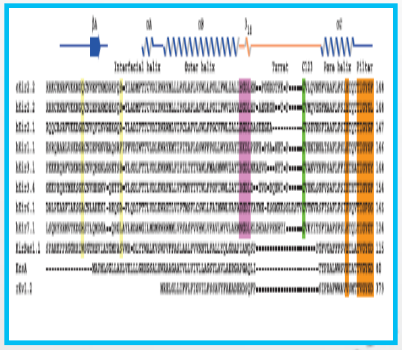
Correct Analysis



Fair, Clear Presentation



Readable



-Courtesy, Elliott Antman

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First, how?

- **Multiple choices of method:**
  - **Old faithful yellow legal pad & #2 pencil**
    - **Pros: no need for hard/software, portable, omnipresent, readily corrected, easily deleted**
    - **Cons: slow, temporary, un-hip**
  - **Computer**
    - **Pros: one-step, quick**
    - **Cons: limited by user ability, have to face The Blank Screen**

-Courtesy, Penny Hodgson

- **More choices**
  - **Recorded conversation with colleague/ coauthor**
    - **Pros: simple conversation, consider broader factors than you would alone**
    - **Cons: have to transcribe/edit, usually affects just Results and Discussion**
  - **Dictation into phone or other device**
    - **Pros: works well for a few but not everyone, device handy**
    - **Cons: transcription required, no ability to re-look**

-Courtesy, Penny Hodgson

Second, when?

- Set aside 2-3 hours
  - No interruptions
  - No corrections
  - No self editing
- Write straight through
- Stop when the time ends
  - Modify as time permits
- Set aside another 2-3 hours and repeat

-Courtesy, Penny Hodgson

Third, what?

- **DATA (= Results)**
  - **Without data, no paper**
  - **Data in any format becomes the starting point: Results**
    - **Tables, figures, text *that do not repeat one another***
  - **Winnow Results to the essential**
    - **Text enhances without repeating**
  - **Results sets up Discussion**

-Courtesy, Penny Hodgson

Third, what?

- **Building on Results in Discussion**
  - **What do your Results *mean*?**
    - **"The most important finding of our study is…"**
      - **Stick to the facts**
      - **How they differ from or confirm those of others**
    - **What Limitations should the reader know about?**
      - **Better for you to point them out than the reviewers**
    - **Conclusions: the effect of your study on medical practice or on a scientific field/area**
      - **Need for further study to confirm or extend findings**
      - **Your opportunity to hypothesize**

-Courtesy, Penny Hodgson

- **The other parts**
  - **Methods**
    - **Select those that are appropriate for your Results and Discussion**
      - **e.g., in a sub-study, full presentation of the protocol is unnecessary**
    - **Have your collaborating statistician write the statistical section**

-Courtesy, Penny Hodgson

- **Introduction**
  - **3 paragraphs**
    - **#1: general description of the broad topic you have studied**
    - **#2: specific description of an aspect of that topic that you took on**
    - **#3: what you aimed to do in your study**
  - **The 3 paragraphs depend on the journal you have chosen**
    - **Differs for NEJM/JAMA vs more narrow specialty journal**

-Courtesy, Penny Hodgson

- **Abstract**
  - **Comes last when manuscript written**

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A few more suggestions

- Stop waiting for inspiration.
- Accept that writing is hard for everyone.
- Revise. Nobody gets it perfect on the first try.
- Learn how to cut ruthlessly. Never become too attached to your words.

-Courtesy, Penny Hodgson

10 Errors Physicians Commonly Make When They Write

- They write in the passive voice.
- They over-use adverbs.
- They choose boring verbs.
- They use good verbs as bad nouns.
- They use unneeded words.
- They use which instead of that.
- They start sentences with It…that.
- They use compare to/with incorrectly.
- They don't put like things together.
- They fail to make every word tell.

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English Major as Physician/ Communicator

"Your best cholesterol lacks all conviction, and your worst is full of passionate intensity."