How do Google, Google Scholar, and Other Google Tools Help Health Professionals Navigate the Oceans of Information?

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Introduction

We wondered:

1) What Google tools are Health Sciences Researchers and Healthcare Professionals using, and how are they using them?

2) How effective are Google and/or Google Scholar for literature searching?
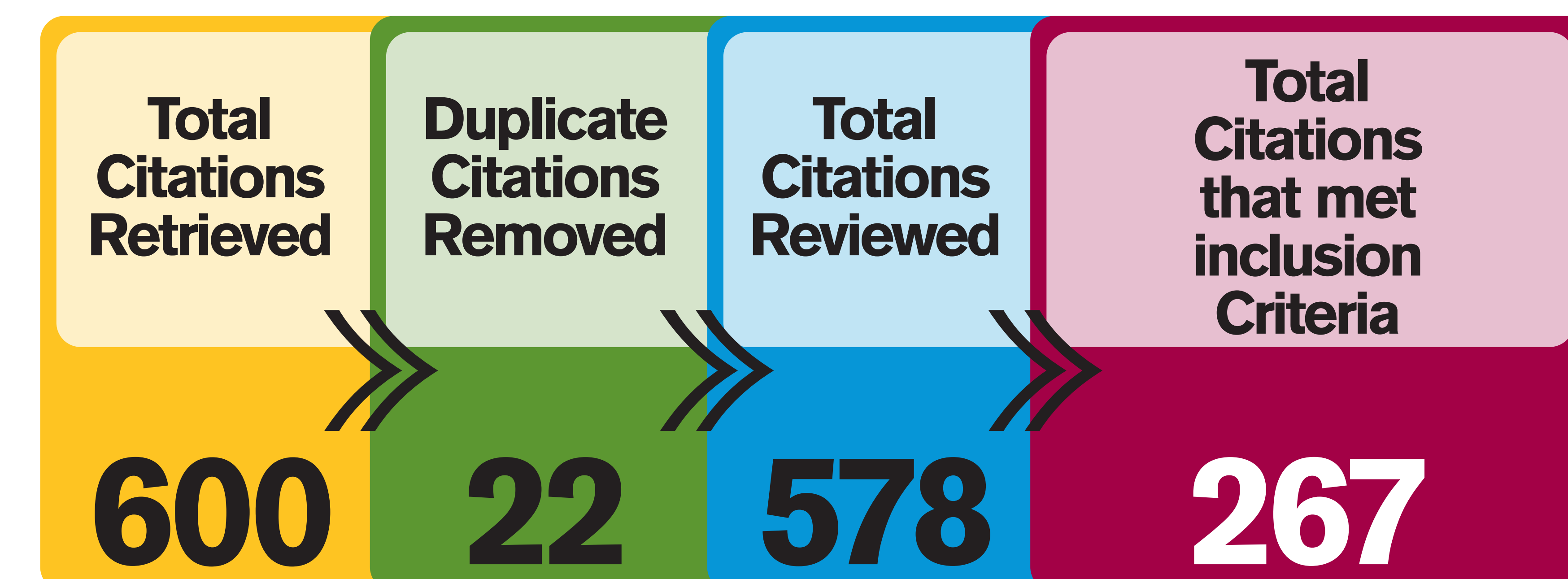
3) What other research is needed in this area?

Methods

We searched for: 'Google' across five health sciences related databases (CINAHL, Cochrane, PsycInfo, PubMed, Web of Science) and in Google Scholar*. We reviewed the first 100 citations from each database and selected results that:

1) Mentioned use of a Google tool

2) Discussed the effectiveness of Google or Google Scholar in scholarly literature searching
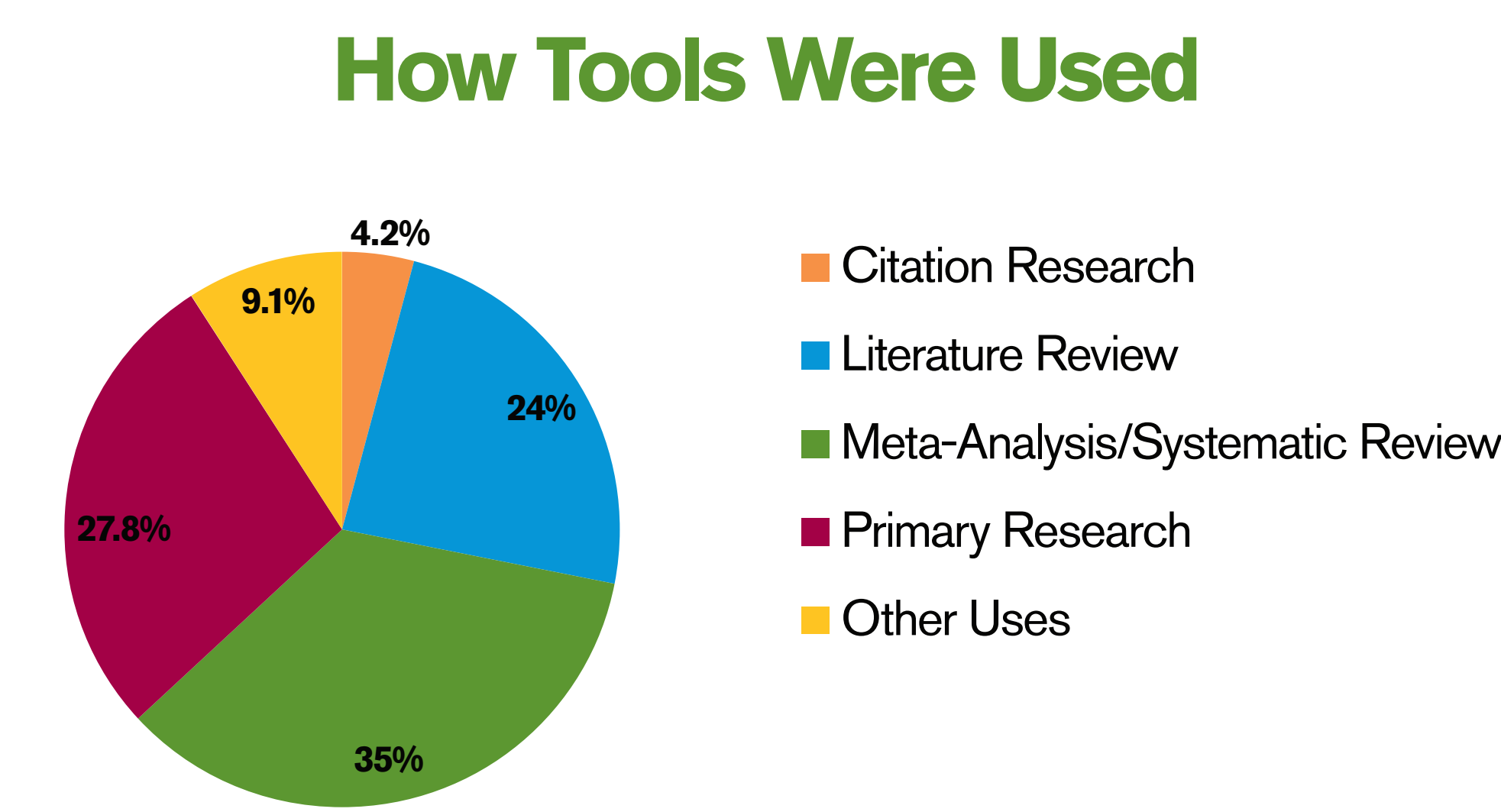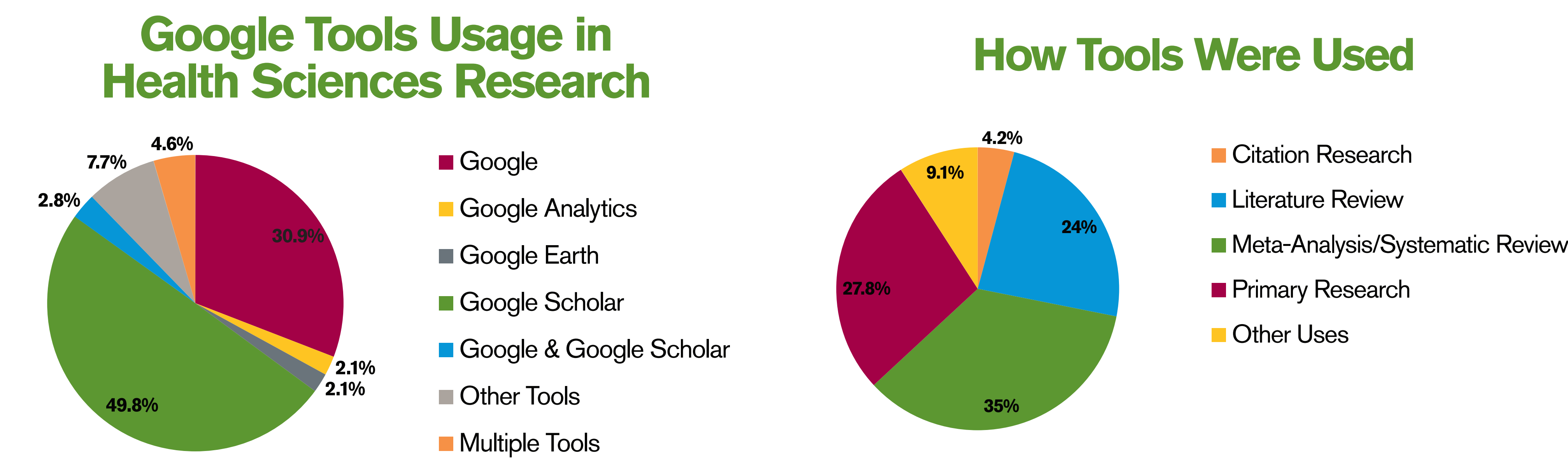
We charted the uses of Google Tools. We noted best practices from the articles (15) whose focus was the effectiveness of Google and/or Google Scholar for literature searching.
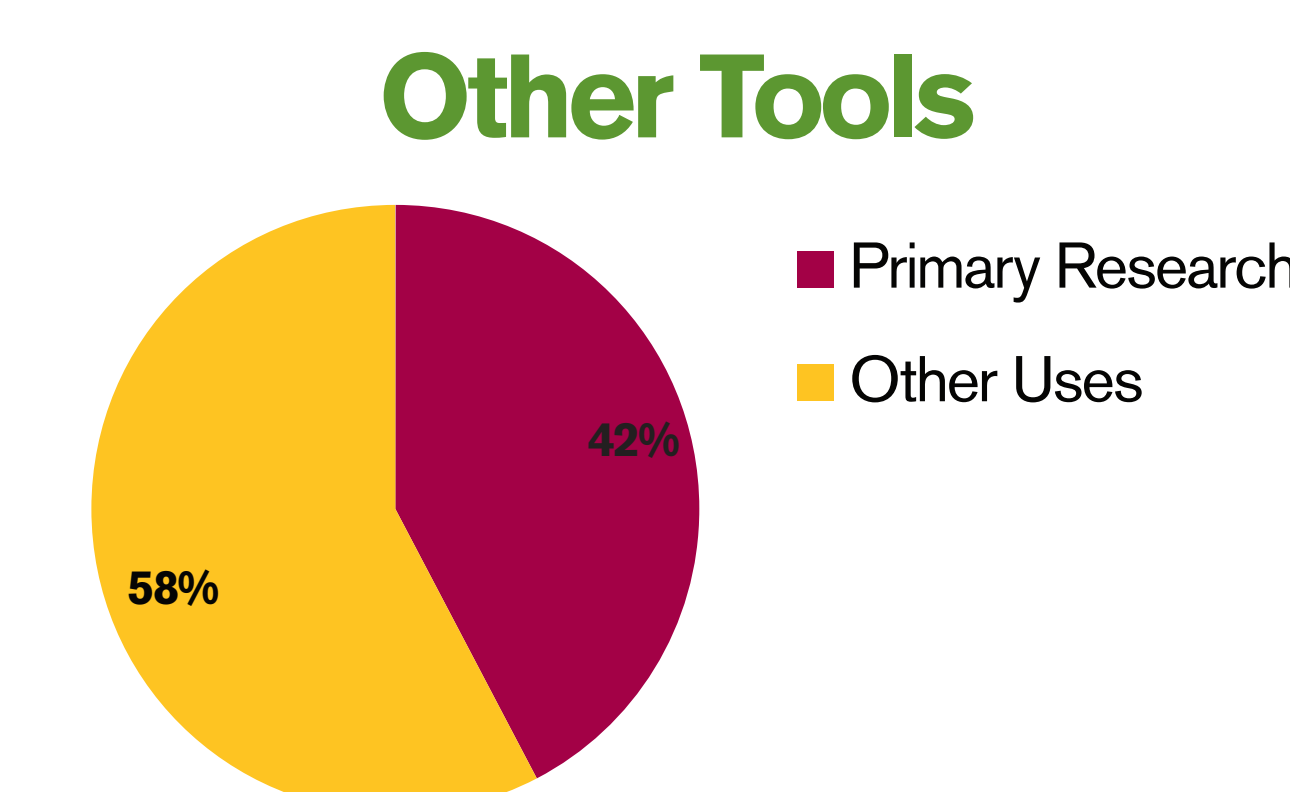
*For Google Scholar we searched: health AND google

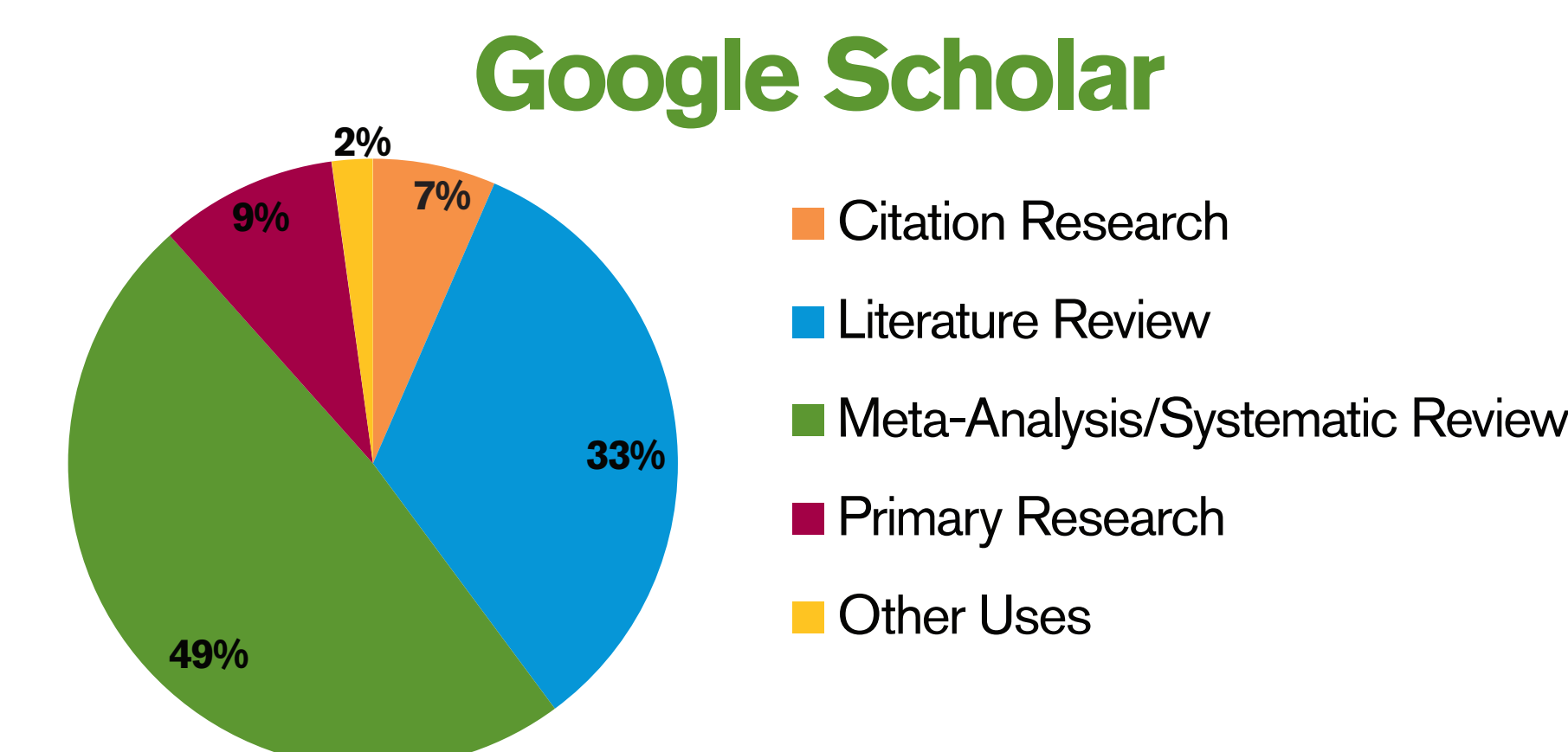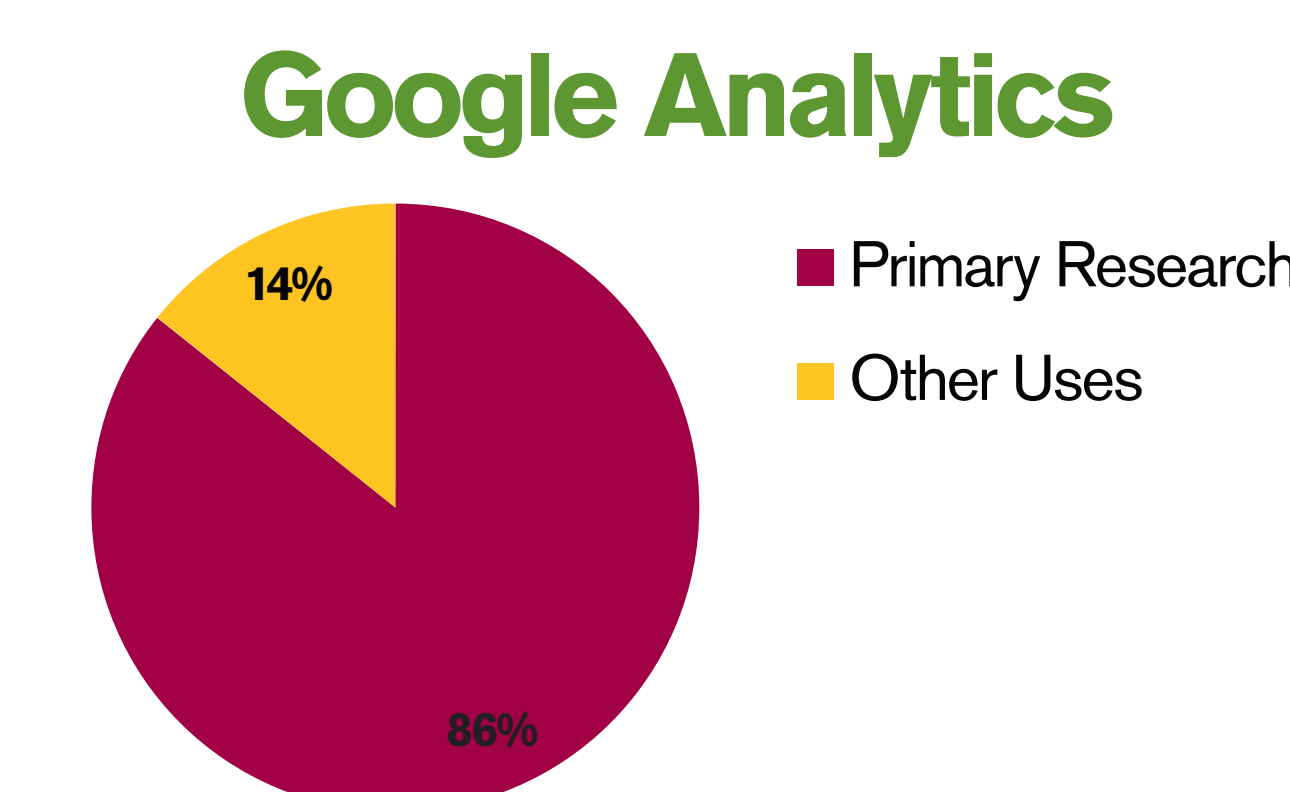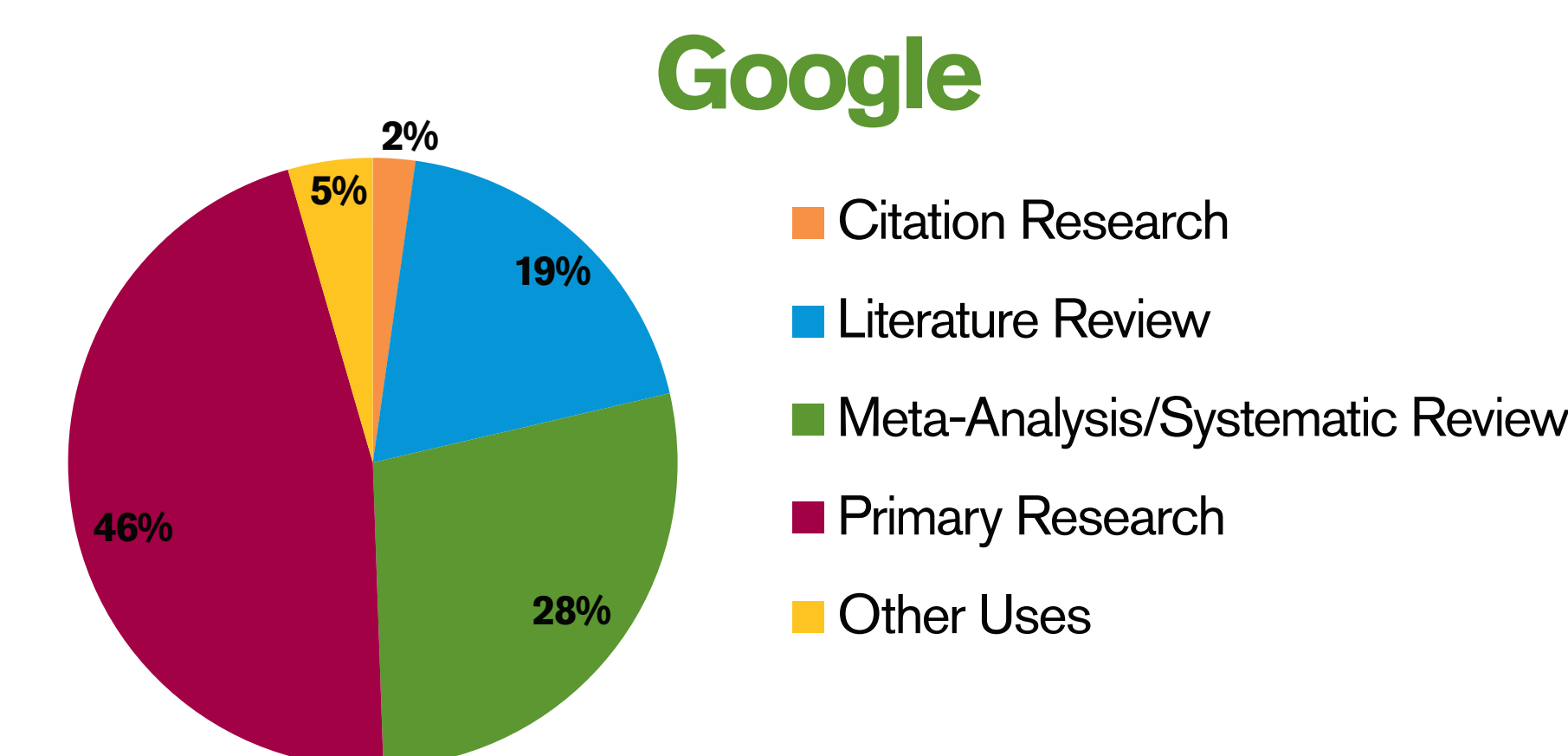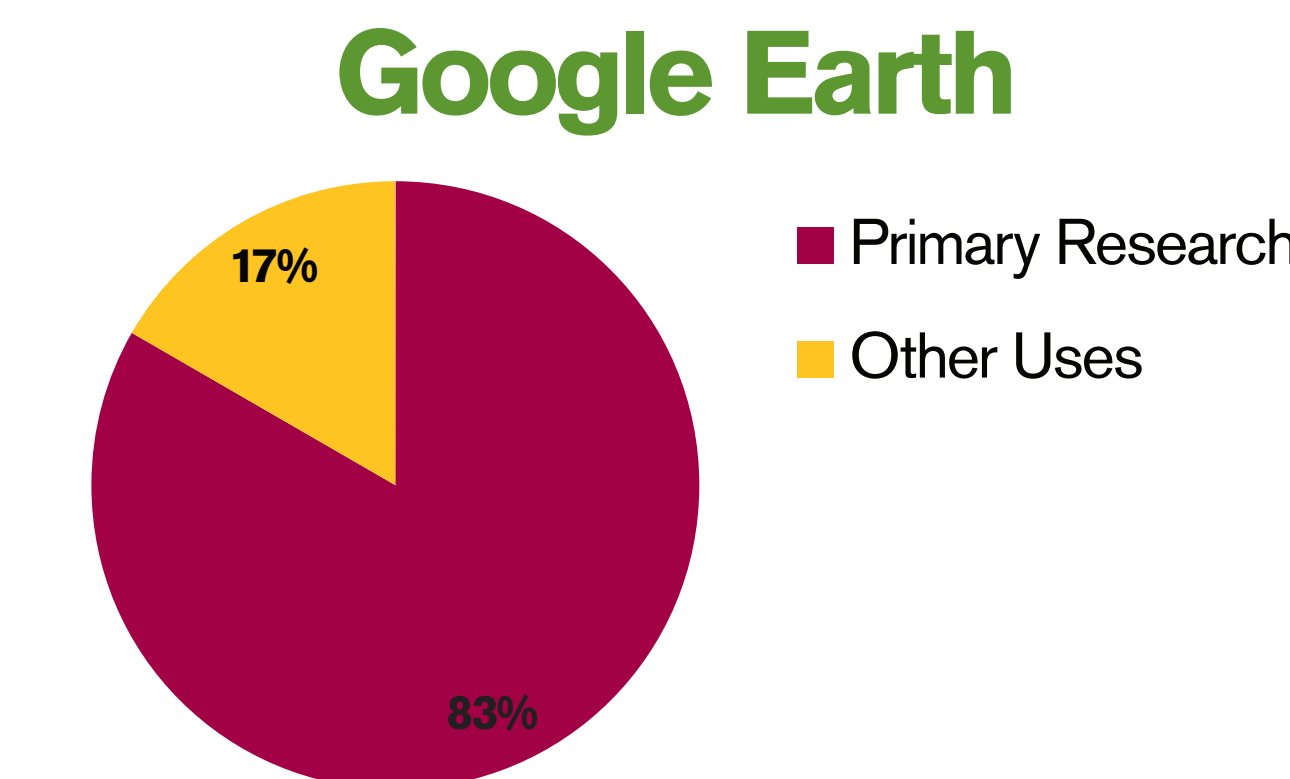| Total Citations Retrieved	Duplicate Citations Removed	Total Citations Reviewed	Total Citations that met inclusion Criteria
600	22	578	267

Results

Health Sciences Researchers and Healthcare Professionals use many Google tools for a variety of purposes.

Google Tools Usage in Health Sciences Research

- Google — 30.9%
- Google Analytics — 4.6%
- Google Earth — 7.7%
- Google Scholar — 49.8%
- Google & Google Scholar — 2.8%
- Other Tools — 2.1%
- Multiple Tools — 2.1%

How Tools Were Used

- Citation Research — 4.2%
- Literature Review — 24%
- Meta-Analysis/Systematic Review — 35%
- Primary Research — 27.8%
- Other Uses — 9.1%

Public Health and Patient Education Researchers used Google Earth to identify and visualize relationships between health events, conditions, or health care use and geographical regions.

Google

- Citation Research — 2%
- Literature Review — 19%
- Meta-Analysis/Systematic Review — 28%
- Primary Research — 46%
- Other Uses — 5%

Google Scholar

- Citation Research — 7%
- Literature Review — 33%
- Meta-Analysis/Systematic Review — 49%
- Primary Research — 9%
- Other Uses — 2%

Google Earth

- Primary Research — 83%
- Other Uses — 17%

Google Analytics

- Primary Research — 86%
- Other Uses — 14%

Other Tools

- Primary Research — 42%
- Other Uses — 58%

Healthcare Professionals used Google Docs for interactive assignments in medical education and Google Calendar as a tool to manage prospective memory deficits following acquired brain injury.

Google Scholar:
A valuable tool for literature searching.

Why Use Google Scholar?

- Unique, highly relevant results
- Transdisciplinary research
- Added value: cited references and related articles

Top Search Strategies

- Keep your search simple
- Review 50-100+ results for maximum benefit of recall and precision rates
- Use Google-friendly formatting
  - Phrases: "childhood obesity"
  - Place operators in ALL CAPS: "childhood obesity" AND (Arizona OR California)
- Use advanced search, limits, and other options

Considerations

- PubMed has more results for recently published research
- For quick high precision searching - use PubMed Clinical Queries or similar tools
- Google Scholar offers less options to Refine Searches
- Google Scholar searches are not reliably replicable due to Google's personalization of search results

Future Research

- Replicate previous studies to generate longitudinal data
- How much applicable evidence may be missed on average in a systematic review if results of a Google Scholar search are not included?
- To what extent are Google and/or Google Scholar particularly useful for identifying documents from multiple geographical regions and languages?

Takeaways

Use of Google Tools
- Health Sciences Researchers
  - Gather and manipulate data
  - Visualize and disseminate results
- Healthcare Professionals
  - Facilitate interventions
  - Create interactive educational materials

Google Scholar and Literature Searching
- Unique content makes it a valuable complement to subject specific databases

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