

Assessing Research Impact: How Good Is Good Enough?



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OBJECTIVE

To compare a recently developed gold standard method for determining the research impact of authors to more automated processes available through Web of Science, Scopus and Google.

METHODS

Librarians developed a comprehensive “gold standard” process for determining an author’s career and 10-year h-index for the Surgery department at Duke Health. The process includes manually checking citations against CVs, determining prior work and education locations, and disambiguating similar names. While the final data gathered is thorough and clean, the process is time consuming and unrealistic on an institutional level. To assess how much was gained by this cumbersome but accurate process, we selected a purposive sample of surgeon-authors from our data set based on various criteria that may predict a difference in the comprehensive “gold standard” h-index versus the automated h-indices from Web of Science and Scopus. Factors examined were length of career, degree (MD or PhD), length of time at current institution, and commonality of last name. H-indices from Web of Science, Scopus, and Google were compared to the “gold standard.”

FINDING H-INDICES

Our gold standard process

1. Request CV from faculty member.
2. Search Web of Science for name and affiliation for all training and career locations.
3. Limit to article, review and proceeding papers (no works in process, editorials, chapters, etc).
4. Send to Endnote.
5. Create a Group in Endnote.
6. Create a search string out of the accession numbers.
7. Run the search of accession numbers in Web of Science.
8. Create a citation report.

Our quick and dirty process

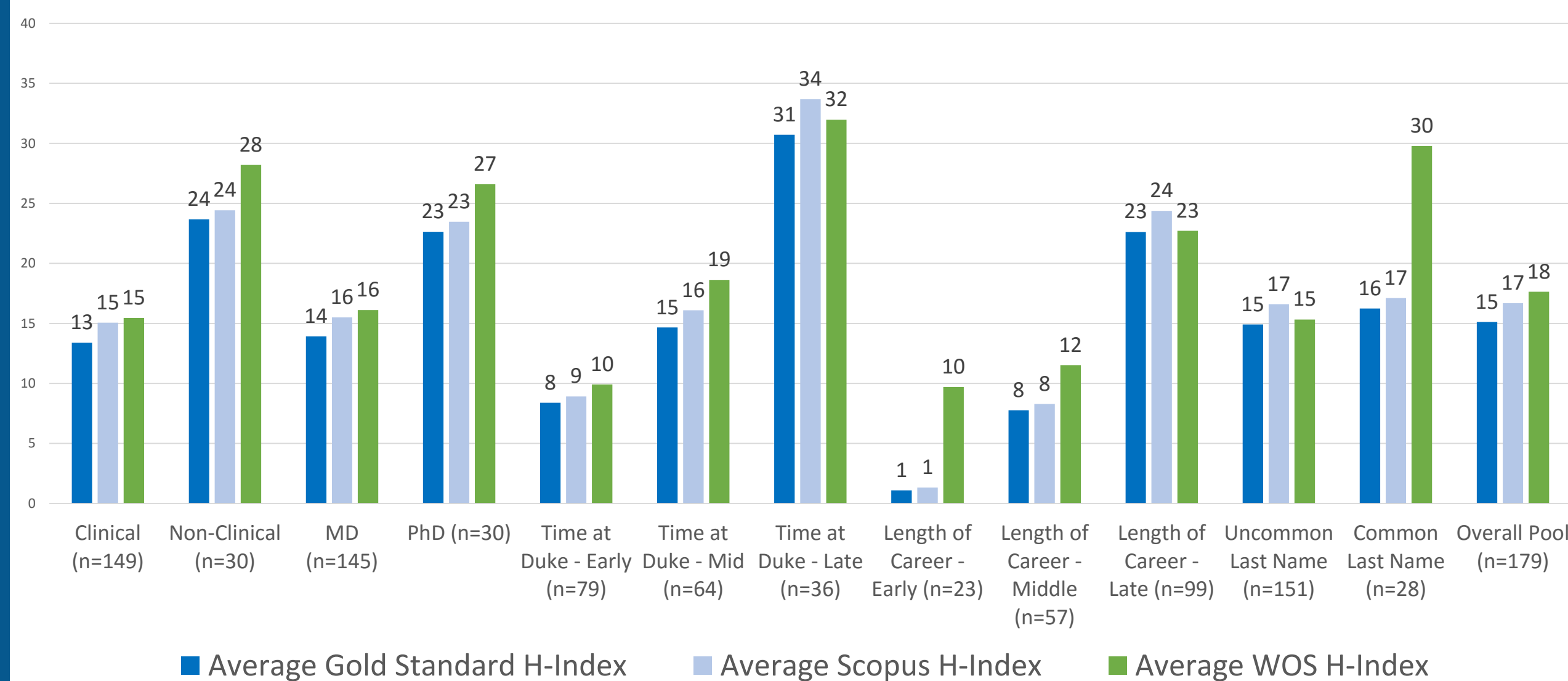
Scopus

1. Conduct author search for last name, first initial and Duke as institution. Select author profile and record h-index.
2. If not found, conduct author search for last name and first initial without institution. Select closest match and record h-index.

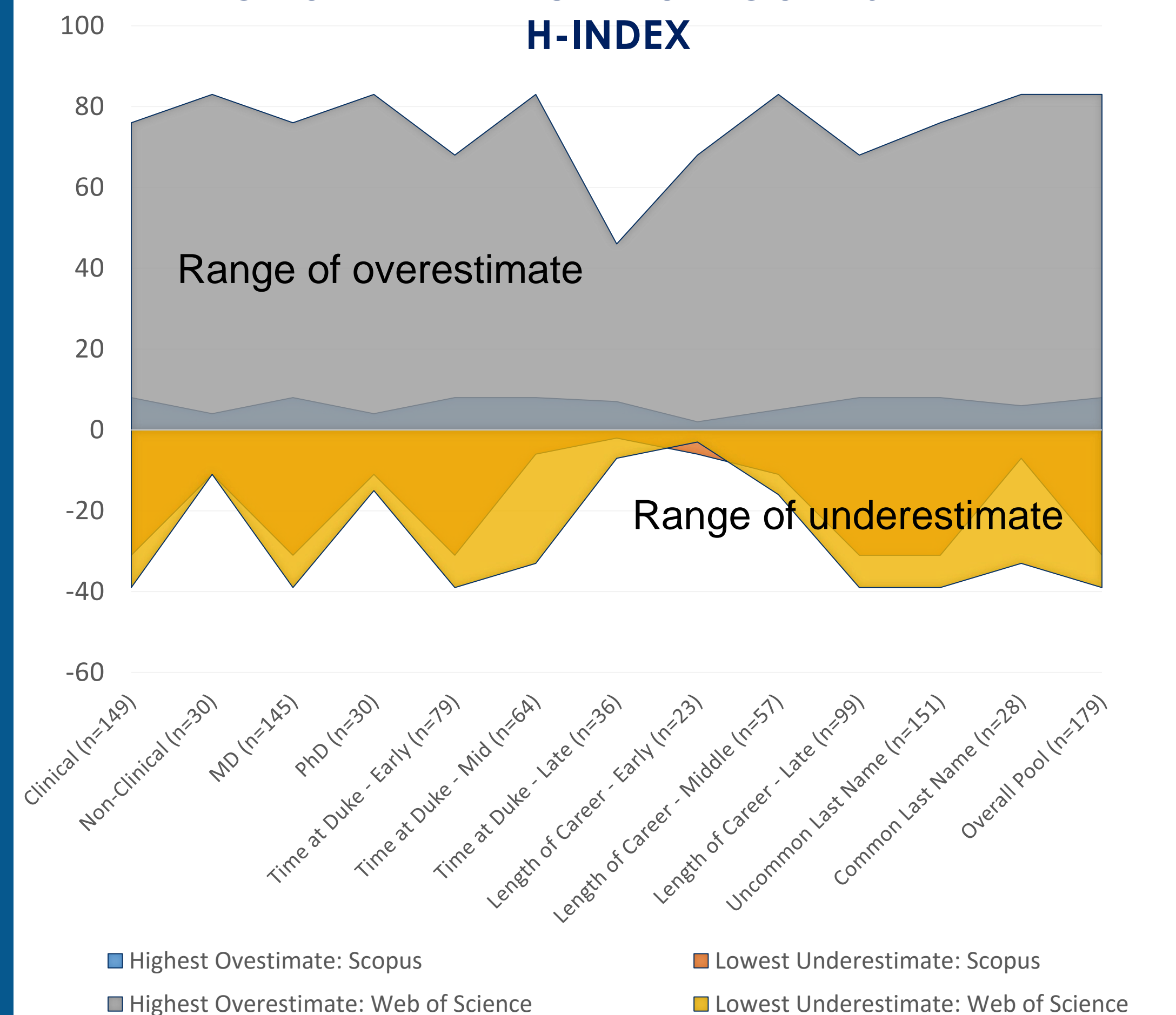
Web of Science

1. Conduct author search for last name, first initial and Duke as institution. Create citation report
2. If not found, conduct author search for last name and first initial without institution. Create citation report based on results.

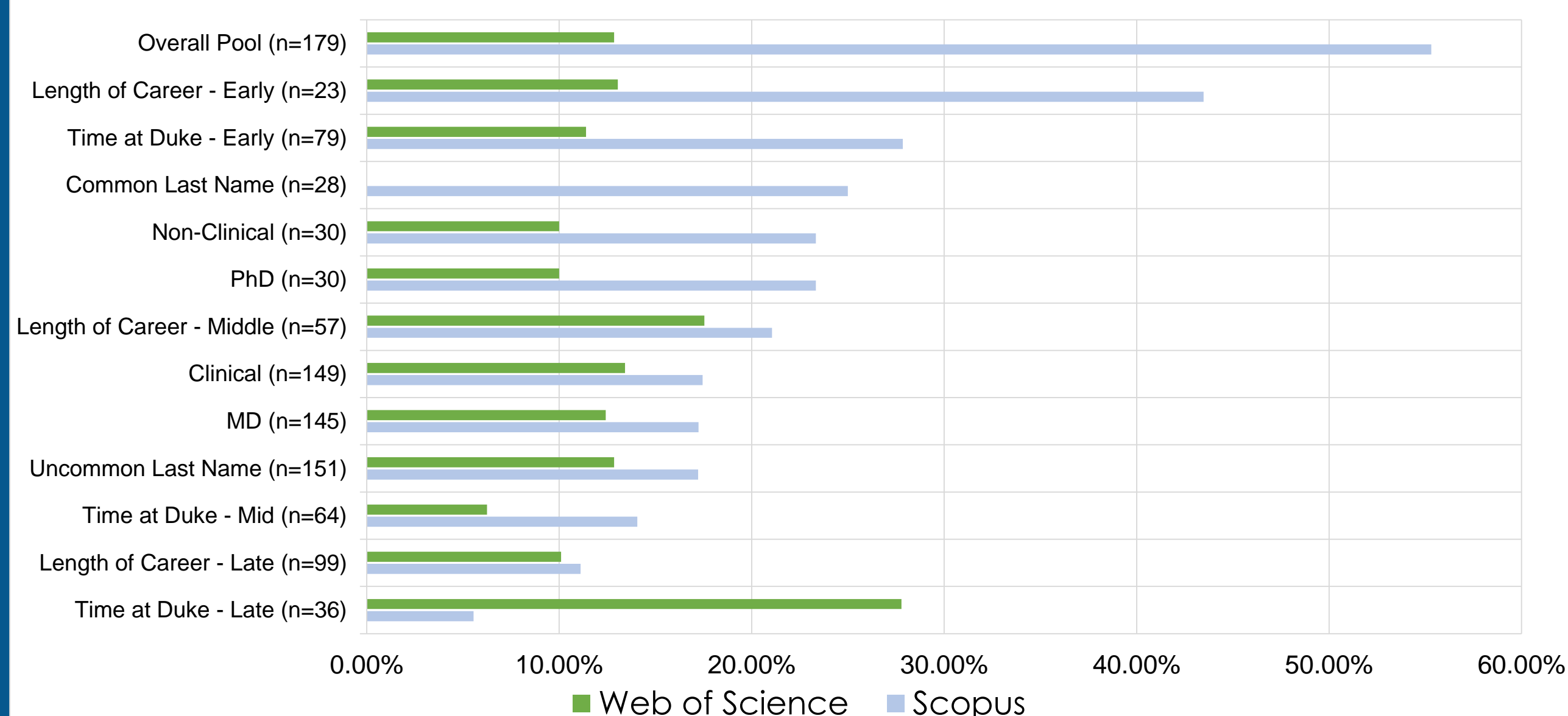
AVERAGE H-INDICES BY CATEGORY



RANGE OF DIFFERENCE FROM GOLD STANDARD H-INDEX



ACCURACY OF METRICS AGAINST GOLD STANDARD



RESULTS

- Overall accuracy of h-indices against our gold standard were 55% for Scopus and 13% for Web of Science.
- In Scopus, the highest overestimate was 8 points above our gold standard h-index and the lowest underestimate was 31 points below our h-index.
- In Web of Science, the highest overestimate was 83 points above our h-index and the lowest underestimate was 39 points below our h-index.
- Only 9% of Surgery faculty had Google Scholar profiles; the highest overestimate was 30 and the lowest underestimate was 2.

OBSERVATIONS

When should you use a gold standard process?

When h-indices are most likely to be misrepresented in a quick and dirty search:

- When author is new to institution
- When author has a common last name
- When author shares a last name and first initial with another author at the same institution

Scopus

- Because our gold standard h-index is calculated from Web of Science and because Scopus has more journals (e.g., Excerpta Medica), when Scopus overestimates the h-index, it may actually be true!

Web of Science

- Works better when people have been at the institution for a long time

What about Google Scholar profiles?

- Differences could be related to authors including materials additional to journal articles, such as editorials, book chapters, presentations, and books.

Our Practice

- For consistency, there are good reasons to use Web of Science, but higher and more accurate h-indices may be available from Scopus.
- We will continue to refine our gold standard process to determine which offers the best combination of search features, most accurate h-index, ability to compare with existing data, and time spent in the process.
- While librarians can pull the most comprehensive and accurate h-indices, if patrons want to do a quick and dirty search themselves, we recommend they use Scopus.