Tips for improving your medical writing
“Say all you have to say in the fewest possible words, or your reader will be sure to skip them; and in the plainest possible words or he will certainly misunderstand them”

John Ruskin (1819–1900)
Art critic, author, and poet
Tips for improving your medical writing

Be precise
Be concise
Be accurate and clear
Be correct
Be organised
Write for your target audience
Be precise
“When I use a word....it means just what I choose it to mean – neither more nor less.”

Humpty Dumpty in Through the Looking Glass, by Lewis Carroll
In scientific and medical writing precision is the most important goal of language

- choosing the right words
- choosing the correct level of detail
**What’s in a word?**

**affect** *verb* meaning to influence  
**principal** *noun or adjective* meaning most important  
**dose** quantity administered at one time  
**examine:** patients, animals and slides are examined  
**effect** *noun* means result  
**principle** *noun* meaning a law  
**dosage** regulated administration of doses  
**evaluate:** conditions and diseases are evaluated
Hair Today, Gone Tomorrow: The Abandonment of Body Hair by American Women

Although the removal of the practice of body hair removal is a relatively recent trend in Western culture, this practice has deep roots in history. Rudimentary cave drawings depict hairless men hunting in the wild. Egyptian, Greek, and Roman men were known to shave their legs and hands to avoid getting their enemy a handhold grip in battle. Alexander the Great ordered all of his men to shave their beards for this specific reason. Greek and Roman sculptures commonly depict hairless men and women, as the ideal was associated with class and civility.¹

With the collapse of the Roman Empire, the practice of removing body hair did not become commonplace until the 1870s. In 1877, the American Dermatological Association was established. Afterward, this organization created the study of hypertrichosis, a problem that primarily affects women. Men's hair was viewed as affective or required treatment.

This notion was further compounded by the July 1915 issue of Harper's Bazaar, which depicted a model without underarm hair. This subculture coincided with Gillespie's introduction of the first woman's razor.² The trend of hair removal continued to gain popularity, and by 1922, Sears catalog regularly started printing underarm hair-removal advertisements. Sociologist Christine Rope noted that concern for excessive hair increased tremendously between 1915 and 1945, as magazines became widely disseminated, and models portrayed an ideal of hairless feminine beauty. Changing fashion trends and the advent of the industrial revolution also popularized sleeveless and sheer evening gowns, as well as dresses with rising hemlines. Advertisements directly targeted this trend, with hair-removal advertisements stating, “Fashion Says—Evening gowns must be sleeveless or made with the merest suggestion of gauzy sleeves of tulle or lace...”³ Advertising areas once confined to the intimacies of the bedroom—were now prominently displayed in the public's eye.

Since the 1960s, approximately 80% to 90% of women have been removing some type of hair from their bodies.⁴ A century ago, hair removal was focused on the face and legs. Lately, women have joined the trend and have begun shaving their arms and other hair-bearing areas, colloquially known as “man-scaping.” Still, some celebrities such as Britney Spears, Julia Roberts, and Amanda Palmer proudly display their body hair, and a Lee Friedlander photographic print of an unshaven Madonna that appeared in Playboy in 1985 recently sold for $750.² Clearly, our body hair management practices have changed over short periods of time, and perhaps almost 100 years after the first advertisement appeared in Harper's Bazaar, a reversal of trends might be eminent.

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Eminent or imminent?.....perhaps almost 100 years after the first advertisements appeared in Harpers Bazzar, a reversal of trends might be eminent
Although we gave penicillin and terramycin, the drugs had little _____.
The _____ of the treatment was minimal.

In double-blind experiments, researcher bias does not _____ experimental results.

Digestion has the _______ of converting the substrate to short-chained peptides.

effect

effect

affect

effect

Adapted from Successful Scientific Writing by JR Matthews and RW Matthews ISBN 978-0-521-69927-3
Compared with or compared to?

- *Compared with* when looking for differences between things
  
  80% of patients in the Wonderdrug group reported no loss of activity *compared with* 50% of patients in the placebo group.

- *Compared to* when saying something is like something else

  “Shall I *compare* thee *to* a summer’s day?”
<table>
<thead>
<tr>
<th>Singular Form</th>
<th>Plural Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>phenomenon</td>
<td>phenomena</td>
</tr>
<tr>
<td>stratum</td>
<td>strata</td>
</tr>
<tr>
<td>criterion</td>
<td>criteria</td>
</tr>
</tbody>
</table>

**Singular or plural?**
precision is influenced by the level of detail

need to choose an appropriate level of detail
Choosing the appropriate level of detail

Achieve a balance between

- general statements
  - establish a direction of thought
    - extent of undiagnosed clinically significant COPD in England, and the characteristics of this population have been investigated...

- specific detail
  - gives evidence to support the direction
    - identified 20,496 participants aged ≥30 years with valid lung function measurements. Of these, 971 (4.7%) were defined as having clinically significant COPD, 840 (86.5%) of whom had no previous diagnosis. Undiagnosed cases were more likely to be female, and smoke less. Overall, 25.3% of undiagnosed cases had severe disease (FEV₁ <50% predicted), 38.5% had Medical Research Council grade 3 dyspnoea and 44.1% were current smokers....
Be concise accurate and clear
DOGBERT, THE VP OF MARKETING

DESCRIBE YOUR PRODUCT IN TECHNICAL TERMS AND I'LL TURN IT INTO MARKETING LANGUAGE.

WELL, IT TENDS TO OVER-HEAT. "HOTTEST PRODUCT ON THE MARKET!"

ALL THE PARTS ARE KNOWN CARCINOGENS. "MAKES YOU APPRECIATE LIFE!"
Avoid things you don’t mean!

Avoid more complexity than you need!
“Don't use words too big for the subject. Don't say "infinitely" when you mean "very"; otherwise you'll have no word left when you want to talk about something really infinite”

CS Lewis (1898 –1963)
Excess wordiness

- It would appear that...
- In light of the fact that...
- It is this that...
- It is often the case that...

Becomes

- Apparently..
- Because..
- This..
- Often..
Remember:

A medical writer is communicating complex ideas to different audiences.....

.....the language is not there to impress and confuse the reader
I used to hate writing assignments, but now I enjoy them.

I realized that the purpose of writing is to inflate weak ideas, obscure poor reasoning, and inhibit clarity.

With a little practice, writing can be an intimidating and impenetrable fog! Want to see my book report?

"The dynamics of interbeing and monological imperatives in Dick and Jane: A study in psychic transrelational gender modes."

Academia, here I come!
Be correct
TINA THE TECH WRITER

As you requested, I increased the speed of my writing.

MY BREAKTHROUGH was realizing that accuracy and clarity are optional!

WOULD YOU LIKE TO MICROMANAGE ME BY READING IT ALL AND POINTING OUT THE ERRORS?
Be accurate and remember:

“A lie gets halfway around the world before the truth has a chance to get its pants on”

Winston Churchill
“Be careful about reading health books. You may die of a misprint”

Figure 5. Lung function, exacerbations, and quality-of-life outcomes in patients with earlier disease (GOLD stage II) in UPLIFT* and TORCH† trials.

### A. Lung function

<table>
<thead>
<tr>
<th>Group</th>
<th>GOLD II (December 2009)</th>
<th>GOLD I (January 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLIFT (4 years)</td>
<td></td>
<td>20.0%</td>
</tr>
<tr>
<td>TORCH (2 years)</td>
<td></td>
<td>18.0%</td>
</tr>
</tbody>
</table>

* p<0.05 vs control
† Active treatments vs placebo not analysed statistically

Control group in the UPLIFT* study was permitted use of IC or LABA alone or in combination; patients in the TORCH study were not permitted background respiratory medication.

GOLD: Global Initiative for Chronic Obstructive Lung Disease; FEV1: forced expiratory volume in 1 s; tio: tiotropium; sal: salmeterol; flut: fluticasone; comb: combination.

### B. Exacerbations

Mean number of exacerbations were 0.56 per year and 0.57 per year in the UPLIFT* and TORCH studies, respectively.

* p<0.0001 vs control
† Statistical significance of comparisons between active treatments and placebo not reported.

GOLD: Global Initiative for Chronic Obstructive Lung Disease; tio: tiotropium; comb: combination.

### C. Quality of life (SGRQ total score)

Mean number of exacerbations were 0.56 per year and 0.57 per year in the UPLIFT* and TORCH studies, respectively.

* p<0.0001 vs control
† Statistical significance of comparisons between active treatments and placebo not reported.

GOLD: Global Initiative for Chronic Obstructive Lung Disease; tio: tiotropium; comb: combination.
In another paper referenced as:

Be careful of plagiarism

- Plagiarism screening to verify the originality of content submitted before publication
  - **Quotations**: identical to the original, uses only a small part of the original and must be attributed to the original author
  - **Paraphrasing**: involves summarising and putting information from source material into your own words and must be attributed to the original author
  - **Summarising**: involves putting a large amount of information into a few summary points, and must be attributed to the original author

[http://owl.english.purdue.edu/owl/resource/563/1/](http://owl.english.purdue.edu/owl/resource/563/1/)
“Delay is preferable to error”

Thomas Jefferson
Punctuation and grammar are important
Use punctuation correctly

A woman, without her man, is nothing
Use punctuation correctly

A woman: without her, man is nothing
Every Lady in this land
Hath 20 Nails on each Hand;
Five & Twenty on Hands and Feet;
And this is true, without deceit.

Meaning: every lady in this land has twenty nails. On each hand five; and twenty on hands and feet.
Grammar is also important

http://www.grammarmudge.cityslide.com/
Be organised
“The man who removes a mountain begins by carrying away small stones.”

(William Faulkner, Nobel Literature Prize 1949)
Organise and plan your message

- Capture key points
- Translate into an organised list
- Develop a framework or outline
- Use complete sentences or phrases or words
Capturing ideas

- Mind mapping
- Brainstorming
- Concept maps
- Random list

Lists are rearranged, edited and structured
Develop a framework or outline

- Use headings and sub headings
  - Often use IMRaD structure
- Group related themes together

**Importance of early detection**
- Symptomless and/or cough/sputum
  - Important health messages
- Smoking cessation and physiological changes
- Improved prognosis
- Reduced treatment costs

**Strategies to Improve early detection**
- How to identify those at risk
  - Spirometry is the most reliable detection method for COPD
“By failing to prepare, you are preparing to fail.”

Benjamin Franklin
Write for your target audience
Ask yourself

1. Why am I writing this document?
2. Who am I writing it for?
3. What do I want them to understand?
4. What tone should I use?

The tone you use to write a document changes depending on your intended audience
Types of audiences

- Physicians or experts in the field
- Patients
- Regulatory authorities
- General public
- Internal or external audiences?

Is your audience knowledgeable about the disease or therapy?
Your audience determines

- The words you use
- How much depth you need
- Which results to emphasise
- The types of illustrations you use
- How to structure the information being presented

The tone you adopt
Writing for your audience

- Documents for medical professionals and regulators will contain technical and scientific data and explanations.

- Information for patients and the general public needs to be accurate, clear and free from technical, medical and scientific jargon.
Super milk is effective for managing cow’s milk allergy (CMA) and there is evidence of it promoting oral tolerance. A recent study has illustrated that after 6 months x% of infants with CMA receiving Super milk are tolerant to cow’s milk, which increases to xx% after 12 months of usage.

Oral tolerance to cow’s milk is an acquired state where the infant no longer reacts to cow’s milk proteins.
• A recent study shows that after 6 months x% of infants with CMA receiving Super milk are tolerant to cow’s milk, which increases to xx% after 12 months of Super milk treatment.
• In the study, infants accepted Super milk without problems, and no adverse events were observed.
Journals have target audiences

- **International Dental Journal**
  “...features peer-reviewed, scientific articles relevant to international oral health issues, as well as practical, informative articles aimed at clinicians...”

- **Caries Research**
  “peer-reviewed ...papers on the aetiology, pathogenesis, prevention and clinical control or management of dental caries...Aspects of caries beyond the stage where the pulp ceases to be vital are outside the scope of the journal...”

- **Nutrients**
  “...international, peer-reviewed open access advanced forum for studies related to Human Nutrition..publishes reviews, regular research papers and short communications...”
In Summary.....
“Put it before them briefly so they will read it, clearly so they will appreciate it.....and above all, accurately so they will be guided by its light”

Joseph Pulitzer
(1847 –1911)