

Appendix 1: Search Strategy: Sources, Search Strategy and Terms, and Inclusion Criteria

Sources

Databases searched for systematic review

- ABI/Inform (ProQuest)
- ProQuest Digital Dissertations & Theses
- CINAHL (1982 to present) (hosted by EBSCOhost)
- Clinical Evidence (BMJ Publishing Group)
- Evidence-Based Medicine Reviews (hosted by Ovid; incorporates ACP Journal Club, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Cochrane Methodology Register, Database of Abstracts of Reviews of Effectiveness, Health Technology Assessments, NHS Economic Evaluation Database)
- EconLit (1969 to present) (hosted by EBSCOhost)
- EMBASE (1980 to present) (hosted by Ovid)
- International Pharmaceutical Abstracts (IPA) (hosted by Ovid)
- MEDLINE (1966 to present with daily update) (hosted by Ovid)
- PAIS International and PAIS Archive (hosted by CSA)
- Web of Science (hosted by ISI)

Grey literature sources and search tools

- Theses Canada Portal
- Networked Digital Library of Theses and Dissertations (NDLTD)
- Google Canada and Google Scholar
- Scirus
- Yahoo
- PapersFirst
- ProceedingsFirst
- World Health Organization (WHO) main search page, regional sites and library catalogue
- WHO Statistical Information System (WHOSIS)
- International Network for the Rational Use of Drugs (INRUD; <http://www.inrud.org/>)
- Key Canadian websites:
 - Canadian Centre for Policy Alternatives
 - Canadian Evaluation Society (grey literature database)
 - Canadian Health Services Research Foundation
 - Canadian Institutes of Health Research
 - Health Canada
 - Index to Canadian federal “Royal Commission reports”
 - Public Health Agency of Canada

- Key US websites:
 - GrayLIT Network (US government publications)
 - GPO Locator Service
 - NLM Gateway (meta-database search service of National Library of Medicine; includes what used to be HealthSTAR, National Institutes of Health Center for Scientific Review [NIH CSR])

Search strategy and terms

Our search strategy was to combine searches of terms clustered around the concepts of prescription drugs, intervention types and study methodologies (not applicable for some databases), as detailed below. Each of these term clusters was “translated” into the syntax and vocabulary of each database we searched. Wherever possible, we used subject headings, exploded to include all relevant subheadings. We also employed key word synonyms for the concepts of drugs and our interventions of interest. In databases where it was possible and useful, search filters for methodologies were applied or key words for impact, assessment, and outcomes were added.

Concept A: Drugs:

- (Pharmaceutical* OR Prescription OR Prescription Drug* OR Drug* OR Medicine* OR Medication*)

Concept B: Intervention type

- (Hierarchical OR Multilevel OR multi-level OR tiered OR differential) AND/SAME/ADJ (copay* OR co-pay* OR user charge* OR user-charge* OR charge* or fee* OR formulary* or subsid* OR benefit*)
- (Hierarchical copay* OR Hierarchical co-pay* OR Hierarchical user charge* OR Hierarchical user-charge* OR Hierarchical charge* OR Hierarchical fee* OR Hierarchical formulary* OR Hierarchical subsid* OR Hierarchical benefit* OR multilevel copay* OR multilevel co-pay* OR multilevel user charge* OR multilevel user-charge* OR multilevel charge* OR multilevel fee* OR multilevel formulary* OR multilevel subsid* OR multilevel benefit* OR multi-level copay* OR multi-level co-pay* OR multi-level user charge* OR multi-level user-charge* OR multi-level charge* OR multi-level fee* OR multi-level formulary* OR multi-level subsid* OR multi-level benefit* OR tiered copay* OR tiered co-pay* OR tiered user charge* OR tiered user-charge* OR tiered charge* OR tiered fee* OR tiered formulary* OR tiered subsid* OR tiered benefit* OR differential copay* OR differential co-pay* OR differential user charge* OR differential user-charge* OR differential charge* OR differential fee* OR differential formulary* OR differential subsid* OR differential benefit*)
- (Reference drug* OR Reference pric* OR Reference based pric* OR Reference-based Pric*)
- (Therapeutic interchange* OR therapeutic substitut* OR drug interchange* OR drug substitut* OR product interchange* OR product substitut* OR generic interchange* OR generic substitut*)

- User fee
- User charge
- Co-payment OR Co-pay*
- Subsidy

Concept C: Search filter (hedge) for methodologies

- “randomized controlled trials” OR RCT* OR “randomized controlled policy trials”
- (pre OR post) studies with nonrandomized comparison groups
- comparative study
- time series*
- interrupted time series analysis
- with comparison group*
- without comparison group*
- (pre OR post) studies without a comparison group
- “post-only designs” OR “nonrandomized post-only designs” OR retrospective studies
- cross-sectional studies
- longitudinal*
- longitudinal cohort
- longitudinal study
- cohort studies
- prospective cohort
- retrospective cohort
- drug utilization review
- concurrent review
- pragmatic trial
- case-control
- outcome
- impact*
- assessment*

During the process of brainstorming and collecting search terms, we initially excluded or did not think of a few search terms that are used in the US context of predominantly private health care, including the following terms:

- cost sharing
- formularies*
- health benefit plans/employee
- insurance, pharmaceutical services
- prescription fees

Inclusion and exclusion criteria for search strategy

Inclusion criteria for systematic review

- Studies from 1986 to 2007
- Studies published in English
- Studies on the effects of drug benefit policies that used tiered or reference-based pricing
- Studies that employed patient-level data
- Studies that used designs from our list of acceptable methodologies:
 - randomized controlled policy trials
 - pre/post studies with nonrandomized comparison groups
 - interrupted time series analyses with comparison groups
 - interrupted time series analyses without comparison groups
 - pre/post studies without a comparison group
- Studies that measured outcomes from our list of identified outcomes:
 - health benefits and harms
 - changes in access to medicines
 - changes in use of other health care services
 - changes in drug costs
 - changes in other costs
 - changes in financial burden
 - OR other outcomes relevant to patient care and cost-effectiveness

Exclusion criteria

- Studies that used qualitative methods, such as focus groups
- Surveys of attitudes or opinions
- Articles that contained only description, analysis, commentary, or opinion
- Studies that used post-only or cross-sectional designs
- Studies that employed product-level data
- Studies of therapeutic interchange policies
- Studies of reference pricing of products other than prescription drugs
- Studies that focused on markets in developing countries