Unit Six: Finding The Evidence

Learning Objectives

- *To understand the complexities of searching for health promotion and public health studies*
- *To gain knowledge of how to locate primary studies of health promotion and public health interventions*
- *To gain basic skills to carry out a search for primary studies*

Identifying health promotion and public health primary studies

The inclusion of an unbiased sample of relevant studies is central to the validity of systematic reviews. Time-consuming and costly literature searches, which cover the grey literature and all relevant languages and databases, are normally recommended to prevent reporting biases.[1]

Searching for primary studies on health promotion and public health topics can be a very time-intensive task, as search strategies will need to be adapted for a number of databases, and broad searches using a wide range of terms may result in a large number of citations requiring application of the inclusion and exclusion criteria. This is party due to health promotion and public health terminology being very non-specific or non-standardised; day to day words are often used to describe interventions and populations. In addition, it may not be appropriate to add a randomised controlled trial (RCT) filter to limit the search because the question may be best answered using other types of study designs.

Components of the searching process

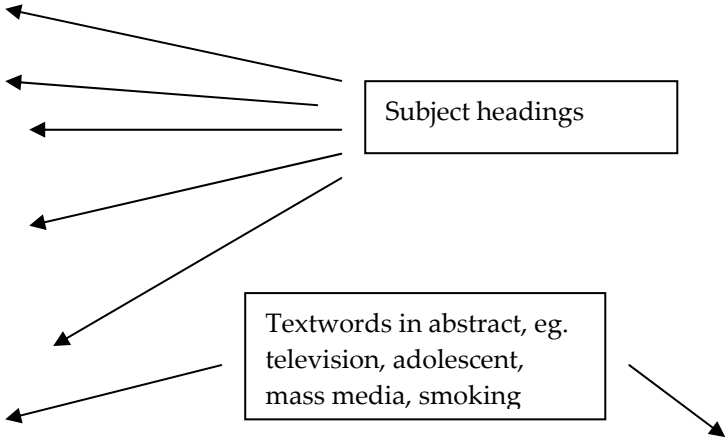
The key components of the search strategy comprise of subject headings and textwords that describe each element of the PICO(T) question.

However, it is usually recommended not to include the O (outcome) of the PICO question in the search strategy because outcomes are described in many different ways and may not be described in the abstract of the article. Search terms to describe outcomes should *only* be used if the number of citations is too large to apply the inclusion and exclusion criteria.

Pilot the search strategy first – complete a scoping search on a database most likely to yield studies using a sample of keywords to locate a few relevant studies. Check the subject headings that are used to index the studies and the relevant textwords in the abstract of the citation. Also, it may be useful to find the citations of key articles in PubMed (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi) and click on Related Articles to find other relevant studies in order to determine additional relevant subject headings and textwords.

The search strategy developed to identify studies will not search the entire full-text of the article. The following complete reference for the citation demonstrates the information that is available for each citation (example provided using the OVID interface): therefore searching the subject headings **and** textwords in the abstract will help us to find this study. **Always** use a combination of subject headings and textwords for each PICO element.

Unique Identifier
2014859
Record Owner
NLM
Authors
Bauman KE. LaPrelle J. Brown JD. Koch GG. Padgett CA.
Institution
Department of Health Behavior and Health Education, School of Public Health, University of North Carolina, Chapel Hill 27599-7400.
Title
The influence of three mass media campaigns on variables related to adolescent cigarette smoking: results of a field experiment.
Source
American Journal of Public Health. 81(5):597-604, 1991 May.
Abbreviated Source
Am J Public Health. 81(5):597-604, 1991 May.
Publication Notes
The publication year is for the print issue of this journal.
NLM Journal Code
1254074, 3xw
Journal Subset
AIM, IM
Local Messages
Held at RCH: 1985 onwards, Some years online fulltext - link from library journal list
Country of Publication
United States
MeSH Subject Headings
Adolescent
***Adolescent Behavior**
Child
***Health Education / mt [Methods]**
Human
***Mass Media**
Pamphlets
Peer Group
Radio
Regression Analysis
***Smoking / pc [Prevention & Control]**
Southeastern United States
Support, U.S. Gov't, P.H.S.
Television



Abstract
BACKGROUND: This paper reports findings from a field experiment that evaluated mass media campaigns designed to prevent cigarette smoking by adolescents. METHODS: The campaigns featured radio and television messages on expected consequences of smoking and a component to stimulate personal encouragement of peers not to smoke. Six Standard Metropolitan Statistical Areas in the Southeast United States received campaigns and four served as controls. Adolescents and mothers provided pretest and posttest data in their homes. RESULTS AND CONCLUSIONS: The radio campaign had a modest influence on the expected consequences of smoking and friend approval of smoking, the more expensive campaigns involving television were not more effective than those with radio alone, the peer-involvement component was not effective, and any potential smoking effects could not be detected.
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19910516
Revision Date
20021101
Update Date
20031209

Subject headings /descriptors (eg. MESH headings in Medline)
Subject headings are used in different databases to describe the subject of each journal article indexed in the database. For example, MeSH (Medical Subject Headings) are used within the Medline database; there are more than 22,000 terms used to describe studies and the headings are updated annually to reflect changes in medicine and medical terminology.

Examples of subject headings relevant to health promotion and public health:
Mass media, smoking, adolescent, health promotion, health education, students, sports

Remember, each database will have different controlled vocabulary (subject headings). Also, subject headings are assigned by human beings, so mistakes can be made. For example, the mass media article was not assigned with the mass media subject heading in the PyscINFO database. Therefore, search strategies should always include textwords in addition to subject headings.

For many health promotion topics there may be few subject headings available (eg. community-based interventions). Therefore, the search strategy may comprise mainly of textwords.

Textwords
These are words that are used in the abstract of articles (and title) to assist with finding the relevant literature. Textwords in a search strategy always end in .tw, eg. adolescent.tw will find the word adolescent in the abstract and title of the article. A general rule is to duplicate all subject headings as textwords, and add any other words such may also describe the component of PICO.

- Truncation $ - this picks up various forms of a textword.
Eg. teen$ will pick up teenage, teenagers, teens, teen
Eg. Smok$ will pick up smoke, smoking, smokes, smoker, smokers

- Wildcards ? and #
These syntax commands will pick up different spellings.
? will substitute for one or no characters, so is useful for locating US and English spellings
Eg. colo?r.tw will pick up color and colour
will substitute for one character so is useful for picking up plural or singular versions of words
Eg. wom#n will pick up women and woman

- Adjacent ADJn
This command retrieves two or more query terms within *n* words of each other, and in any order. This syntax is important when the correct phraseology is unknown.
Eg. sport ADJ1 policy will pick up sport policy and policy for sport
Eg. mental ADJ2 health will pick up mental health and mental and physical health

Note: Databases may use different syntax to retrieve records (eg. $ or * may be used in different databases or interfaces). Therefore, reviewers will need to be become well-acquainted with the idiosyncrasies of each database. Due to the different subject headings used between databases, reviewers will also need to adapt their search strategy for each database (only adapt the subject headings, not textwords).

Combining each element of the PICO questions

Element of question		
P - Population		
Subject headings	**OR**	Textwords
I – Intervention		
Subject headings	**OR**	Textwords
C – Comparison (if necessary)		
Subject headings	**OR**	Textwords
O – Outcome		
Subject headings	**OR**	Textwords
T – Type of study (if necessary)		
Subject headings	**OR**	Textwords
Use a validated filter		
To find studies using all of the PICO elements		
P **AND** I **AND** C **AND** O (**AND** T)		

A lumped review (review of a number of different interventions) is simply a review comprising a number of different PICO(T) questions. This is exemplified in the following pages outlining the search strategy to locate "Interventions for preventing obesity in children".

Using study design to limit search

RCTs: If the review is limited to evidence from RCTs a study design filter can be added to the search strategy. The Cochrane Reviewer's Handbook[2] details the appropriate filter to add.

Non-RCTs: Limiting the search strategy by using non-randomised study terms can be very problematic, and is generally not recommended. This is because:

- Few studies may be indexed by study design
- The vocabulary required to identify different study designs can vary extensively between electronic databases. Terms vary from 'control groups' to 'follow-up studies', to 'longitudinal studies' or even 'program effectiveness' or 'program evaluation', to index the same studies
- Some databases, eg. PsycINFO, are poorly indexed with respect to methodology.

Therefore, after a PICO search is completed all citations will require application of the inclusion and exclusion criteria.

Qualitative research: A filter for the CINAHL database is available from the Edward Miner Library http://www.urmc.rochester.edu/hslt/miner/digital_library/tip_sheets/Cinahl_eb_filters.pdf

Where to locate studies

a) Electronic databases of relevance to health promotion and public health

Reviewers should ensure that the search strategy (subject headings and textwords) is developed for a number of databases that cover the variety of domains where the literature may be located.

A full list of free public health databases and subscription-only databases is available at http://library.umassmed.edu/ebpph/dblist.cfm. This website contains a number of databases that have not been included in the following list.

Some examples of electronic databases that may be useful to identify public health or health promotion studies include (websites listed for databases available freely via the internet):

Psychology:	PsycINFO/PscyLIT
Biomedical:	CINAHL, LILACS (Latin American Caribbean Health Sciences Literature) http://www.bireme.br/bvs/I/ibd.htm, Web of Science, Medline, EMBASE, CENTRAL (http://www.update-software.com/clibng/cliblogon.htm), Combined Health Information Database (CHID) http://chid.nih.gov/, Chronic Disease Prevention Database (CDP) http://www.cdc.gov/cdp/
Sociology:	Sociofile, Sociological Abstracts, Social Science Citation Index
Education:	ERIC (Educational Resources Information Center), C2-SPECTR (Campbell Collaboration Social, Psychological, Educational and Criminological Trials Register) http://www.campbellcollaboration.org, REEL (Research Evidence in Education Library, EPPI-Centre) http://eppi.ioe.ac.uk
Transport:	NTIS (National Technical Information Service), TRIS (Transport Research Information Service) http://ntl.bts.gov/tris, IRRD (International Road Research Documentation), TRANSDOC (from ECMT (European Conference of Ministers of Transport)
Physical activity:	SportsDiscus
HP/PH:	BiblioMap (EPPI-Centre) http://eppi.ioe.ac.uk, HealthPromis (HDA, UK) http://www.hda-online.org.uk/evidence/ , Global Health
Other:	Popline (population health, family planning) http://db.jhuccp.org/popinform/basic.html, Enviroline (environmental health) – available on Dialog, Toxfile (toxicology) – available on Dialog, Econlit (economics)
Qualitative:	ESRC Qualitative Data Archival Resource Centre (QUALIDATA) (http://www.qualidata.essex.ac.uk), Database of Interviews on Patient Experience (DIPEX) (http://www.dipex.org).

b) Handsearching health promotion and public health journals

It may be useful to handsearch specialist journals relevant to the review topic area to identify further primary research studies. Also consider non-health promotion and public health journals which may cover the topic of interest, i.e., marketing journals, etc.

Two lists of health promotion and public health journals have been produced which may help to determine which journals to search.

1) The Lamar Soutter Library list of public health journals, http://library.umassmed.edu/ebpph/, (a list of freely available journals is also included)
2) The Core Public Health Journals List compiled by Yale University, http://www.med.yale.edu/eph/library/phjournals/,

The Effective Public Health Practice Project (Canada) has found that the most productive journals to handsearch to locate public health and health promotion articles are: American Journal of Health Promotion, American Journal of Preventive Medicine, American Journal of Public Health, Canadian Journal of Public Health, BMJ. Other useful journals include Annual Review of Public Health, Health Education and Behavior (formerly Health Education Quarterly), Health Education Research, JAMA, Preventive Medicine, Public Health Reports, Social Science and Medicine.

c) Grey literature

Methods to locate unpublished, difficult-to-find literature include:

- Scanning reference lists of relevant studies
- Contacting authors/academic institutions of key studies
- Searching for theses, dissertations, conference proceedings (one source of dissertations and theses is the Networked Digital Library of Theses and Dissertations (NDLTD) which can be accessed from http://www.theses.org/)
- Searching the internet for national public health reports, local public health reports, reviews serving as background documentation for legislation, quality assurance reports, etc. A useful internet search engine for locating academic work is Google Scholar (http://scholar.google.com).

Save, document and export the search

Always save and print out the search strategy for safe record-keeping. It is essential to have bibliographic software (Endnote, Reference Manager, GetARef) to export the retrieved citations to apply the inclusion/exclusion criteria. Citations from unpublished literature cannot usually be exported, so will require individual entry by hand into the reference managing system. Bibliographic software will also assist with the referencing when writing the final review.

REFERENCES

1. Egger M, Juni P, Bartlett C, Holenstein F, Sterne J. How important are comprehensive literature searches and the assessment of trial quality in systematic reviews? Empirical study. Health Technol Assess 2003;7(1).

2. Clarke M, Oxman AD, editors. Cochrane Reviewers' Handbook 4.2.0 [updated March 2003]. http://www.cochrane.dk/cochrane/handbook/handbook.htm

ADDITIONAL READING

Harden A, Peersman G, Oliver S, Oakley A. Identifying primary research on electronic databases to inform decision-making in health promotion: the case of sexual health promotion. Health Education Journal 1999;58:290-301.

EXERCISE

1. Go through the worked example searching exercise.

2. Go back to PICO question developed in Unit Five.

(a) find Medical Subject Headings (MeSH)/descriptors and textwords that would help describe each of the PICO components of the review question.

	MeSH/descriptors eg. Adolescent (Medline) eg High School Students (PsycINFO)	**Textwords** student, highschool, teenage
P =	…… …… …… …… ……	…… …… …… …… ……
I =	…… …… …… …… ……	…… …… …… …… ……
C =	*May not be required* …… …… …… ……	…… …… …… ……
O =	…… …… …… …… ……	…… …… …… …… ……

(b) Which databases would be most useful to locate studies on this topic? Do the descriptors differ between the databases?

……
……
……

Examples of searching strategies

Campbell K, Waters E, O'Meara S, Kelly S, Summerbell C. Interventions for preventing obesity in children (Cochrane Review). In: The Cochrane Library, Issue 3, 2004. Chichester, UK: John Wiley & Sons, Ltd.
MEDLINE, 1997

1. explode "Obesity"/ all subheadings
2. "Weight-Gain"/ all subheadings
3. "Weight-Loss"/ all subheadings
4. obesity or obese
5. weight gain or weight loss
6. overweight or over weight or overeat* or over eat*
7. weight change*
8. (bmi or body mass index) near2 (gain or loss or change)
9. #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8

10. "Child-" in MIME,MJME
11. "Adolescence"/ all subheadings
12. "Child-Preschool"/ all subheadings
13. "Infant-" in MIME,MJME
14. child* or adolescen* or infant*
15. teenage* or young people or young person or young adult*
16. schoolchildren or school children
17. p?ediatr* in ti,ab
18. boys or girls or youth or youths
19. #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18

20. explode "Behavior-Therapy"/ all subheadings
21. "Social-Support" in MIME,MJME
22. "Family-Therapy"/ all subheadings
23. explode "Psychotherapy-Group"/ all subheadings
24. (psychological or behavio?r*) adj (therapy or modif* or strateg* or intervention*)
25. group therapy or family therapy or cognitive therapy
26. (lifestyle or life style) adj (chang* or intervention*)
27. counsel?ing
28. social support
29. peer near2 support
30. (children near3 parent?) near therapy
31. #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30

32. explode "Obesity"/ drug-therapy
33. explode "Anti-Obesity-Agents"/ all subheadings
34. lipase inhibitor*
35. orlistat or xenical or tetrahydrolipstatin
36. appetite adj (suppressant* or depressant*)
37. sibutramine or (meridia in ti,ab)
38. dexfenfluramine or fenfluramine or phentermine
39. bulking agent*
40. methylcellulose or celevac
41. (antiobesity or anti obesity) adj (drug* or agent*)
42. guar gum
43. #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 or #41 or #42

44. explode "Obesity"/ diet-therapy

45. "Diet-Fat-Restricted"/ all subheadings
46. "Diet-Reducing"/ all subheadings
47. "Diet-Therapy"/ all subheadings
48. "Fasting"/ all subheadings
49. diet or diets or dieting
50. diet* adj (modif* or therapy or intervention* or strateg*)
51. low calorie or calorie control* or healthy eating
52. fasting or modified fast*
53. explode "Dietary-Fats"/ all subheadings
54. fruit or vegetable*
55. high fat* or low fat* or fatty food*
56. formula diet*
57. #44 or #45 or #46 or #47 or #48 or #49 or #50 or #51 or #52 or #53 or #54 or #55 or #56

58. "Exercise"/ all subheadings
59. "Exercise-Therapy"/ all subheadings
60. exercis*
61. aerobics or physical therapy or physical activity or physical inactivity
62. fitness adj (class* or regime* or program*)
63. aerobics or physical therapy or physical training or physical education
64. dance therapy
65. sedentary behavio?r reduction
66. #58 or #59 or #60 or #61 or #62 or #63 or #64 or #65

67. explode "Obesity"/ surgery
68. "Surgical-Staplers"/ all subheadings
69. "Surgical-Stapling"/ all subheadings
70. "Lipectomy"/ all subheadings
71. "Gastric-Bypass"/ all subheadings
72. "Gastroplasty"/ all subheadings
73. dental splinting or jaw wiring
74. gastroplasty or gastric band* or gastric bypass
75. intragastric balloon* or vertical band*
76. stomach adj (stapl* or band* or bypass)
77. liposuction
78. #67 or #68 or #69 or #70 or #71 or #72 or #73 or #74 or #75 or #76 or #77

79. explode "Alternative-Medicine"/ all subheadings
80. alternative medicine or complementary therap* or complementary medicine
81. hypnotism or hypnosis or hypnotherapy
82. acupuncture or homeopathy or homoeopathy
83. chinese medicine or indian medicine or herbal medicine or ayurvedic
84. #79 or #80 or #81 or #82 or #83

85. (diet or dieting or slim*) adj (club* or organi?ation*)
86. weightwatcher* or weight watcher*
87. correspondence adj (course* or program*)
88. fat camp* or diet* camp*
89. #85 or #86 or #87 or #88

90. "Health-Promotion"/ all subheadings
91. "Health-Education"/ all subheadings
92. health promotion or health education
93. media intervention* or community intervention*
94. health promoting school*
95. (school* near2 program*) or (community near2 program*)

96. family intervention* or parent* intervention*
97. parent* near2 (behavio?r or involve* or control* or attitude* or educat*)
98. #90 or #91 or #92 or #93 or #94 or #95 or #96 or #97

99. "Health-Policy"/ all subheadings
100. "Nutrition-Policy"/ all subheadings
101. health polic* or school polic* or food polic* or nutrition polic*
102. #99 or #100 or #101

103. explode "Obesity"/ prevention-and-control
104. "Primary-Prevention"/ all subheadings
105. primary prevention or secondary prevention
106. preventive measure* or preventative measure*
107. preventive care or preventative care
108. obesity near2 (prevent* or treat*)
109. #103 or #104 or #105 or #106 or #107 or #108

110. explode "Controlled-Clinical-Trials"/ all subheadings
111. "Random-Allocation" in MIME,MJME
112. "Double-Blind-Method" in MIME,MJME
113. "Single-Blind-Method" in MIME,MJME
114. "Placebos"/ all subheadings
115. explode "Research-Design"/ all subheadings
116. (singl* or doubl* or trebl* or tripl*) near5 (blind* or mask*)
117. exact{CONTROLLED-CLINICAL-TRIAL} in PT
118. placebo*
119. matched communities or matched schools or matched populations
120. control* near (trial* or stud* or evaluation* or experiment*)
121. comparison group* or control group*
122. matched pairs
123. outcome study or outcome studies
124. quasiexperimental or quasi experimental or pseudo experimental
125. nonrandomi?ed or non randomi?ed or pseudo randomi?ed
126. #110 or #111 or #112 or #113 or #114 or #115 or #116 or #117 or #118 or #119 or #120 or #121 or #122 or #123 or #124 or #125

127. #9 and #19
128. #31 or #43 or #57 or #66 or #78 or #84 or #89 or #98 or #102 or #109
129. #126 and #127 and #128
130. animal in tg
131. human in tg
132. #130 not (#130 and #131)
133. #129 not #132
134. #133 and (PY >= "1997")

Brunton G, Harden A, Rees R, Kavanagh J, Oliver S, Oakley A (2003). Children and Physical Activity: A systematic Review of Barriers and Facilitators. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

1. Exp child/
2. Exp adolescence/ or exp child/ hospitalized/ or exp child institutionalized/ or exp disabled children/ or infant
3. 1 not 2
4. exp child preschool/
5. exp students/
6. ((university or college or medical or graduate or post graduate) adj2 student$).ti.ab.
7. 5 not 6
8. (school adj3 (child$ or pupil$ or student$ or kid of kids of primary or nursery or infant$)).ti.ab.
9. or/3-4,7-8
10. exp health promotion/
11. exp health education/
12. exp preventive medicine/
13. (prevent$ or reduc$ or promot$ or increase$ or program$ or curricul$ or educat$ or project$ or campaign$ or impact$ or risk$ or vulnerab$ or resilien$ or factor$ or correlate$ or predict$ or determine$ or behavio?r$).ti.ab.
14. (health$ or ill or illness or ills or well or wellbeing or wellness or poorly or unwell or sick$ or disease$).ti.ab.
15. ((prevent$ or reduc$ or promot$ or increase$ or program$ or curricul$ ire ducat$ or project$ or campaign$ or impact$ or risk$ or vulnerab$ or resilien$ or factor$ or correlate$ or predict$ or determine$ or behavio?r$) adj3 (health$ or ill or illness or ills or well or wellbeing or wellness or poorly or unwell or sick$ or disease$).ti.ab.
16. or/10-12,15
17. (determine$ or facilitate$ or barrier$).ti
18. Risk factors/
19. Culture/
20. Family/ or Internal-external control/ or Life style/ or Prejudice/ or Psychology, social/ or Psychosocial deprivation/
21. Child behavior/
22. Habits/
23. Poverty/
24. Social class/
25. Social conditions/
26. Socioeconomic factors/
27. Family characteristics/
28. Ethnicity.ti,ab.
29. Attitude to health/
30. Or/17-29
31. Exp sports/
32. Exp physical fitness/
33. Exp exertion/
34. "Physical education and training"/
35. exp leisure activities/
36. Recreation/
37. ((sedentary or inactive$) adj3 child$).ti,ab.
38. ((physical$ or sport$ or exercise$ or game$1) adj3 (activit$ or exercise$ or exert$ or fit or fitness or game$1 or endurance or endure$ or educat$ or train$1 or training)).ti,ab.
39. Or/31-38
40. Or/16,30
41. And/9,39-40

WORKED EXAMPLE

We will work through the process of finding primary studies for a systematic review, using the review below as an example: ** This search has been modified from the original version **

Sowden A, Arblaster L, Stead L. Community interventions for preventing smoking in young people (Cochrane Review). In: The Cochrane Library, Issue 3, 2004. Chichester, UK: John Wiley & Sons, Ltd.

1 adolescent/
2 child/
3 Minors/
4 young people.tw.
5 (child$ or juvenile$ or girl$ or boy$ or teen$ or adolescen$).tw.
6 minor$.tw
7 or/1-6

All the subject headings and textwords relating to P - population

8 exp smoking/
9 tobacco/
10 "tobacco use disorder"/
11 (smok$ or tobacco or cigarette$).tw.
12 or/8-11

All the subject headings and textwords relating to O - outcome

13 (community or communities).tw.
14 (nationwide or statewide or countrywide or citywide).tw.
15 (nation adj wide).tw.
16 (state adj wide).tw.
17 ((country or city) adj wide).tw.
18 outreach.tw.
19 (multi adj (component or facet or faceted or disciplinary)).tw.
20 (inter adj disciplinary).tw.
21 (field adj based).tw.
22 local.tw.
23 citizen$.tw.
24 (multi adj community).tw.
25 or/13-24

All the subject headings (none found) and textwords relating to I - intervention

26 mass media/
27 audiovisual aids/
28 exp television/
29 motion pictures/
30 radio/
31 exp telecommunications/
32 videotape recording/
33 newspapers/
34 advertising/
35 (tv or televis$).tw.
36 (advertis$ adj4 (prevent or prevention)).tw.
37 (mass adj media).tw.
38 (radio or motion pictures or newspaper$ or video$ or audiovisual).tw.
39 or/26-38

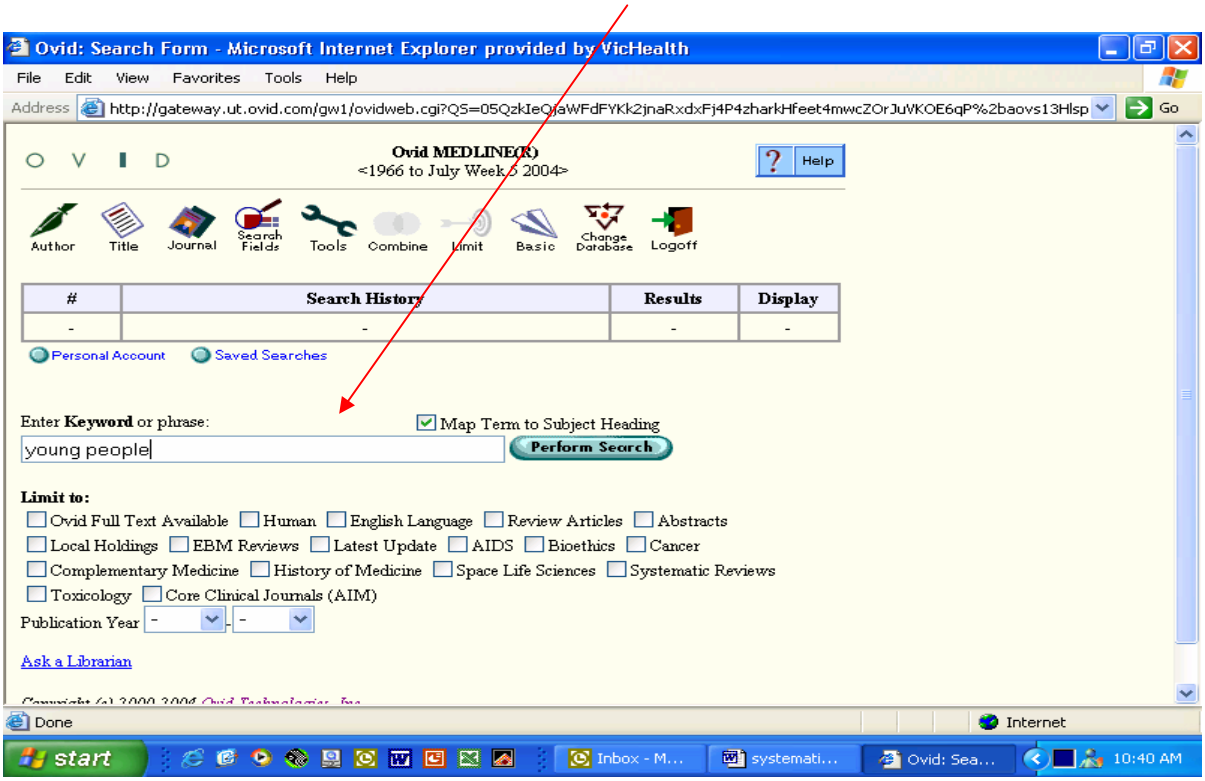
This review wants to exclude mass media interventions as a community based intervention (a review has already been completed on this topic)
- see search line 42

40 7 and 12 and 25
41 7 and 12 and 39
42 40 not 41

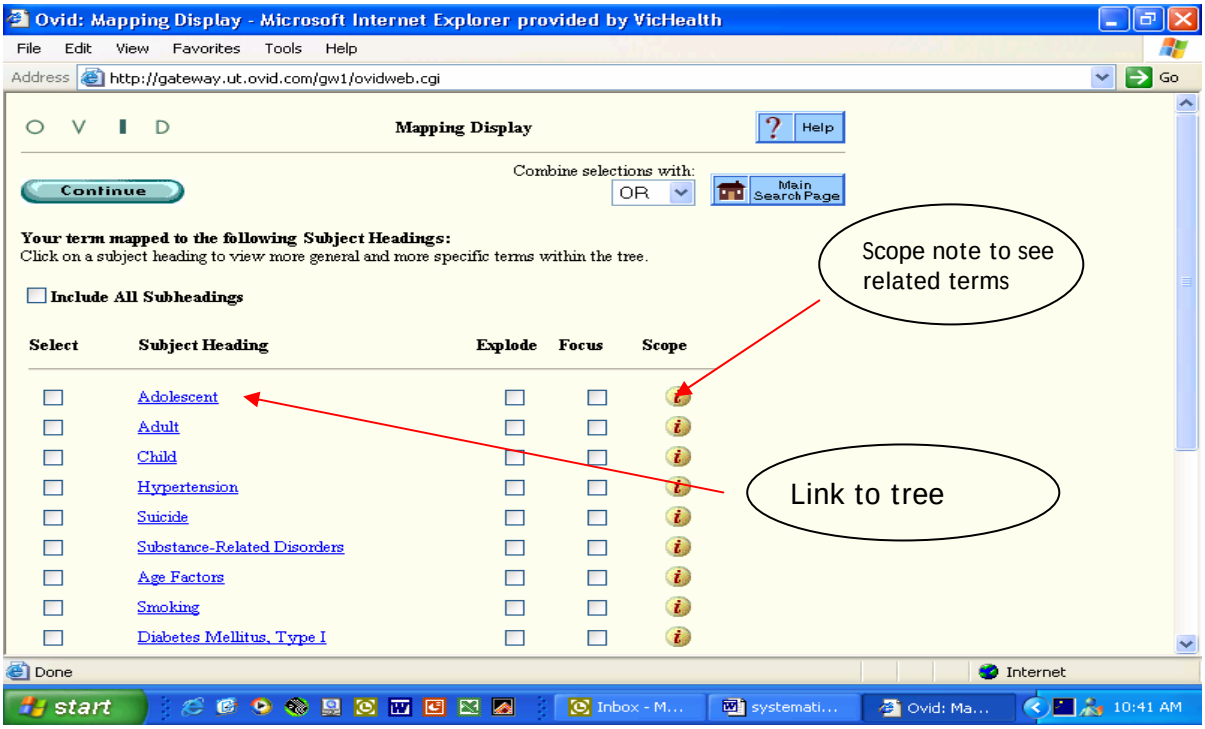
40 – young people and smoking and community-based intervention
41 – young people and smoking and mass media interventions
42 - community interventions not including mass media interventions

1. Start with the primary concept, i.e. young people.

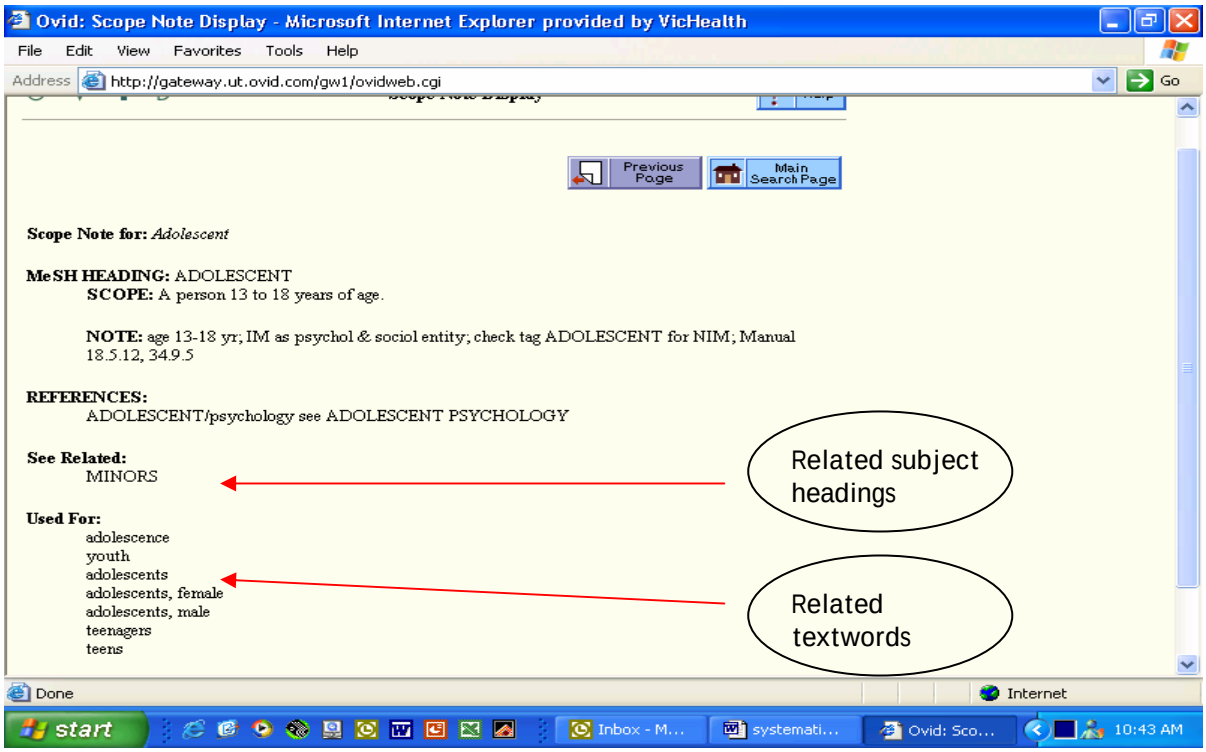
2. The Ovid search interface allows plain language to be 'mapped' to related subject headings, terms from a controlled indexing list (called controlled vocabulary) or thesaurus (eg. MeSH in MEDLINE). **Map the term 'young people'**



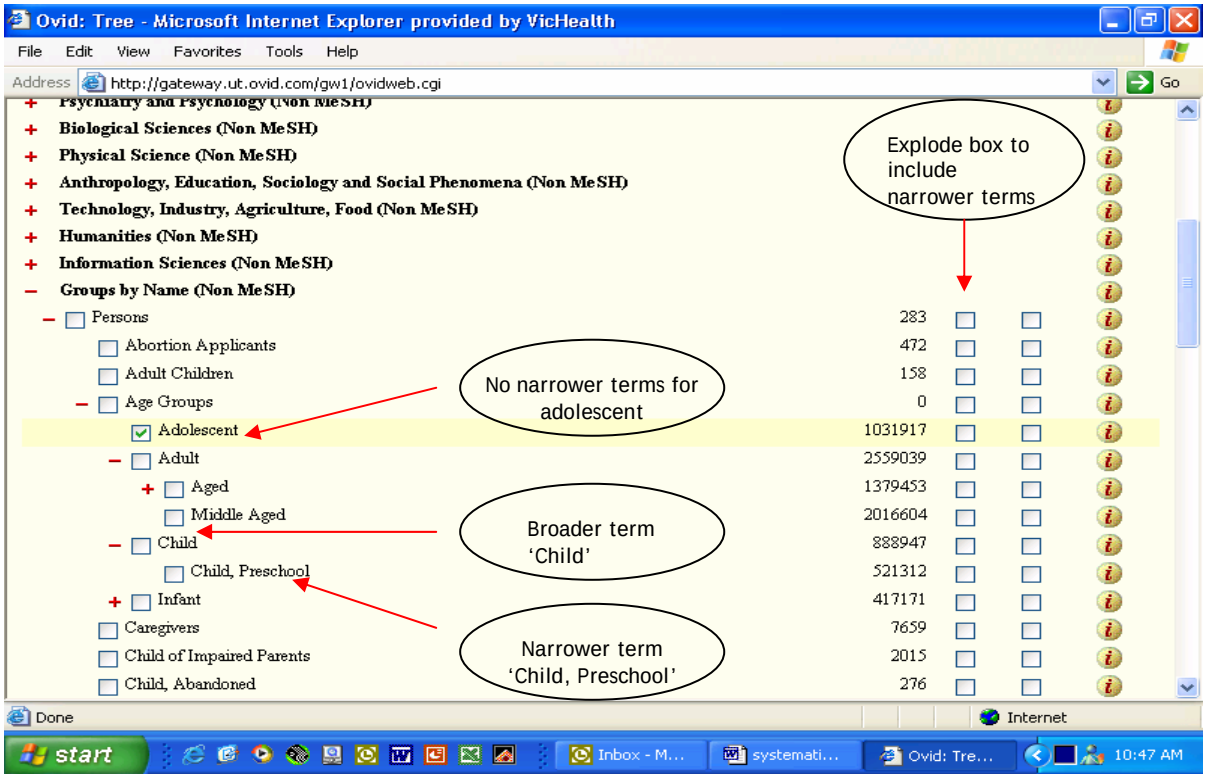
3. The result should look like this:



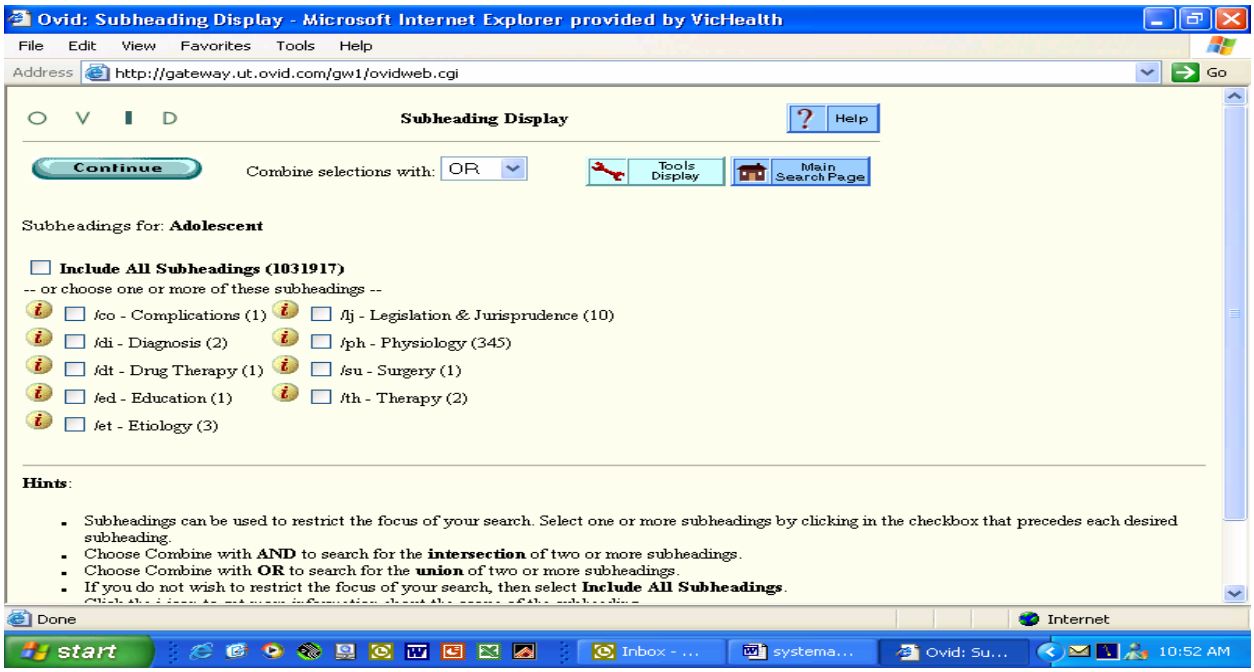
4. **Click on the scope note for the Adolescent** term (i symbol) to find the definition of adolescent and terms related to adolescent that can also be used in the search strategy. Note that Minors can also be used for the term adolescent.



4. **Click on Previous page and then Adolescent** to view the tree (the numbers will be different).

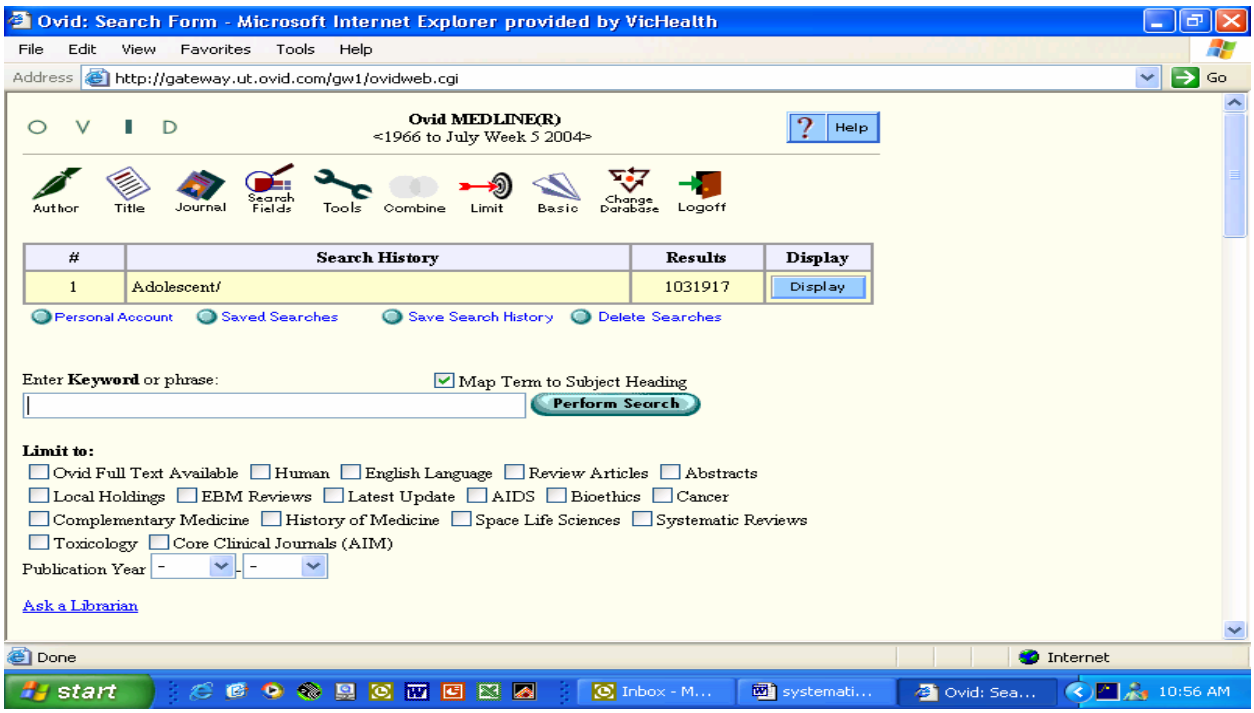


5. Because adolescent has no narrower terms click 'continue' at the top of the screen. This will produce a list of all subheadings.
(If adolescent had narrower terms that are important to include the explode box would be checked).



6. **Press continue** (it is not recommended to select any of the subheadings for public health reviews).

7. The screen will now show all citations that have adolescent as a MeSH heading.



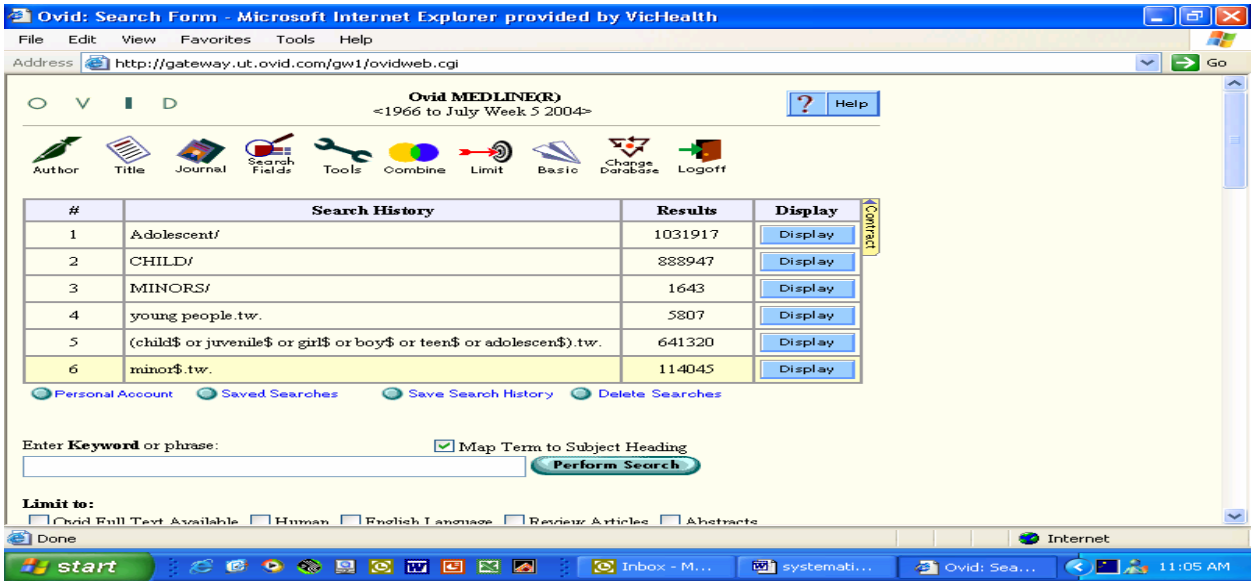
8. Repeat this strategy using the terms **child** and **minors**.

9. Using freetext or text-words to identify articles.

Truncation - $ - Unlimited truncation is used to retrieve all possible suffix variations of a root word. Type the desired root word or phrase followed by either of the truncation characters "$" (dollar sign). Another wild card character is "?" (question mark). It can be used within or at the end of a query word to substitute for one or no characters. This wild card is useful for retrieving documents with British and American word variants.

10. Freetext words for searching – **type in young people.tw.**

You can also combine all textwords in one line by using the operator OR - this combines two or more query terms, creating a set that contains all the documents containing any of the query terms (with duplicates eliminated). For example, **type in (child$ or juvenile$ or girl$ or boy$ or teen$ or adolescen$).tw.**



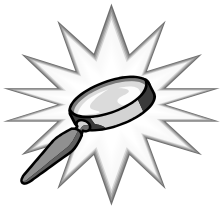
11. Combine all young people related terms by **typing or/1-6**

12. Complete searches 8-12 and 13-25 in the worked example. Combine the three searches (7, 12, 25) by using the command AND.

13. Well done! Now try a search using the PICO question developed earlier in Unit Five. A good start is to look at citations that are known to be relevant and see what terms have been used to index the article, or what relevant words appear in the abstract that can be used as textwords.

Good luck!

Finding the evidence

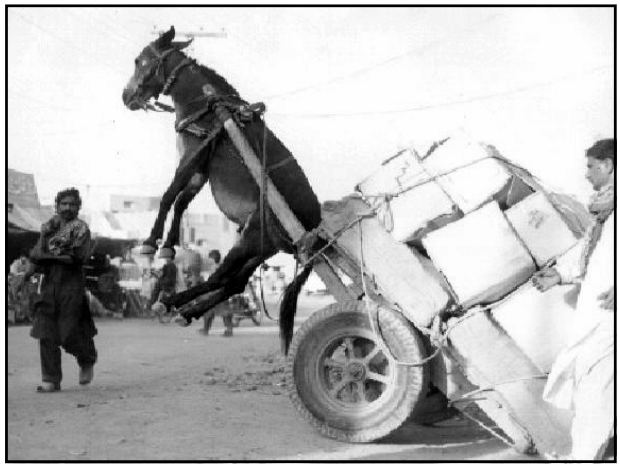


Systematic review process

1. Well formulated question
2. **Comprehensive data search**
3. Unbiased selection and abstraction process
4. Critical appraisal of data
5. Synthesis of data
6. Interpretation of results

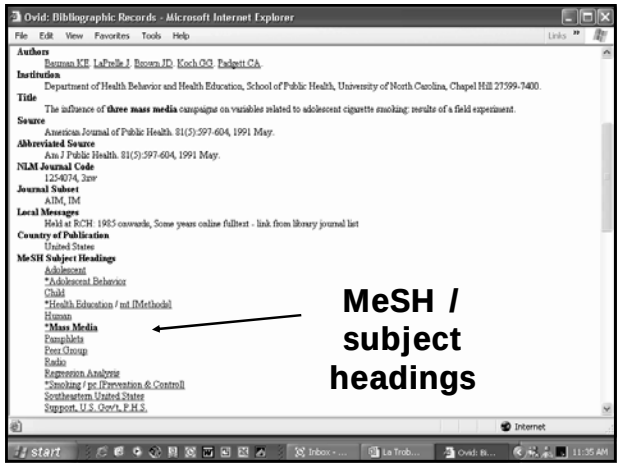
A good search

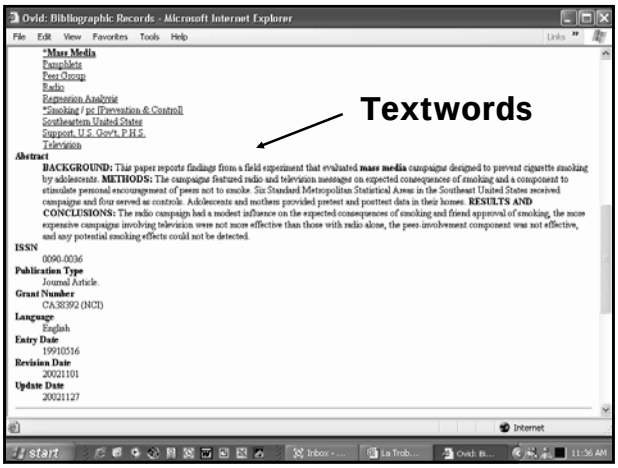
- ✓ Clear research question
- ✓ Comprehensive search
  - All domains, no language restriction, unpublished and published literature, up-to-date
- ✓ Document the search (replicability)



1. Electronic searching

- Database choice should match area of interest:
  - Medical: Medline, EMBASE, CINAHL
  - Social Science: PsycINFO, Social Science Citation Index, Sociological Abstracts
  - Educational: ERIC
  - Other: AGRIS (agricultural), SPORTSDiscus (sports), EconLit (economics)
  - Other registers: CENTRAL (Cochrane), BiblioMap (EPPI-Centre), HealthPromis (HDA)





EBPH Components of electronic searching

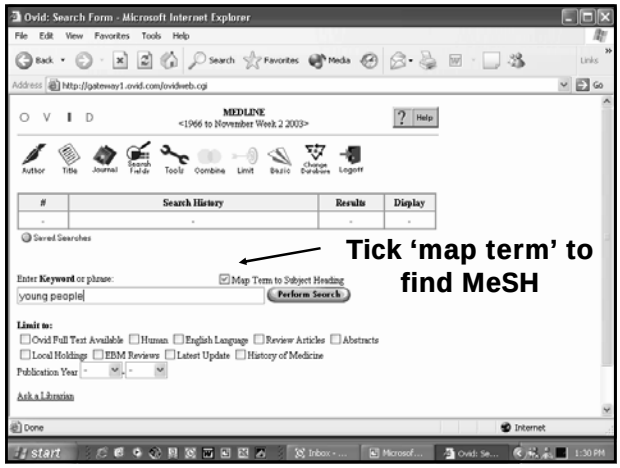
1. Describe each PICO component
2. Start with primary concept
3. Find synonyms
   a) Identify MeSH / descriptors / subject headings
   b) Add textwords
4. Add other components of PICO question to narrow citations *(may use study filter)*
5. Examine abstracts
6. Use search strategy in other databases (may need adapting)

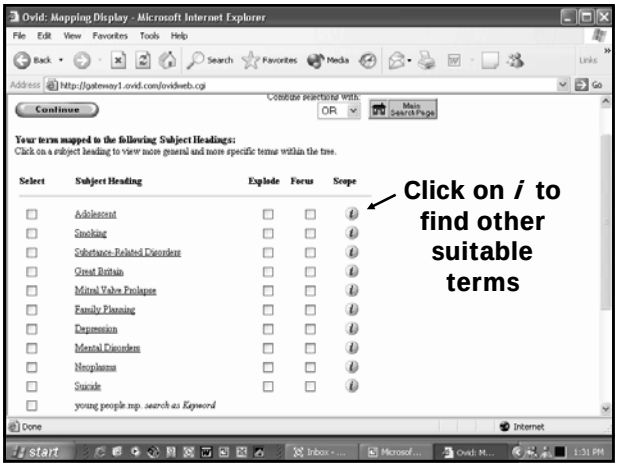
EBPH Example

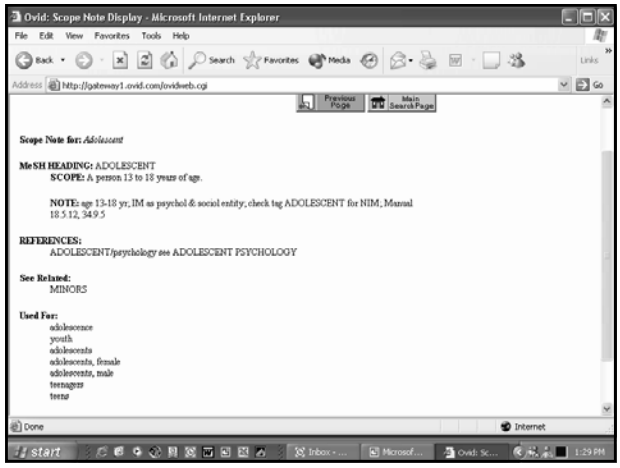
Mass media interventions to prevent smoking in young people

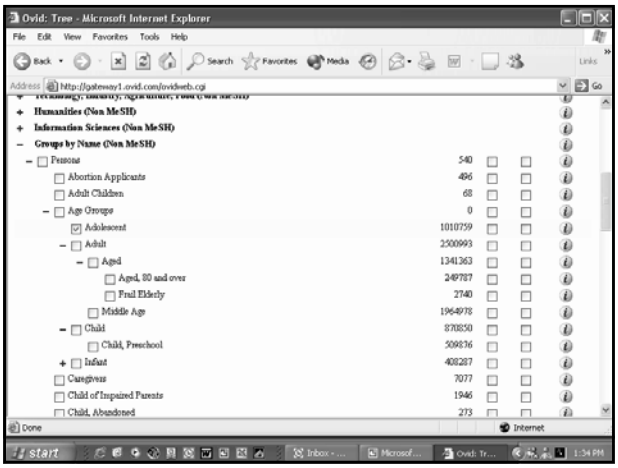
P= Young people

STEP ONE:
Find MeSH and textwords to describe young people







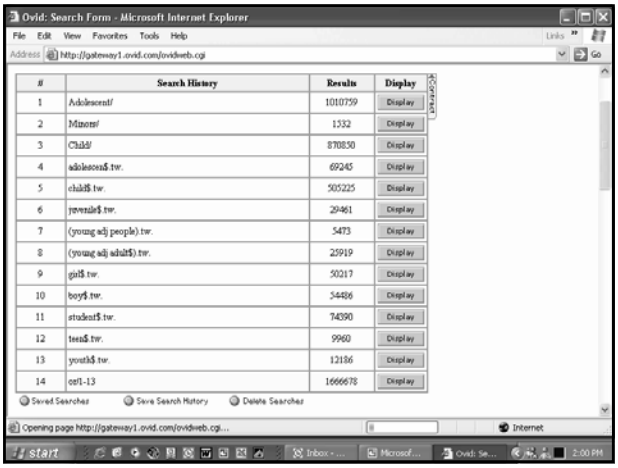


Example

Mass media interventions to prevent smoking in young people

P= Young people

MeSH: Adolescent
Child
Minors



Example

Mass media interventions to prevent smoking in young people

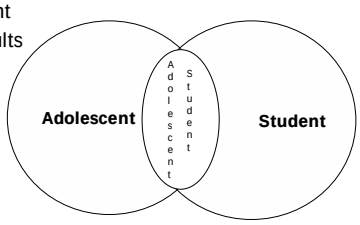
P= Young people

Textwords:

Adolescent	Girl
Child	Boy
Juvenile	Teenager
Young people	Young adult
Student	Youth

BOOLEAN OPERATORS - OR

- Or is more!
- Similar terms – combine MeSH and textwords for each PICO element
- Broader results



Textwords

Truncation $:

To pick up various forms of a word

Teen$.tw	**Smok$.tw**
Teenage	Smoke
Teenager	Smoking
Teenagers	Smokes
Teens	Smoker
Teen	Smokers

Textwords

Wild cards ? and #:

To pick up different spellings

Colo?r.tw (? Can be substituted for one or no characters)

Colour

Color

Wom#n.tw (# Substitutes for one character)

Woman

Women

Textwords

Adjacent ADJn:

- retrieves two or more query terms within *n* words of each other, and in any order
- Great when you are not sure of phraseology

Eg sport adj1 policy

Sport policy

Policy for sport

Eg mental adj2 health

Mental health

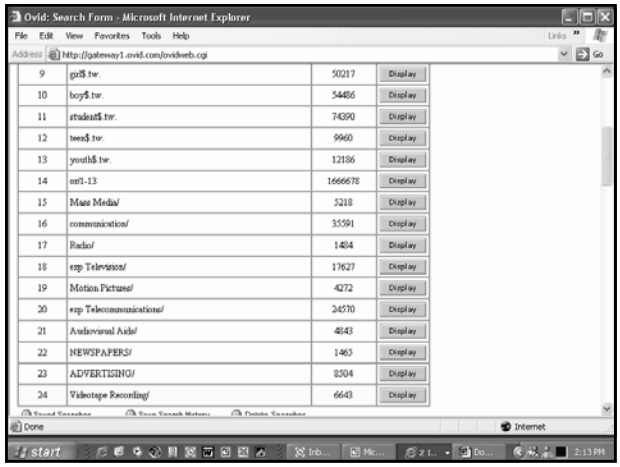
Mental and physical health

Example continued

Mass media interventions to prevent smoking in young people

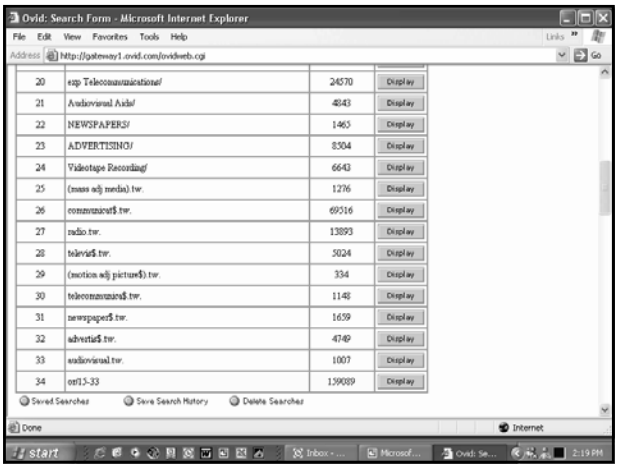
I = Mass media interventions

STEP TWO:
Find MeSH and textwords to describe mass media interventions



Example continued

- MeSH
  - Mass media
  - Audiovisual aids
  - Television
  - Motion pictures
  - Radio
  - Telecommunications
  - Newspapers
  - Videotape recording
  - Advertising

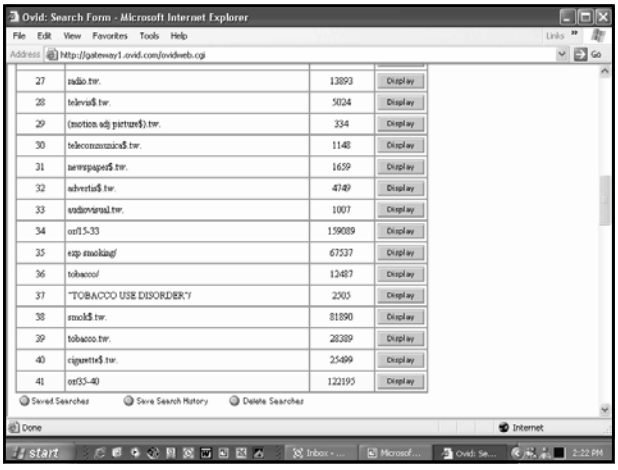


Example continued

Mass media interventions to prevent smoking in young people

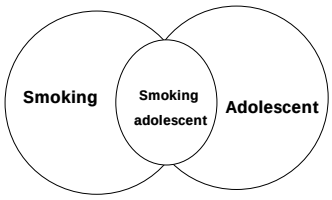
O = Prevention of smoking

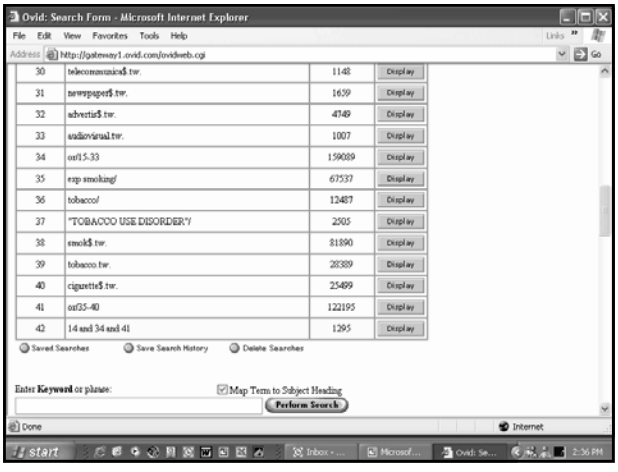
STEP THREE:
Find MeSH and textwords to describe prevention of smoking



BOOLEAN OPERATORS – AND

- Fewer records
- Different concepts – each element of PICO
- Focussed results





Example of search

P = YOUNG PEOPLE

MeSH		Textwords	
.....	OR	.....	P
.....		.....	
.....		.....	AND

I = MASS MEDIA

MeSH		Textwords	
.....	OR	.....	I
.....		.....	
.....		.....	AND

C = (if required)

O = PREVENTION OF SMOKING

MeSH		Textwords	
.....	OR	.....	C
.....		.....	
.....		.....	AND

O

Different bibliographic databases

- Databases use different types of controlled vocabulary
  - Same citations indexed differently on different databases
  - Medline and EMBASE use a different indexing system for study type
  - PsycINFO and ERIC do not have specific terms to identify study types

→ **Need to develop search strategy for each database**

CINAHL

Medline

PsycINFO

Compare subject headings

MEDLINE	CINAHL	PsycINFO
Adolescent	Adolescence	Adolescent attitudes
Child	Child	
Mass media	Communications media	*Mass media subject heading not used!*
Pamphlets		
Radio	Radio	Radio
Television	Television	Television

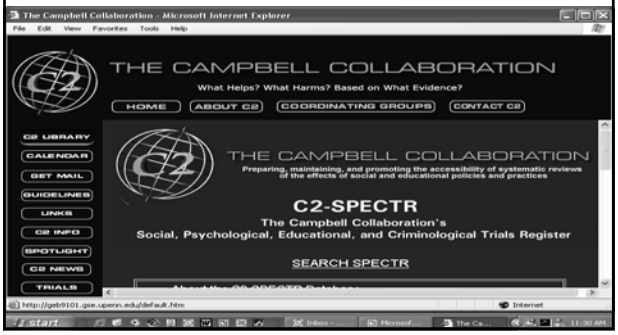
Study design filters

- RCTs
  - See Cochrane Reviewer's Handbook
- Non-RCTs
  - Not yet developed, research in progress
- Qualitative research
  - Specific subject headings used in CINAHL, 'qualitative research' used in Medline
  - CINAHL Filter: Edward Miner Library http://www.urmc.rochester.edu/hslt/miner/digital_library/tip_sheets/Cinahl_eb_filters.pdf
- Systematic reviews/meta-analyses
  - CINAHL: as above
  - Medline http://www.urmc.rochester.edu/hslt/miner/digital_library/tip_sheets/OVID_eb_filters.pdf
  - Medline and Embase http://www.sign.ac.uk/methodology/filters.html
  - PubMed

Other sources of primary research

Other sources of primary research

Other sources of primary research



Other sources of primary research

2. Unpublished literature

- Only 30-80% of all known published trials are identifiable in Medline (depending on topic)
- Only 25% of all medical journals in Medline
- Non-English language articles are under-represented in Medline (and developing countries)
- Publication bias – tendency for investigators to submit manuscripts and of editors to accept them, based on strength and direction of results (Olsen 2001)

2. Unpublished literature

- Hand searching of key journals and conference proceedings
- Scanning bibliographies/reference lists of primary studies and reviews
- Contacting individuals/agencies/ academic institutions

Neglecting certain sources may result in reviews being biased

Examples of search strategies

- HEALTH
  - Cochrane Injuries Group Specialised Register
  - Cochrane Library databases
  - MEDLINE
  - EMBASE
  - National Research Register
- EDUCATIONAL/PSYCHOLOGICAL
  - PsycInfo
  - ERIC (Educational Resources Information Center
  - SPECTR (The Campbell Collaboration's Social, Psychological, Educational and Criminological Trials Register)
- TRANSPORT
  - NTIS
  - TRIS
  - ITRD
  - RANSDOC
  - Road Res (ARRB)
  - ATRI (Australian Transport Index)
- GENERAL
  - Zetoc (the British Library conference proceedings database)
  - SIGLE (System for Information on Grey Literature in Europe)
  - Science (and Social Science) Citation Index

There was no language restriction. In addition we undertook a general Internet search focusing on the websites of relevant road safety organisations. Reference lists of all potentially eligible studies were examined for other relevant articles and experts in the field were contacted for additional information. The database and website searches were performed during the early months of 2002.

Ker K, Roberts I, Collier T, Beyer F, Bunn F, Frost C. Post-licence driver education for the prevention of road traffic crashes. The Cochrane Database of Systematic Reviews 2003, Issue 3. Art. No.: CD003734. DOI: 10.1002/14651858.CD003734.

Examples of search strategies

- Project CORK
- BIDS ISI (Bath Information and Data Services)
- Conference proceedings on BIDS
- Current contents on BIDS
- PSYCLIT
- ERIC (U.S.A.)
- ASSIA
- MEDLINE
- FAMILY RESOURCES DATABASE
- EMBASE
- Health Periodicals Database
- Dissertation Abstracts
- SIGLE
- DRUG INFO
- SOMED (Social Medicine)
- Social Work Abstracts
- National Clearinghouse on Alcohol and Drug Information
- Mental Health Abstracts
- DRUG INFO.
- DRUG database
- Alcohol and Alcohol Problems Science Database - ETOH

Foxcroft DR, Ireland D, Lister-Sharp DJ, Lowe G, Breen R. Primary prevention for alcohol misuse in young people. The Cochrane Database of Systematic Reviews 2002, Issue 3. Art. No.: CD003024. DOI: 10.1002/14651858.CD003024.

Librarians are your friends!