

Brief Abstract

Google is easy to use, but many librarians are not aware of its full capabilities and do not take it as seriously as MEDLINE. It is not the same thing as MEDLINE, but Google offers many powerful features and advanced search capabilities that make it very helpful for finding certain kinds of information.

Being aware of Google's strengths and weaknesses and learning some advanced search techniques can help you leverage this powerful (and free) information retrieval tool in your health sciences library.

Google Search Basics

Can enter up to 32 words in the search box (used to be 10).

Default operator is AND – e.g. **heart failure** will retrieve pages with both heart and failure (no need to type AND).

Can use OR to find related or synonymous terms – e.g. **surgery dental OR dentistry OR dentist**

Shortcut: can replace OR with |

Can exclude words that are causing problems with a minus sign (but it may create new problems!)

e.g. **clinton hospital -president**

Better to add another term to the search – e.g.

clinton hospital umass OR massachusetts

The search retrieves results based on your terms and then **ranks** them according to:

- **word frequency** (how many times query words appear in each document),
- **word order** (first terms in query are given greater weight),
- **word proximity** (how close terms are to each other),
- **word location** (e.g. in title or heading), and
- **PageRank** (Google's link popularity algorithm based on how many other pages link to this one – similar to cited reference searching)

among other complex statistical algorithms.

Google Search Features

Using **quotes** requires terms to be searched as a phrase – can make a big difference!

- **public health** – 249 million results
- **"public health"** – 59.8 million results

Use for proper names or situations where words are likely to ALWAYS appear exactly this way (not for brain aneurysm which could also be written as an 'aneurysm in the brain')

Google has a **stopword** list of common words that are not typically searched (e.g. I, the, and, for, of, etc, ...). To require these, use a + sign or quotes if a phrase e.g.

- **"United States of America"**
- **+about Google**

Find **synonyms** for words by using the tilde

- e.g. **~nutrition** retrieves pages with words diet, food, cooking, etc.

Results can be unpredictable – if you need to control it, just use OR

- e.g. **nutrition OR diet**

Google **automatically stems** words to find variants with the same word stem– this can be unpredictable, rules are secret. Stemming does not work within quotes or on single-word searches

- e.g. **long range plan may** also retrieve documents with plans, planner, planners, planning, planned, etc...

Google Search Features (continued)

Use a **hyphen** when searching a phrase that is sometimes one word, sometimes hyphenated, and sometimes two words.

- e.g. **full-text** matches fulltext, full-text, or full text (but the ones without the hyphen only search that variation)

Find pages that link to a given page by using the **link:** prefix.

- e.g. **link:www.hsll.pitt.edu**

Find pages that are contained in a given Web site or domain using the **site:** prefix, e.g.

- **anthrax site:cdc.gov**
- **anthrax site:.edu**
- **anthrax site:.gov OR site:.edu**

Limit your search to only specific file types using the **filetype:** prefix, e.g.

- **diabetes prevention filetype:pdf**
- **diabetes prevention filetype:ppt**
- **diabetes prevention filetype:pdf OR filetype:ppt**

Use the apostrophe in a search as if it were any other letter – don't assume leaving it out will work as it does in some other databases.

- **Crohns** does not find Crohn's and vice versa
- Best search: **Crohn | Crohn's | Crohns**

Google Strategies

Big Bite*

Start search with one or two terms and add one at a time until you start to see the kind of results you want

- **~teen ~pregnancy** (22.6 mil)
- then add **~prevent** (11.7 mil)
- then add **internet OR on-line** (6.9 mil)
- then add **~quiz OR ~test** (5.9 mil)

Everything But the Kitchen Sink*

If your search is getting too many non-relevant results or if you'd like to try to find a highly relevant page, try adding many terms. If a page has all those terms, it is likely to be highly relevant, e.g.

"eating disorders" anorexia bulimia bingeing purging overeating

Pearl Growing*

If you find a perfect site and want to find others like it, click the 'Similar Pages' link on the Google results page to bring up a list of highly similar pages.

The actual page is transformed into a query.

Try **diabetes education ~latino | ~hispanic** then select 'similar pages' for one of the results.

*Strategies from Drabenstott KM, Web Search Strategy Development. *Online*. 25(4) 2001: 18-27

Finding Older and Obscure Publications

Much grey literature (reports, brochures, pamphlets, etc...) can now be found on the Web.

Can find info about hard to find publications if you have an incorrect or incomplete citation. You may not find the actual publication, but you may find references to it - enough to verify the citation.

Note that search terms are highlighted on results page, KWIC-style (KeyWord In Context) - Can use this to quickly browse results.

Google Strategies (continued)

Enter author's last name, the most unique title word, and the date or first page number. (Don't use journal titles because abbreviations vary.)

- e.g. **stuart-harris influenza 1939**



Finding Conferences

First, try finding the sponsoring organization and look for a link on their site.

Then try entering the name of conference if you know it – consider quotes.

If looking for a specific meeting, add the city name.

If unsure of name, consider adding relevant terms, e.g. **international ~orthodontics ~meeting | ~abstracts | ~conference | ~congress | ~symposium**

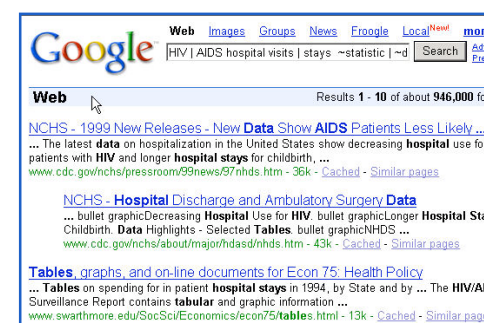


Finding Statistics

Enter key search terms.

Add **~statistic | ~data | ~table**

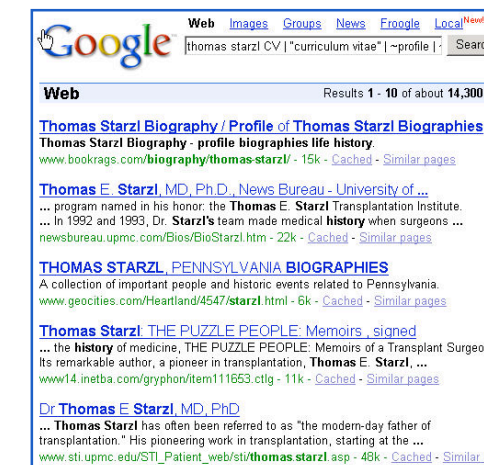
- e.g. **HIV | AIDS hospital visits | stays ~statistic | ~data | ~table**



Google Strategies (continued)

Finding Biographical Info

- Can often just enter the person's name.
- Can add **CV | "curriculum vitae" | ~profile | ~biography** to help focus results.
- Consider trying this in Google Scholar also.



Google Products

Google Scholar

<http://scholar.google.com/>

Uses Google technology to search full text journal articles. Publishers allow Google to 'crawl' their databases.

Includes cited references, can click to see citing articles. Citation frequency is factored into ranking.

Access to full text only available with subscription or pay-per-view fee.

Full-text search, relevancy ranking, and large scope are primary benefits, but does not fully replace an expert MEDLINE search – yet.

Google Print

<http://print.google.com/>

Book content integrated into Google search results.

Allows 'search inside the book' for quotes, names, and other detailed information. (not as much book content as Amazon.com – yet).

Partnered with several publishers and libraries to digitize millions of books over the next 10 years – incredible retrieval possibilities!

Only allows you to view pages that contain your search terms. Provides links to book info, libraries, and online stores.

Definitions

<http://www.google.com>

e.g. **define: genomics**

Google Images

<http://images.google.com/>

Google Directory

<http://www.google.com/dirhp>

Google News

<http://news.google.com/>

Google Alerts (BETA)

<http://www.google.com/alerts/>

Translation

http://www.google.com/language_tools

Maps

<http://maps.google.com>

For Other Web Search Features, including:

- Phone Book
- Calculator
- Airline/Travel Info
- Shipping/Tracking Numbers
- Stock Quotes
- Weather

See <http://www.google.com/help/features.html>

Resources

Google Help Pages for individual products

Google's 'About Google' page

<http://www.google.com/intl/en/about.html>

Google Guide – <http://www.googleguide.com>

Book: Calishain T. and Dornfest R. Google Hacks: 100 Industrial Strength Tips & Tricks. O'Reilly, 2003