How to find and use grey literature for scoping reviews

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Learning objectives

1. Explain the value of including grey literature in scoping reviews

2. Create a search plan which outlines the best search methods tools, sources, queries, and limits for your topic

3. Identify and plan for the practical challenges of screening and appraising grey literature search results

4. Document and report key information about your grey literature search methods

Agenda

1. What is grey literature, and why should you include it in your scoping review?

2. Plan your search
   - Select search methods, tools, and sources
   - Simplify and adapt search queries
   - Set limits

3. Run and document your search

4. Screen and appraise your results

5. Chart, analyze and summarize your data

6. Report your methods in your manuscript
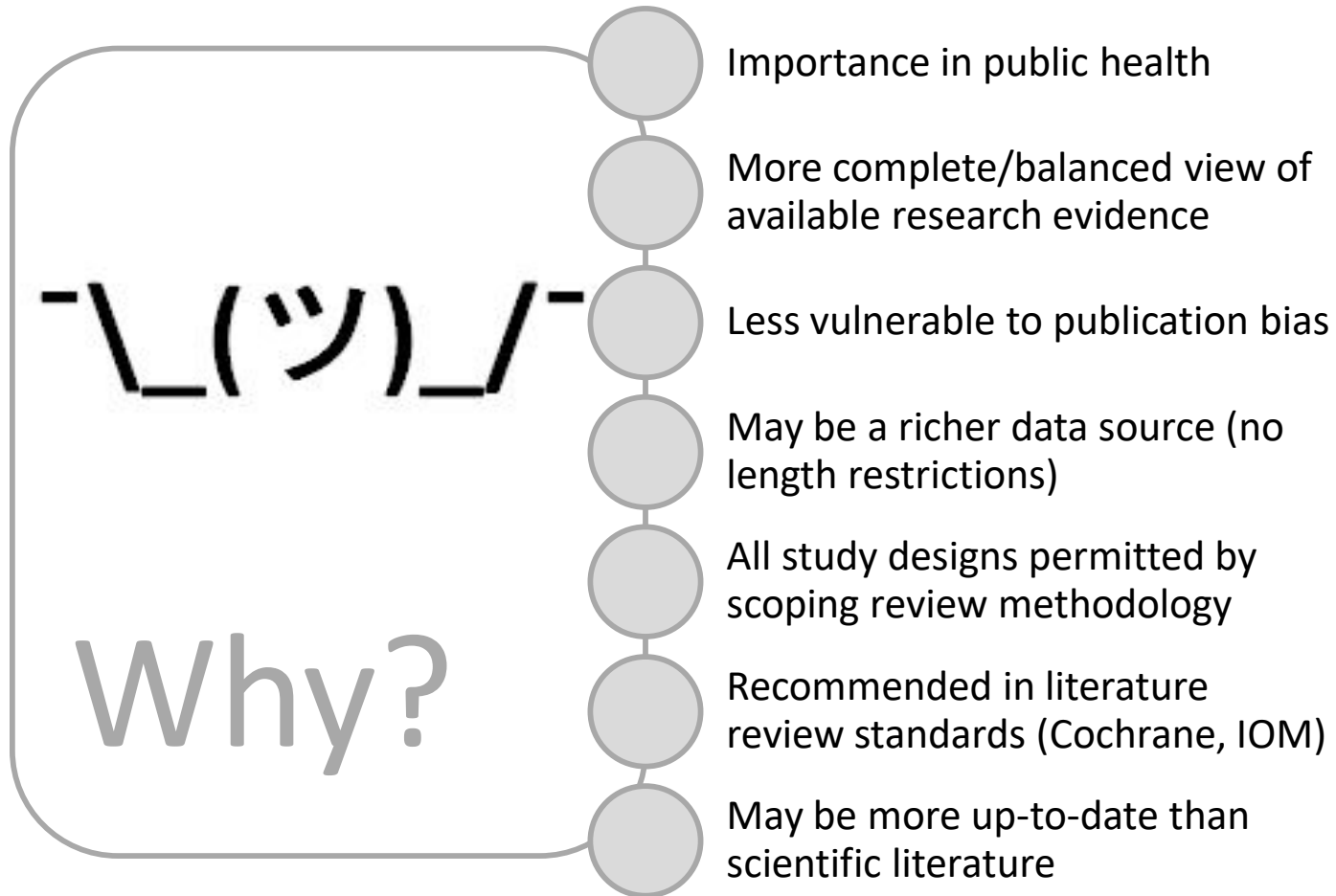
What is grey literature?

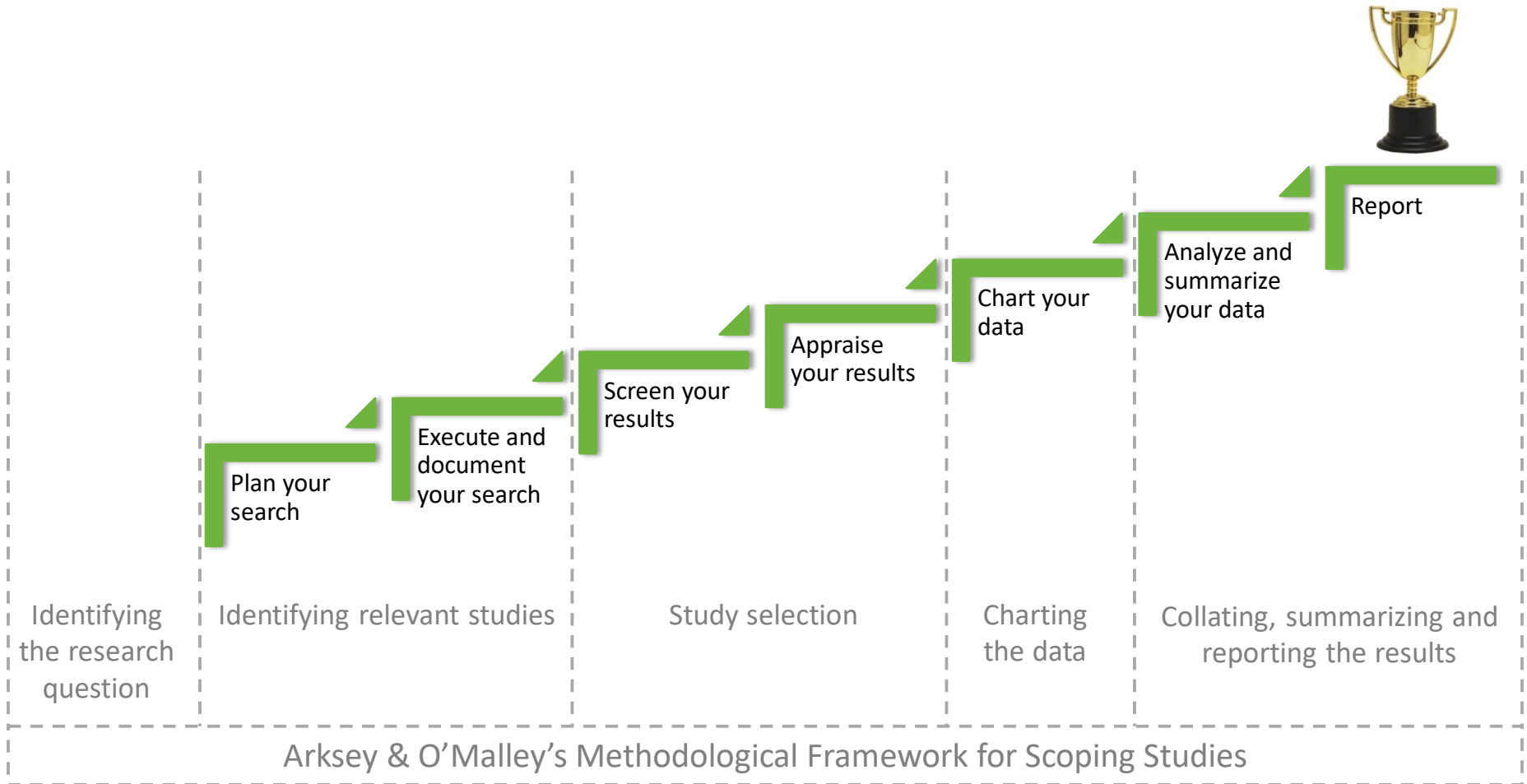# What you're looking for: grey literature types

- Theses/dissertations

- Conference proceedings

- Guidelines

- Government documents

- Committee papers

- Datasets/in-process studies

- Technical standards

- Statistical products

- Program evaluations

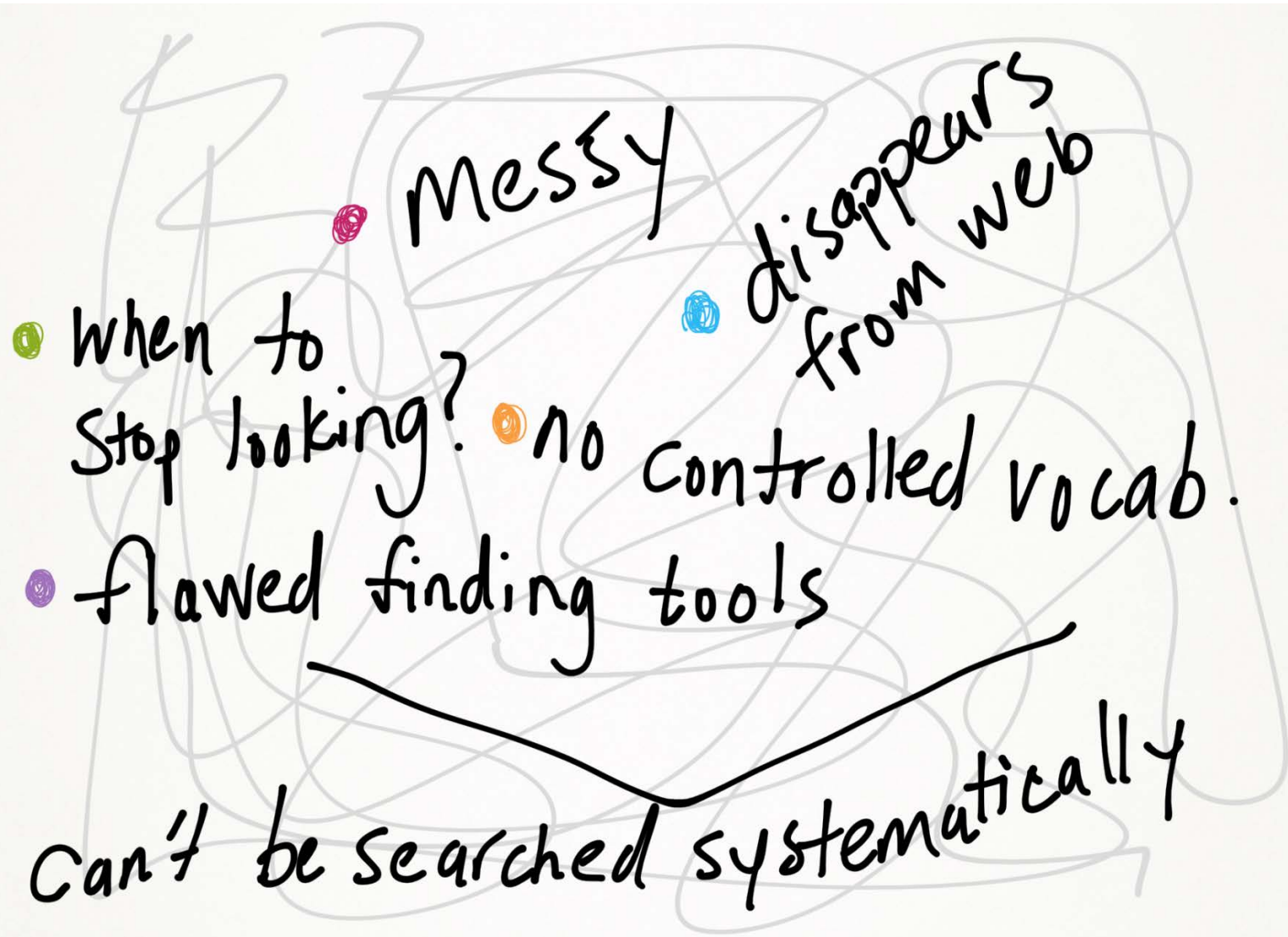- Reports from agencies/think tanks/NGOs

Why include grey literature in scoping reviews?

¯_(ツ)_/¯

Why?

Importance in public health

More complete/balanced view of available research evidence

Less vulnerable to publication bias

May be a richer data source (no length restrictions)

All study designs permitted by scoping review methodology

Recommended in literature review standards (Cochrane, IOM)

May be more up-to-date than scientific literature

Including grey literature in scoping reviews: the process

Plan your search

Execute and document your search

Screen your results

Appraise your results

Chart your data

Analyze and summarize your data

Report

Identifying the research question

Identifying relevant studies

Study selection

Charting the data

Collating, summarizing and reporting the results

Arksey & O'Malley's Methodological Framework for Scoping Studies

Solution: develop a search plan

- Outlines search methods, tools, sources, queries, and limits in advance

- Provides structure and guidance

- Sets boundaries to prevent scope creep

- Enforces an endpoint on searching

- Reduces risk of introducing bias

- Ensures transparency and *reasonable reproducibility

- Facilitates compliance with methodology reporting guidelines

What's the plan, Stan?

Select your search methods and tools

Method	Tools (examples)	Use to find …
Theses repositories	Theses Canada, Networked Digital Library of Theses and Dissertations	Dissertations and theses
Clinical trial registries	ClinicalTrials.gov, WHO International Clinical Trials Registry Platform	Unpublished research data, in-process studies
Grey literature repositories	OpenGrey, Canadian Best Practices Portal	All grey literature types
Library catalogues	Ontario Legislative Library Catalogue, OCLC WorldCat	Reports
Targeted or general web searching	Search engines (Google)	All grey literature types
Reference list scanning	Your eyes (scan references of all articles selected for inclusion)	All grey literature types
Contacting experts	Your email (contact key authors)	All grey literature types
Hand searching	Your hands (screen selected proceedings page-by-page)	Conference proceedings

Search method	Targeted web searching	Hand searching	Contacting experts
What to select	**Identify most important knowledge producers**	**Identify key conferences**	**Identify key authors**
How to select it	Ask a librarian Your content expertise Listservs Colleagues Online compendiums (PHO, OPHLA, U of T)	Ask a librarian Web searching Journal advertisements Listservs Colleagues	Ask a librarian Bibliometrics Conference plenaries Textbook editors Listservs Colleagues

Simplify and adapt your search queries

- Grey literature search tools can't handle complex queries used to search bibliographic databases

- Search queries must be shortened and simplified, and adapted to the functionality of each search tool you use
  - Consults help files for selected search tools: Boolean not always supported

- Choose "best" search terms from database search
  - Run test searches

simplify
.

Search query comparison example: tobacco cessation
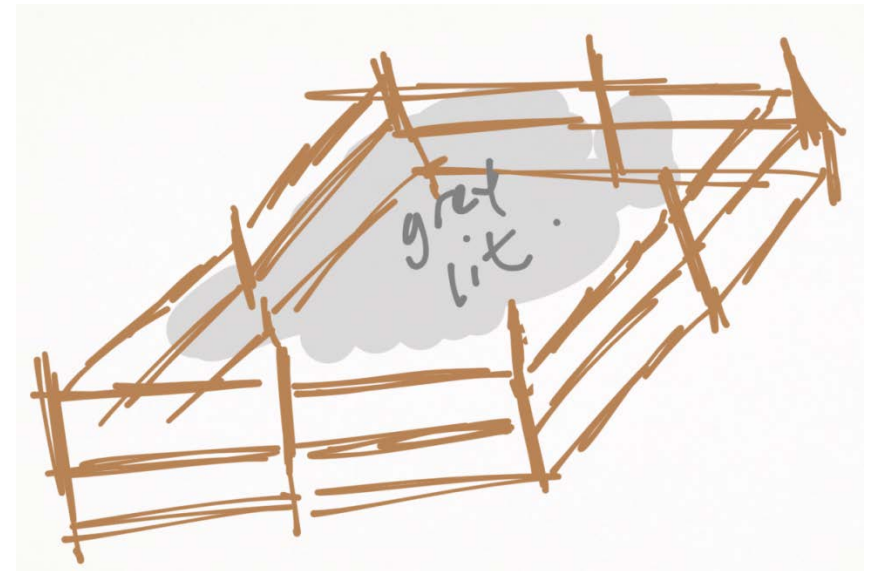
Ovid MEDLINE search query

1. Tobacco Use Cessation/ or Smoking Cessation/ or Tobacco Use/therapy or Smoking/therapy or Tobacco Use Cessation Products/ or Electronic Cigarettes/ or (((tobacco OR smok*) adj5 (cess* OR cease* or quit* or stop*) or "electronic cigarette" or "e-cig*" or vaping or)) or (nicotine adj3 (replace* or patch* or gum or inhal* or lozenge* or polacril*)) or nicorette).ti,ab,kw,kf.

Google search queries

1. tobacco OR smoking cessation
2. tobacco OR smoking quit
3. tobacco OR smoking stop
4. tobacco OR smoking therapy OR treatment
5. tobacco OR smoking "nicotine replacement"
6. tobacco OR smoking electronic-cigarette OR e-cig

Set your limits

- All literature reviews must balance comprehensiveness and practical constraints
  - Note in scoping review limitations

- Limit # of results to review for each **web search query** (max 100 per query)

- Limit # of queries used for each search tool

Run and document your grey literature search

- Use your search plan to create a documentation form, populate it as you search

- Key elements to document:
    - Repositories, registries or catalogues
        - Name, URL, date searched, all search queries, # results retrieved by each query
    - General web searches:
        - Same as above + # results **reviewed** for each query
    - Targeted web searches
        - Same as general web searches + name of each selected website, URL
          (OR, name of custom search engine, list of included sites/domains)
    - Hand searching
        - Citation, URL (if online), date searched
    - Reference list scanning
        - All included studies scanned: yes/no (if no, list studies for which references scanned)
    - Contacting experts
        - Name, affiliation, contact email, date contacted, date responded, # resources provided

- If screening results while searching, also document # of results selected

Grey literature search documentation form

Research question:

What is the nature and extent of the literature evaluating the effectiveness of youth tobacco cessation interventions?

Search strategies:

Theses repositories

Networked Digital Library of Theses and Dissertations http://search.ndltd.org/

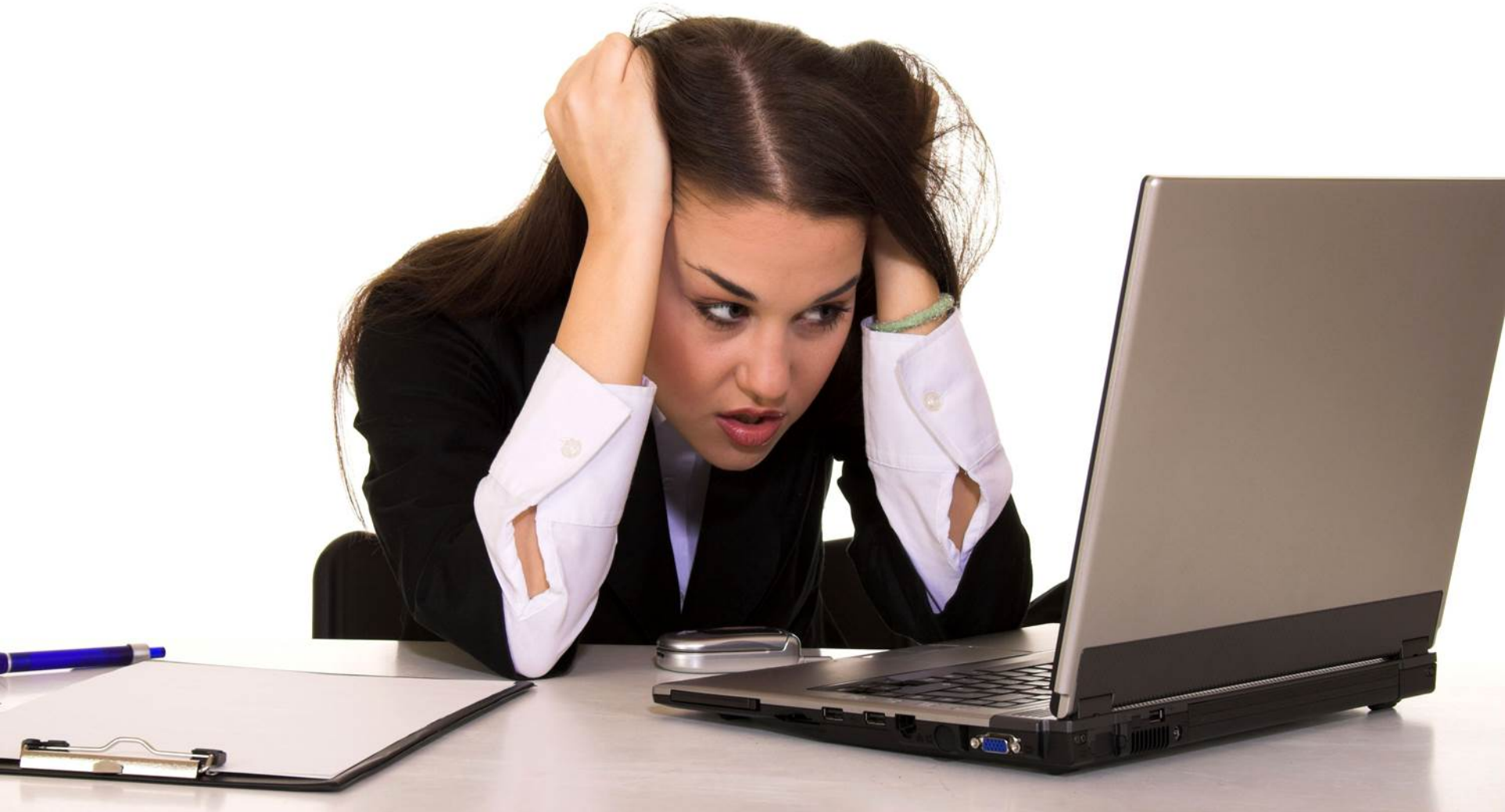| Search query	Date searched	# results retrieved	# results selected*
tobacco OR smoking AND cessation OR quit AND youth OR adolescent	2016-02-04	74	15
tobacco OR smoking AND cessation OR quit AND teen OR preteen	2016-02-04	8	1
tobacco OR smoking AND cessation OR quit AND "high school" OR "secondary school"	2016-02-04	66	9

Clinical trial registries

ClinicalTrials.gov https://clinicaltrials.gov/

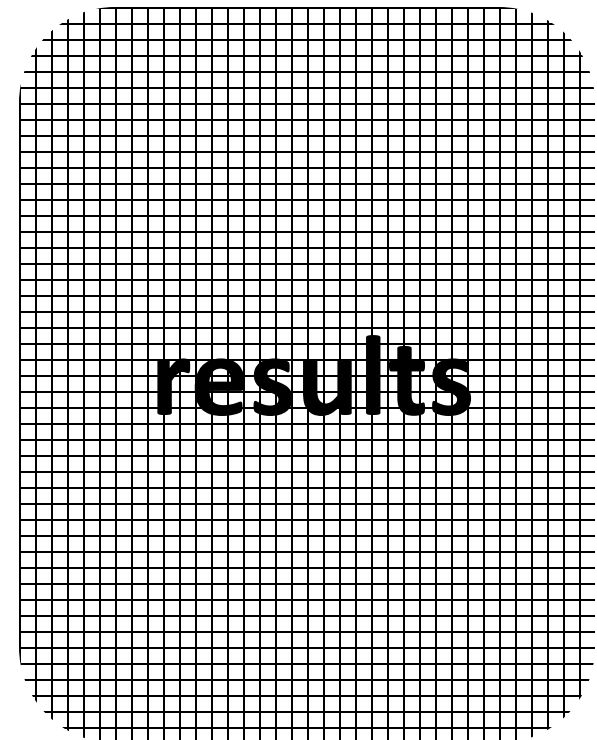| Search query	Date searched	# results retrieved	# results selected*
tobacco AND cessation AND youth	2016-02-03	41	
smoking AND cessation AND youth	2016-02-03	59	
tobacco AND cessation AND adolescent	2016-02-03	41	
smoking AND cessation AND adolescent	2016-02-03	59	
tobacco AND cessation AND "high school"	2016-02-03	10	
smoking AND cessation AND "high school"	2016-02-03	11	
tobacco AND cessation AND teen	2016-02-03	41	
smoking AND cessation AND teen	2016-02-03	59	

Check in

- If no abstract, screen other elements:
  - Table of contents, executive summary, recommendations, and/or search engine snippet
  - Err on the side of inclusion

- Whenever possible, export all results to spreadsheet for title/abstract screening
  - Impractical for web searches, but some grey literature search tools can do this

- For web searches, title/abstract screening may be combined with search
  - Set inclusion criteria in advance of search
  - Bookmark selected results to simplify de-duplication of selected results

- Web search results excluded during title/abstract screening:
  to document, or not to document?
  - How to document: copy & paste, "web scraping" tools (new)

results

Appraise your grey literature search results

- Not required by all scoping review frameworks, BUT
    - Recommended if you're doing more than simply mapping the evidence

- Unlike scientific literature, quality control mechanisms (peer review) usually not embedded in grey literature publishing processes

- Provides context about the quality of the available body of evidence
    - Enriches your discussion of the evidence in your review
    - Not necessarily used to exclude grey literature of ambiguous quality
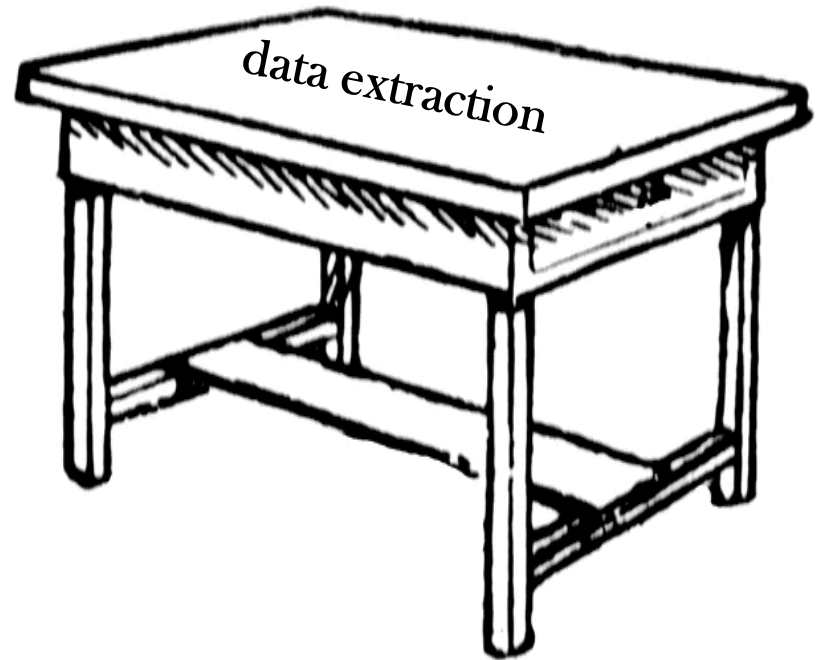
- Use a framework: AACODS, MetaQAT (PHO only, for now)

Appraising grey literature

	Author/publisher	Host/sponsor	Facts and references	Currency
Reporting	Who is the author, are they who they claim to be?	Does the hosting site have a sponsor?	Are references included?	Is a publication or revised date provided?
Validity	Does the author/host have an agenda? Publishing body: • Are they a well-known provincial/national government-affiliated public health agency? • For-profit company? • Political or philosophical agenda? (e.g. Fraser Institute vs. Canadian Centre for Policy Alternatives)	Is the information shared for commercial purposes? Does the site sponsor have a political or philosophical agenda?	Are references to research evidence? Is the information based on research/data/analysis or is it opinion piece? Can you verify some cited sources, facts? How current are the references?	Is the information current?

Chart your data

- Nature and extent of data reported in grey literature more varied than in scientific literature

- When creating your data extraction table, consider how you will capture publication details of grey literature
  - Publication type, jurisdiction, mandate of publishing organization, etc.
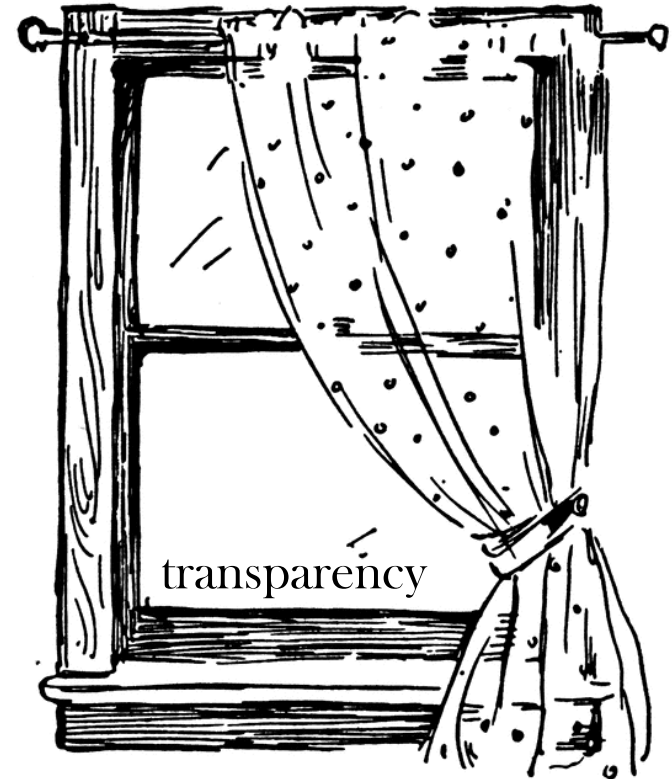
Analyze and summarize your data

- Good news: same process for scientific and grey literature!

Report your methods

- Transparency and "a reasonable level" of reproducibility

- Few reviews exhibit a high standard of grey literature search reporting

- Elements to be reported: best practice
  - Show, don't tell: reproduce all search queries in full in appendix or "additional files" (journal articles)
  - In text, report names of search methods/tools/ sources, dates searched, # of results retrieved
  - If reporting web searches, also report # of results reviewed for each query

- Elements to be reported: 2nd best practice (if constraints on word count, structure, etc.)
  - In a table, reproduce all search queries in full for at least 1 grey literature search tool
  - In text, report same as above, and state that queries were adapted for all other search tools

- Optional: web archiving of grey literature (WebCite, Internet Archive)

transparency

Key messages

- Include grey literature to make your scoping review richer, more comprehensive, more up-to-date, and unbiased

- Develop a grey literature search plan in advance, and stick to it!

- Document key information about methods, tools, sources, search queries, and results as you go

- Compromises are necessary to adapt scoping review methods to include grey literature
  - Document and justify these concessions and note any limitations, but don't let them be a barrier to including grey literature!

- Ask a librarian to be on your review team!

Recommended reading

1. Godin K, Stapleton J, Kirkpatrick SI, Hanning RM, Leatherdale ST. Applying systematic review search methods to the grey literature: a case study examining guidelines for school-based breakfast programs in Canada. Syst Rev. 2015 Oct 22;4:138.

2. Briscoe S. Web searching for systematic reviews: a case study of reporting standards in the UK Health Technology Assessment programme. BMC Res Notes. 2015 Apr 16;8:153.

3. Mahood Q, Eerd DV, Irvin E. Searching for grey literature for systematic reviews: challenges and benefits. Res Synth Methods. 2014 Sep;5(3):221-34.

4. Franks H, Hardiker NR, McGrath M, McQuarrie C. Public health interventions and behaviour change: reviewing the grey literature. Public Health. 2012 Jan;126(1):12-7.

5. Dobbins M, Robeson P, Jetha NJ, DesMeules M. Grey literature: a methodology for searching the grey literature for effectiveness evidence syntheses related to public health: a report from Canada. Health Inform. 2008;17(1):9-12.

6. Benzies KM, Premji S, Hayden KA, Serrett K. State-of-the-evidence reviews: advantages and challenges of including grey literature. Worldviews Evid Based Nurs. 2006;3(2):55-61.

Questions?

MANY META-ANALYSIS STUDIES INCLUDE THE PHRASE "WE SEARCHED MEDLINE, EMBASE, AND COCHRANE FOR STUDIES..."

THIS HAS LED TO META-META-ANALYSES COMPARING META-ANALYSIS METHODS.
e.g. M SAMPSON (2003), PL ROYLE (2005)
E LEE (2011), AR LEMESHOW (2005)

WE PERFORMED A META-META-META-ANALYSIS OF THESE META-META-ANALYSES.

METHODS: WE SEARCHED MEDLINE, EMBASE, AND COCHRANE FOR THE PHRASE "WE SEARCHED MEDLINE, EMBASE, AND COCHRANE FOR THE PHRASE "WE SEARCHED MEDLINE, EMBASE, AND

LIFE GOAL #28: GET A PAPER REJECTED WITH THE COMMENT "TOO META"

Contact me at
library@oahpp.ca!

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