

H-index scores in 2009 and increases from 2008, School of Public Health, University of Sydney.

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March 29, 2010

KEY POINTS SUMMARY: In 77 academic and research staff:

- **5 (6.5%) had H=0**
- **31 (40.2%) had H between 1-9. These staff had an average of 7.5 research active years**
- **19 (24.7%) had H between 10-19. These staff had an average of 12.5 research active years**
- **17 (22.1%) had H between 20-39. These staff had an average of 21.2 research active years**
- **5 (6.5%) had H of 40 or over. These staff had an average of research 31 active years.**

Of 57 staff who completed H calculations for both 2008 and 2009:

- **The median increase in H between 2008 and 2009 for these staff was 2 (range 0-10; interquartile range 1-4)**

“an h index of 20 after 20 years of scientific activity characterizes a successful scientist”

“an h index of 40 after 20 years of scientific activity characterizes outstanding scientists likely to be found only at the top universities or major research laboratories”

“an h index of 60 .. after 20 years ...characterizes truly unique individuals”

**Hirsch JE. An index to quantify and individual’s scientific research output.
PNAS 2005;102:16569-72**

In November 2009, all categories of staff from the School of Public Health described below were requested to calculate their own H index and to supply the School's research office with full documentation. Staff could use each of three citation databases in calculating their H:

- **Web of Science:** covers >10,000 of the highest impact journals worldwide, including Open Access journals and over 110,000 conference proceedings
- **Scopus:** covers >16,000 peer-reviewed journals from more than 4,000 publishers; over 1200 Open Access journals; 520 conference proceedings; 650 trade publications; 315 book series; 431 million scientific web pages. (<http://www.info.scopus.com/overview/what/>)
- **Google Scholar:** promotes itself as "standing on the shoulders of giants", implying that its ability to locate citations incorporates those of other databases, and more besides. Commentators have noted its lack of transparency as to how it actually locates citations. Its ability to do so – including finding many citations that WoS and Scopus do not find – nonetheless remains awesome.

Each of these databases has different limitations and we took the view that none were inherently superior to the others, but rather that they were three different tools which could be used for rapidly locating evidence of scholarly citation.

Calculating one's H index using each of these three databases produces different results. For some papers -- particularly older papers -- Web of Science characteristically produces higher citation volumes. However a major limitation of Web of Science is that while it can produce citation *of* books and reports, it does not produce citations *in* books and reports, nor of citations in reports published online.

As an increasing number of major scholarly reports are only published online, this is a major limitation of Web of Science, and a strength of Google Scholar and to a lesser extent, Scopus. Scopus searches more sources than Web of Science, but as it only covers journals published since 1996, it does not contain citations to papers published before that -- again a major limitation in calculating a researcher's total career H index.

When considering these strengths and limitations of the three databases, we took the view that our staff should be at liberty to use a composite of the three databases in compiling their final H index. This could mean that for any individual publication that contributed to their H index, they could calculate citation volume using each of the three databases and select the highest number thus produced. Our view here was that each database produces a formal record of all publications which have cited an author's paper or book, thereby providing documentary evidence of citation.

The following categories of staff were requested to calculate their H index:

- Academic and contracted research staff employed by the School of Public Health or any of the 3 institutions formally and administratively affiliated with the School (Menzi's Centre for Health Policy; Northern Rivers University Department of Rural Health; the Family Medicine Research Centre at Westmead Hospital)

- staff employed by the George Institute who have academic appointments in the School of Public Health
- academic and research staff employed by the NHMRC Clinical Trials Research Unit, which until the end of 2008 was administered by School of Public Health.

Conjoint, adjunct and honorary staff were excluded.

Some staff elected to only use Web of Science to calculate their H index, while others used all three databases. As using all three almost always increases a researcher's H score, it is likely that the results shown below under-estimate the H scores of at least 50% of the staff who elected to only use Web of Science. In future years we will endeavour to provide resources to cross check citations across all three databases. Such a process across large numbers of staff is quite labour intensive.

Years of active research were calculated from the date of a person's first research publication. Research inactive periods were deducted only for periods in which a person was not employed in any health-related workforce for family or illness reasons. Those who argued that they had research inactive periods because they were working in clinical, administrative or other health-related employment at any time after publishing the first paper, did not have these years deducted as it was reasoned that many people in such situations nonetheless do continue their research during such times.

Below we report on (a) all eligible School staff employed in 2009 and (b) those staff who were employed in both 2008 and 2009.

Results

1. H index distribution for all staff employed in 2009

77 staff either completed or approved a calculation of their H index producing a range of 0-61 (mean 14.65; median 9).

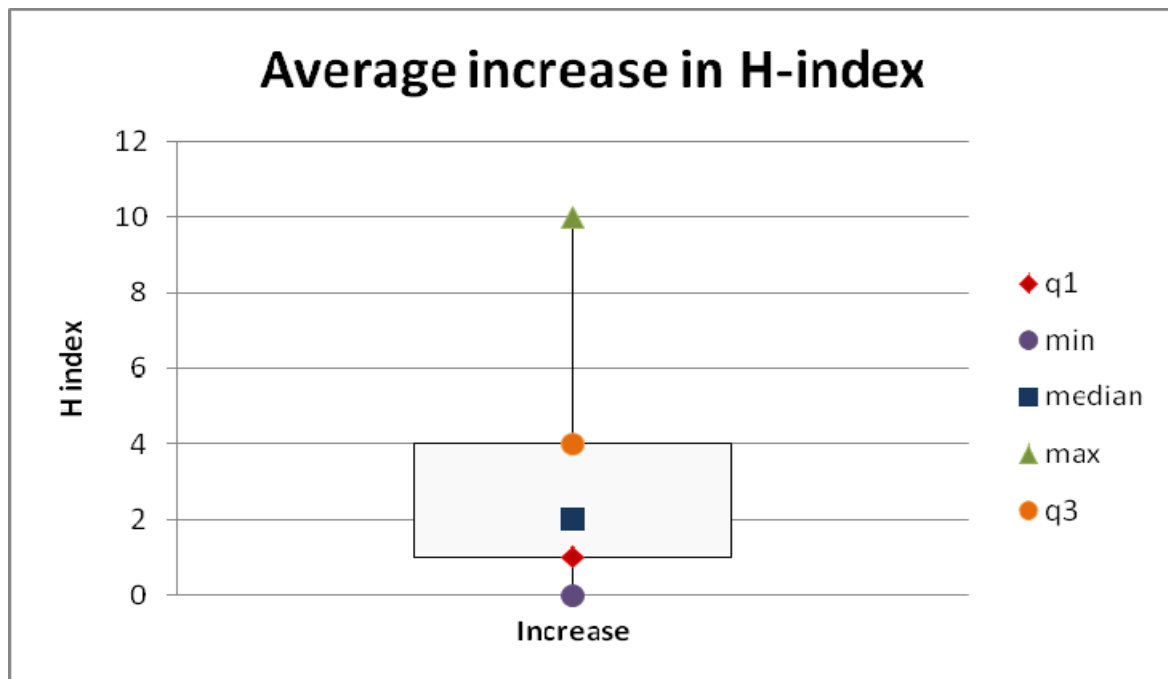
- 5 (6.5%) staff had H=0
- 31 (40.2%) staff had H between 1-9. These staff had an average of 7.5 research active years
- 19 (24.7%) staff had H between 10-19. These staff had an average of 12.5 research active years
- 17 (22.1%) staff had H between 20-39. These staff had an average of 21.2 research active years
- 5 (6.5%) staff had H of 40 or over. These staff had an average of research 31 active years.

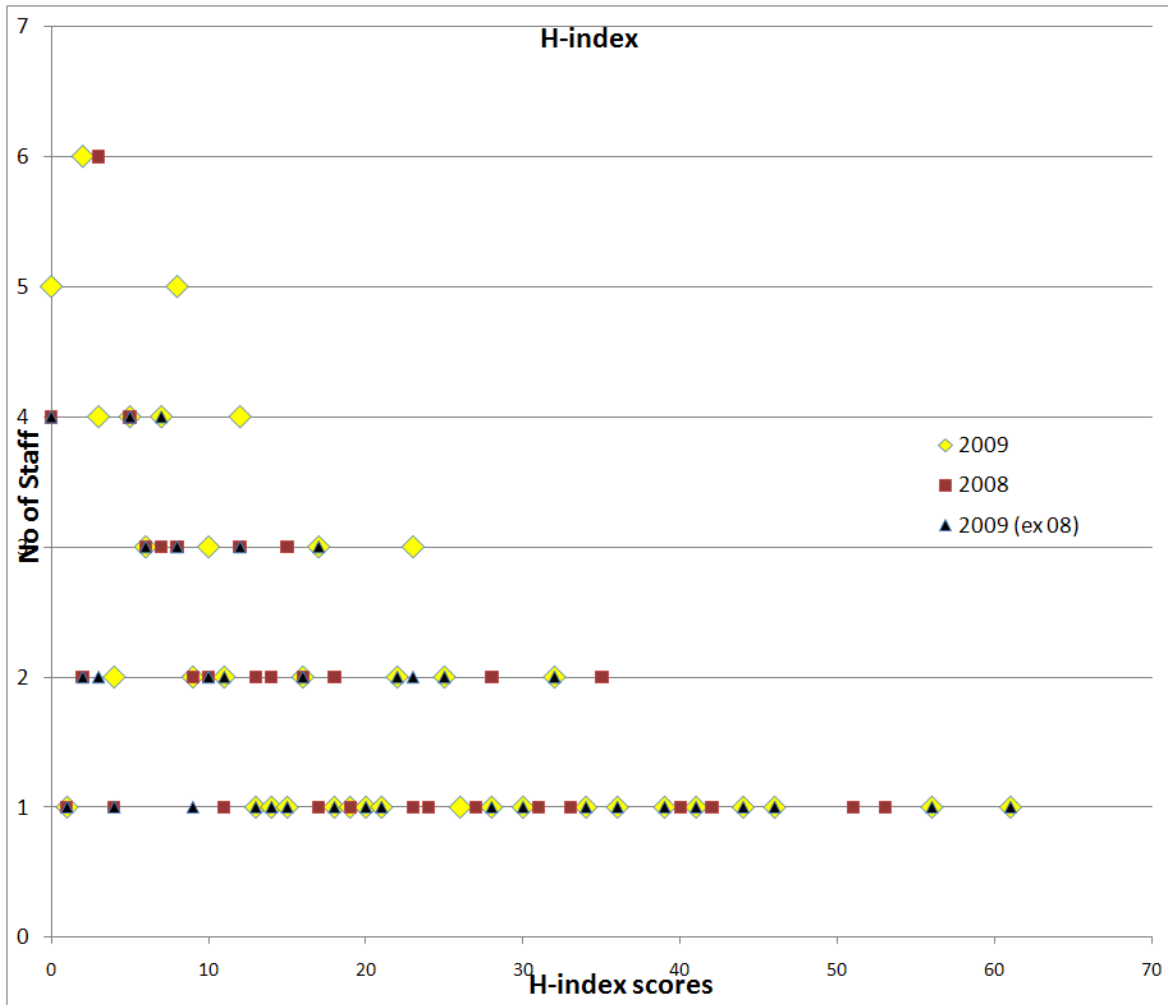
2. H index distribution – only staff at SPH during both 2009 and 2008

57 staff either completed or approved a calculation of their H index producing a range of 0-61 (mean 16.31; median 12)

- 4 (6.6%) staff had H=0
- 21 (34.4%) staff had H between 1-9. These staff had an average of 8.2 research active years
- 16 (26.2%) staff had H between 10-19. These staff had an average of 12.8 research active years
- 15 (24.6%) staff had H between 20-39. These staff had an average of 22 research active years
- 5 (8.2%) staff had H of 40 or over. These staff had an average of 31 research active years.

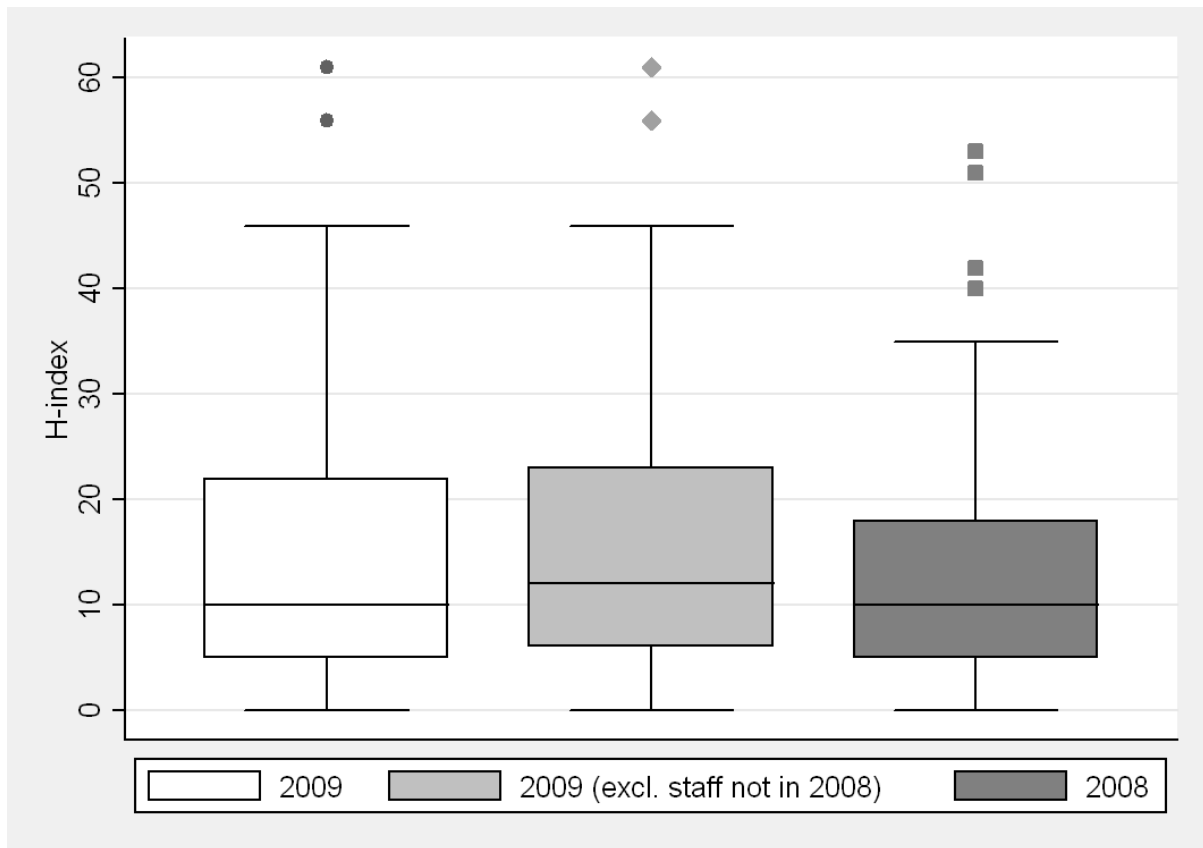
The median increase in H between 2008 and 2009 for these staff was 2 (range 0-10; interquartile range 1-4)





3. Interquartile range for H-index

	0.25 quartile	0.75 quartile	Interquartile range
2008	5	18	13
2009 (full data set)	5	22	17
2009 (with 08 staff only)	6	22.5	16.25



2. Average H index per research active year

Of the 72 staff with an H index of 1 or more:

- The average H index per research active year was 1.12 (range 0.14-2.8)
- The average H index per research active year for those with an H index of 1-9 was 1.81 (range 0.3-2.83)
- The average H index per research active year for those with an H index of 10-19 was 1.07 (range 0.2-2.09)
- The average H index per research active year for those with an H index of 20-39 was 1.18 (range 0.83-1.75)
- The average H index per research active year for those with an H index of 40+ was 1.70 (range 1.21-2.1)

