How do you critically read medical literature?

Advice from Dean Philip Gruppuso and Ian Buchanan, MD ’11

An overview of scientific literature:

- **The scope of the medical and biomedical science literature:**
  - 3000+ peer reviewed journals being published in English (more than a 40-fold increase since 1945)
  - Innumerable “throw-aways”
  - On-line sources: open access journals; web sites…

- **The peer review process:**
  - Paper is assigned to an editor…
  - Who assigns it to 1 to 3 reviewers (suggested by the authors or not)…
  - Who independently assess the work. They send it back to the editor with comments…
  - And the editor communicates with the author(s) – rejected, accepted (w/ or w/o revisions).
  - The authors address the comments (more experiments?), revise and resubmit the paper – to the same journal or to another journal.

- **Components of a Research Article:**
  - Abstract - Introduction – Methods – Results – Discussion – Tables and Figures
  - The order in which people read research articles:
    - Abstract – (end of) Discussion – Introduction – Results – Tables and Figures – Methods

How to evaluate the literature:

- **Telling good journals from bad:**
  - Peer-reviewed or not (you can always look at the Instructions to Authors)
Impact factor (has its limitations). This information can be found at the ISI Web of Knowledge site through the Brown University library

http://www.isiknowledge.com/?locale=en_US

- example: New Eng J Med = 50.02; Clin Ped = 1.04
- example: Cell = 30.25; J Cell Biochem = 3.59

☐ Telling good articles from bad:
  - Primary literature (written by the people who generated the data) versus review articles, compendiums, etc.
  - Who funded the work??!!

☐ Assessing the Value of the Paper:
  - Evaluate the methods
  - Evaluate the quality of the data and the data analysis
  - Decide if the conclusions fit the data