Retrieval

- It is becoming increasingly difficult to find relevant studies [37]
    - PubMed (one of the most popular medical databases) now contains **approximately 26 million studies**
- It is not uncommon for queries to retrieve millions of studies, where only a small number are relevant
    - Shemilt et al. [72] found one study in particular that **retrieved 1.8 million studies where 4,000 were included** in the review
    - Not all included study citations **retrieved by Boolean query**
        - Personal knowledge, References of References, Contacts

[37] Sarvnaz Karimi, Stefan Pohl, Falk Scholer, Lawrence Cavedon, and Justin Zobel. Boolean versus ranked querying for biomedical systematic reviews. BMC Medical Informatics and Decision Making, 10(1):1, 2010

[72] Ian Shemilt, Antonia Simon, Gareth J Hollands, Theresa M Marteau, David Ogilvie, Alison O'Mara-Eves, Michael P Kelly, and James Thomas. Pinpointing needles in giant haystacks: use of text mining to reduce impractical screening workload in extremely large scoping reviews. Research Synthesis Methods, 5(1):31–49, 2014.

Cost & Workload

- <u>What's been found?</u>
  - A majority of reviews require **>1,000 hours** to complete [3]
  - And can cost upwards of a **quarter of a million USD** [50]
  - Most expensive and laborious phases **prior** to eligibility [50]
- <u>What's the gap?</u>

Systematic reviews are **highly costly and time consuming** to produce [87]

[3] I. Elaine Allen and Ingram Olkin. Estimating time to conduct a meta-analysis from number of citations retrieved. Journal of the American Medical Association, 282(7): 634–635, 1999.
[50] Jessie McGowan and Margaret Sampson. Systematic reviews need systematic searchers (irp). Journal of the Medical Library Association, 93(1):74, 2005.
[87] Byron C Wallace, Joël Kuiper, Aakash Sharma, Mingxi Brian Zhu, and Iain J Mar- shall. Extracting pico sentences from clinical trial reports using supervised distant supervision. Journal of Machine Learning Research, 17(132) 1–25, 2016.