**Supplementary Table 1: Literature Search Strategy**

|  |  |
| --- | --- |
| **OVERVIEW** |  |
| Interface: | Ovid |
| Databases: | MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) and Daily and Ovid MEDLIN(R) 1946 to present and MEDINE (R) 1996 to Present with Daily Update  |
| Date of Search: | Nov. 14, 2015 |
| Study Types: | No methodologic filters for study types were included  |
| Limits: | English language and yr=”2000-Current” |
| **SYNTAX GUIDE** |  |
| adj2 | Adjacent too |
| exp | Explode a subject heading |
| mp | Search all fields |
| \* | Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings |
| ? | Wildcard representing variations in exactly one character |

| **Database Strategy** |
| --- |
| Search | Add to builder | Query | Items found |
| 1 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | exp Technology Assessment, Biomedical / | 9604 |
| 2 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | (technology assessment\* or technology overview\* or HTA\*).mp | 12977 |
| 3 | Add | exp Budgets/  | 12637 |
| 4 | Add | (cost-ineffective\* or costineffective\* or (cost adj2 ineffective) or obsolete\* or obsolescen\* or ineffective\* or in-effective\* or (little adj2 value) or “low-value” or abandon\* or decommission\* or de-commission\* or delist\* or de-list\* or disinvest\* or dis-invest\* or (reduc\* adj2 (coverage\* or use\*)) or suboptimal\* or sub-optimal\*).mp | 142364 |
| 5 | Add | (cost-effective\* or costeffective\* or (cost adj2 effective) or reassess\* or re-assess\* or reallocat\* or re-allocat\* or reinvest\* or re-invest\*).mp | 110786 |
| 6 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | 1 or 2 | 14082 |
| 7 | Add | 3 or 4 or 5 | 263142 |
| 8 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | 6 and 7 | 1767 |
| 9 | Add | Limit 8 to (english language and yr=”2000-Current”) | 1336 |
| 10 | Add | Remove duplicates from 9 | 1261 |

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| --- | --- |
| **OVERVIEW** |  |
| Interface: | Ovid |
| Databases: | EMBASE 1974 to 2015  |
| Date of Search: | Nov 14, 2015 |
| Study Types: | No methodologic filters for study types were included  |
| Limits: | English language and yr=”2000-Current” |
| **SYNTAX GUIDE** |  |
| adj2 | Adjacent too |
| exp | Explode a subject heading |
| mp | Search all fields |
| \* | Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings |
| ? | Wildcard representing variations in exactly one character |

| **Database Strategy** |
| --- |
| Search | Add to builder | Query | Items found |  |
| 1 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | exp biomedical technology assessment/ | 11765 |  |
| 2 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | (technology assessment\* or technology overview\* or HTA\*).mp. | 19368 |  |
| 3 | [Add](http://www.ncbi.nlm.nih.gov.libaccess.lib.mcmaster.ca/pubmed/advanced) | exp budget/  | 21615 |  |
| 4 | Add | (cost-ineffective\* or costineffective\* or (cost adj2 ineffective) or obsolete\* or obsolescen\* or ineffective\* or in-effective\* or (little adj2 value) or “low-value” or abandon\* or decommission\* or de-commission\* or delist\* or de-list\* or disinvest\* or dis-invest\* or (reduc\* adj2 (coverage\* or use\*)) or suboptimal\* or sub-optimal\*).mp | 184566 |  |
| 5 | Add | (cost-effective\* or costeffective\* or (cost adj2 effective) or reassess\* or re-assess\* or reallocat\* or re-allocat\* or reinvest\* or re-invest\*).mp | 205001 |  |
| 6 | Add | 1 or 2 | 19368 |  |
| 7 | Add | 3 or 4 or 5 | 404986 |  |
| 8 | Add | 6 and 7 | 2857 |  |
| 9 | Add | Limit 8 to (English language and yr =”2000-Current” | 2384 |  |
| 10 | Add | Remove duplicates from 9 | 2343 |  |

|  |  |
| --- | --- |
| **OVERVIEW** |  |
| Interface: | NLM PubMed |
| Databases: | PubMed |
| Date of Search: | Nov 14, 2015 |
| Study Types: | No methodologic filters for study types were included  |
| Limits: | Publication date from 2000/01/01; English |
| **SYNTAX GUIDE** |  |
| MeSH | Medical Subject Heading |
| \* | Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings |

| **Database Strategy** |
| --- |
| Search | Add to builder | Query | Items found |
| #1 | Add | Search biomedical technology assessment[MeSH Terms] | 9463 |
| #2 | Add | Search ((technology assessment\* [Title/Abstract]) OR technology overview\* [Title/Abstract]) OR HTA\* [Title/Abstract] | 6243 |
| #3 | Add | Search budgets [MeSH Terms]  | 12449 |
| #4 | Add | Search (((((((((((((((((((cost-ineffective\*) OR costineffective\*) OR “cost ineffective”) OR obsolete\*) OR obsolescen\*) OR ineffective\*) OR in-effective\*) OR “little value”) OR “low-value”) OR abandon\*) OR decommission\*) OR de-commission\*) OR delist\*) OR de-list\*) OR disinvest\*) OR dis-invest\*) OR “reduc\*) coverage\*”) OR “reduc\* use\*”) OR suboptimal\*) OR sub-optimal\* | 2676069 |
| #5 | Add | Search ((((((((((cost-effective\*) OR costeffective\*) OR “cost effective”) OR reassess\*) OR re-assess\*) OR reallocate\*) OR re-allocate\*) OR reallocation\*) OR re-allocation\*) OR reinvest\*) OR re-invest\* | 116019 |
| #6 | Add | Search (#1) OR #2 | 13759 |
| #7 | Add | Search ((#3) OR #4) OR #5 | 2776104 |
| #8 | Add | Search (#6) AND #7 | 2885 |
| #9 | Add | Search (#6) AND #7) Filters: Publication date from 2000/01/01 | 2278 |
| #10 | Add | Search (6 AND 7) Filters: Publication date from 2000/01/01; English | 2148 |
|  |  | Duplicates removed | 2145 |

|  |  |
| --- | --- |
| **OVERVIEW** |  |
| Databases: | Cochrane Library  |
| Date of Search: | Nov 6, 2015 |
| Study Types: | No methodologic filters for study types were included  |
| Limits: | Publication year from 2000, in Cochrane Reviews (Reviews and Protocols) |
| **SYNTAX GUIDE** |  |
| MeSH | Medical Subject Heading |

| **Database Strategy** |
| --- |
| Search | Add to builder | Query | Items found |  |
| #1 | Add | MeSH descriptor: [Technology Assessment, Biomedical] explode all trees | 599 |  |
| #2 | Add | technology assessment or technology overview or HTA | 29453 |  |
| #3 | Add | MeSH descriptor: [Budgets] explode all trees | 65 |  |
| #4 | Add | cost-ineffective or costineffective or cost next ineffective or obsolete or obsolescen or ineffective or in-effective or little next value or low-value or abandon or decommission or de-commission or delist or de-list or disinvest or dis-invest or reduc next coverage or reduc next use or suboptimal or sub-optimal | 7268 |  |
| #5 | Add | cost-effective or costeffective or cost next effective or reassess or re-assess or reallocat or re-allocat or reinvest or re-invest | 12465 |  |
| #6 | Add | #1 or #2 | 29456 |  |
| #7 | Add | #3 or #4 or #5 | 19426 |  |
| #8 | Add | #6 and #7 Publication Year from 2000 | 571 |  |

|  |  |
| --- | --- |
| **OVERVIEW** |  |
| Interface: | EBSCOhost |
| Databases: | CINAHL |
| Date of Search: | Nov 14, 2015 |
| Study Types: | No methodologic filters for study types were included  |
| Limits: | Published Date: 20000101-20151231; English Language Search modes: Boolean/phrase |
| **SYNTAX GUIDE** |  |
| \* | Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings |
| AB | Abstract |
| MM | Exact major subject heading |
| N1 | Near operator within 1 word of one another regardless of order |
| TI | Title |
| TX | All Text |

| **Database Strategy** |
| --- |
| Search | Add to builder | Query | Items found |  |
| S1 | Add | TI technology assessment\* OR TI technology overview\* OR TI HTA\* | 497 |  |
| S2 | Add | AB technology assessment\* OR AB technology overview\* OR AB HTA\* | 912 |  |
| S3 | Add | (MM “Budgets”) | 2694 |  |
| S4 | Add | TX cost-ineffective\* OR TX costineffective\* OR TX cost N1 ineffective OR TX obsolete\* OR TX obsolescen\* OR TX ineffective\* OR TX in-effective\* OR TX little N1 value OR TX “low-value” OR TX abandon\* OR TX decommission\* OR TX de-commission\* | 201440 |  |
| S5 | Add | TX delist\* OR TX de-list\* OR TX disinvest\* OR TX dis-invest\* OR TX (reduc\* N1 coverage\* OR use\*) OR TX suboptimal\* OR TX sub-optimal\* | 8735 |  |
| S6 | Add | TX cost-effective\* OR TX costeffective\* OR TX cost N1 effective OR TX reassess\* OR TX re-assess\* OR TX reallocate\* OR TX re-allocate\* OR TX reallocation\* OR TX re-allocation\* OR TX reinvest\* OR TX re-invest\* | 23410 |  |
| S7 | Add | S1 OR S2 | 1286 |  |
| S8 | Add | S3 OR S4 OR S5 OR S6 | 213843 |  |
| S9 | Add | S7 AND S8 | 558 |  |
| S10 | Add | S7 AND S8 Limiters – English Language | 553 |  |
| S11 | Add | S7 AND S8 Limiters – Published Date: 20000101-20151231; English Language | 510 |  |
|  |  | Duplicates removed | 459 |  |

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| --- |
| **GREY LITERATURE** |
| Dates for Search: | Jan 2, 2016 until Feb 4, 2016 |
| Keywords: | Reassessment, reallocation, reinvestment, disinvestment, delist, decommission or obsolescence |
| Limits: | English language |

**Websites of organizations listed as members of International Network or Agencies for HTA (INAHTA) and HTAi**

**INHATA:** [**http://www.inahta.org/our-members/members/**](http://www.inahta.org/our-members/members/)

**HTAi: http://www.htai.org/membership/organisational-members.html**

| **Databases Searched**  | **Outcome of Search** |
| --- | --- |
| AETS –Agencia de Evaluación de Tecnologias Sanitarias, SPAIN<http://www.isciii.es/ISCIII/es/general/index.shtml> | Searched; nothing found in English |
| AETSA – Andalusian Agency for Health Technology Assessment SPAIN<http://www.juntadeandalucia.es/salud/servicios/aetsa/> | Searched; nothing found in English |
| AGENAS – The National Agency for Regional Health Services ITALY<http://www.agenas.it> | Searched; nothing found in English |
| Agency for Quality & Accreditation in Health CROTIAhttp://www.aaz.hr/ | Searched; nothing found in English |
| AHRQ – Agency for Healthcare Research and Quality USAhttp://www.ahrq.gov | Searched; nothing found |
| AHTA – Adelaide Health Technology Assessment AUSTRALIAhttp://www.adelaide.edu.au/ahta/ | Searched; found additional publications (handpicked) |
| AHTAPol – Agency for Health Technology Assessment in Poland POLANDhttp://www.aotm.gov.pl | Searched; nothing found in English |
| AHS – Alberta Health Services CANADAhttp://www.albertahealthservices.ca/default.aspx | Searched; 4 results found |
| AIFA – Italian Medicines Agency ITALYhttp://www.agenziafarmaco.gov.it/en | Searched; nothing found in English |
| ANHATA – Ankara Numune Training & Researchhttp://www.anhhta.org/index.php/hakkimizda | Searched; nothing found in English |
| AQuAS – Agència de Qualitat i Avaluació Sanitàries de Catalunya SPAINhttp://aquas.gencat.cat | Searched; nothing found in English |
| ASERNIP-S – Australian Safety and Efficacy Register of New Interventional Procedures-Surgical AUSTRALIA<http://http//www.surgeons.org/racs/research-and-audit/asernip-s> | Searched; nothing found |
| ASSR – Agenzia Sanitaria e Sociale Regionale (Regional Agency for Health and Social Care) ITALYhttp://asr.regione.emilia-romagna.it/asr/index.htm | Searched; nothing found in English |
| Australian Government, Department of Health & Ageing: MSAC AUSTRALIAhttp://www.msac.gov.au/ | Searched; nothing found |
| Australian Government, Department of Health & Ageing: PBAC AUSTRALIAhttp://www.pbs.gov.au/info/industry/listing/participants/pbac | Searched; nothing found |
| AVALIA-T – Galician Agency for Health Technology Assessment SPAINhttp://avalia-t.sergas.es | Searched; nothing found in English |
| Blue Cross Blue Shield Association USAhttp://www.bcbs.com/ | Searched; nothing found |
| CADTH Canadian Agency for Drugs and Technologies in Health CANADAhttps://www.cadth.ca/ | Searched; 2 results found |
| CDE – Center for Drug Evaluation TAIWANhttp://www.cde.org.tw | Searched; nothing found in English |
| CEDIT – Comité d´Evaluation et de Diffusion des Innovations Technologiques FRANCEhttp://cedit.aphp.fr | Searched; nothing found in English |
| CEM – Inspection générale de la sécurité sociale (IGSS), Cellule d’expertise médicale LUXEMBURGhttp://www.mss.public.lu/acteurs/igss/index.html | Searched; nothing found in English |
| CENETEC – Centro Nacional de Excelencia Tecnológica en Salud MEXICO<http://www.cenetec.salud.gob.mx> | Searched; 1 result found |
| CONITEC – National Committee for Technology Incorporation BRAZILhttp://www.conitec.gov.br/ | Searched; nothing found in English |
| CMeRC – Charlotte Maxeke Research Consortium SOUTH AFRICAhttp://cmerc.org.za/health-technology/ | No access, website expired |
| CMTP - Center for Medical Technology Policy USAhttp://www.cmtpnet.org/ | Searched; nothing found in English |
| CNHDRC – China National Health Development Research Center CHINAhttp://www.nhei.cn/nhei\_en/center\_en/web/index.jsp | Searched; nothing found in English |
| CRD – Centre for Reviews and Dissemination UNITED KINGDOM<http://www.york.ac.uk/inst/crd/> | Searched; nothing found |
| DACEHTAhttp://sundhedsstyrelsen.dk/English/DACEHTA.aspx | Searched; nothing found in English |
| DAHTA @DIMDI – German Agency for HTA at the German Institute for Medical Documentation and Information GERMANYhttp://www.dimdi.de | Searched; nothing found in English |
| DECIT-CGATS – Coordenação Geral de Avaliação de Tecnologias em Saúde; Departamento de Ciência e TecnologiaBRAZILhttp://portal.saude.gov.br/portal/saude/area.cfm?id\_area=1026 | Searched; nothing found in English |
| Department of Health, Basque Government, SPAINhttp://www.euskadi.eus/gobierno-vasco/departamento-salud/inicio/ | Searched; 1 result found |
| FinOHTA – Finnish Office for Health Technology Assessment FINLANDhttp://www.thl.fi/finohta | Searched; nothing found in English |
| G-BA – The Federal Joint Committee (Gemeinsamer Bundesausschuss) GERMANYhttp://www.g-ba.de | Searched; nothing found in English |
| GÖG – Gesunheit Österreich GmbH AUSTRIAhttp://www.goeg.at | Searched; nothing found in English |
| HAD-MSP Uruguay: Health Assessment Division of the Ministry of Public Health URUGUAYhttp://www.msp.gub.uy | Searched; nothing found in English |
| HAS – Haute Autorité de Santé FRANCEhttp://www.has-sante.fr | Searched; nothing found in English |
| HCT-NHSRC – Division of Healthcare Technology, National Health Systems Resource Center INDIAhttp://nhsrcindia.org/index.php?option=com\_content&view=article&id=173&Itemid=642 | Searched; nothing found in English |
| HealthPACT – Health Policy Advisory Committee on Technology AUSTRALIAhttp://www.health.qld.gov.au/healthpact/ | Searched; nothing found |
| HIQA – Health Information and Quality Authority IRELANDhttp://www.hiqa.ie | Searched; nothing found in English |
| HIRA – Health Insurance Review and Assessment KOREAhttp://www.hira.or.kr/eng/#&panel1-2 | Searched; nothing found in English |
| HIS – Healthcare Improvement Scotland UNITED KINGDOMhttp://www.healthcareimprovementscotland.org | Searched; 3 results found |
| Hospital Clinic Porto Alegre BRAZILhttp://www.hcpa.edu.br/content/blogsection/5/927/ | Searched; nothing found in English |
| HQO – Evidence Development and Standards Branch CANADAhttp://www.hqontario.ca/ | Searched; nothing found  |
| HTA-HSR/DHTA – HTA & Health Services Research DENMARKhttp://www.mtv.rm.dk | Searched; nothing found in English |
| ICER – Institute for Clinical & Economic Review USAhttp://www.icer-review.org/ | Searched; nothing found in English |
| IECS – Institute for Clinical Effectiveness and Health Policy ARGENTINAhttp://www.inahta.org/our-members/members/iecs/ | Searched; nothing found in English |
| IETS – Instituto de Evaluación Tecnológica en Salud COLOMBIA<http://www.iets.org.co> | Searched; nothing found in English |
| IHE – Institute of Health Economics CANADAhttp://www.ihe.ca | Searched; nothing found  |
| INASanté – National Instance for Accreditation in Health Care TUNISIAhttp://www.inasante.tn | Searched; nothing found in English |
| INESSS – Institut national d’excellence en santé et en services sociaux CANADAhttp://www.inesss.qc.ca | Searched; nothing found in English |
| IQWiG – Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen GERMANYhttp://www.iqwig.de | Searched; nothing found in English |
| Kaiser Permanente USAhttps://healthy.kaiserpermanente.org/html/kaiser/index.shtml | Searched; nothing found in English |
| KCE – Belgian Health Care Knowledge Centre BELGIUMhttp://kce.fgov.be | Searched; nothing found in English |
| LBI-HTA – Ludwig Boltzmann Institute for Health Technology Assessment AUSTRIAhttp://hta.lbg.ac.at | Searched; 2 results found |
| MaHTAS – Health Technology Assessment Section, Ministry of Health Malaysia MALAYSIAhttp://medicaldev.moh.gov.my | Searched; nothing found in English |
| Ministry of Health, Malaysia MALAYSIAhttp://www.moh.gov.my/ | Searched; nothing found in English |
| MTAA – Medical Technology Association of Australia AUSTRALIAhttp://mtaa.org.au/ | Searched; nothing found |
| MTU-SFOPH – Medical Technology Unit – Swiss Federal Office of Public Health SWITZERLANDhttp://www.bag.admin.ch | Searched; nothing found in English |
| National Institute for Health & Welfare FINLANDhttps://www.thl.fi/fi/web/thlfi-en | Searched; nothing found in English |
| National University of Colombia COLOMBIAhttps://www.thl.fi/fi/web/thlfi-en | Searched; nothing found in English |
| NECA – National Evidence-based healthcare Collaborating Agency KOREAhttp://www.neca.re.kr | Searched; nothing found in English |
| NHC – New Zealand National Health Committee NEW ZEALANDhttp://nhc.health.govt.nz/home | Searched; 3 results found |
| NHMRC CTC – NHMRC Clinical Trials Centre AUSTRALIAhttp://ctc.usyd.edu.au/ | Searched; nothing found  |
| NHS Lothian SCOTLANDhttps://nhslothian.scot.nhs.uk/Pages/default.aspx | Searched; nothing found |
| NICE – National Institute for Health and Clinical Excellence UNITED KINGDOMhttps://www.nice.org.uk/ | Searched; nothing found |
| NIHR – National Institute for Health Research UNITED KINGDOMhttp://www.nihr.ac.uk/ | Searched; nothing found |
| NOKC – Norwegian Knowledge Centre for the Health Services NORWAYhttp://www.nokc.no | Searched; nothing found in English |
| OSTEBA – Basque Office for Health Technology Assessment SPAINhttp://www.osakidetza.euskadi.eus/r85-pkoste01/en/ | Searched; nothing found in English |
| PHARMAC – Pharmaceutical Management Agency of NEW ZEALANDhttp://www.pharmac.health.nz/ | Searched; nothing found |
| Queensland Health – AUSTRALIAhttps://www.health.qld.gov.au/ | Searched; 1 result found |
| RCHD-CS – Centre of Standardization of the Republican Centre for Health Development KASAKHSTANhttp://www.rcrz.kz | Searched; nothing found in English |
| RedArets – Public HTA network of Argentina ARGENTINAhttp://www.saludneuquen.gob.ar/index.php?option=com\_content&view=article&id=1467:neuquen-miembro-fundador-de-la-red-argentina-publica-de-evaluacion-de-tecnologias-sanitarias-redarets&catid=89:noticias-breves&Itemid=268 | Searched; nothing found in English |
| SBU – Swedish Council on Technology Assessment in Health Care SWEDENhttp://www.sbu.se | Searched; nothing found in English |
| Swiss Sickness Funds Insurance Body SLOVAK REPUBLIChttp://www.sukl.sk/en?page\_id=256 | Searched; nothing found in English |
| UCEETS – The National Coordination Unit of Health Technology Assessment and Implementation ARGENTINAhttp://www.msal.gov.ar/pngcam/tecnologias2.htm | Searched; nothing found in English |
| University of Sheffield UNITED KINGDOMhttp://www.sheffield.ac.uk/ | Searched; nothing found in English |
| UVT – HTA Unit in A. Gemelli Teaching Hospital ITALYhttp://www.policlinicogemelli.it/area/?s=206 | Searched; nothing found in English |
| VASPVT – State Health Care Accreditation Agency under the Ministry of Health of the Republic of Lithuania LITHUANIA | Searched; nothing found in English |
| ZIN – Zorginstituut Nederland NETHERLANDShttp://www.zorginstituutnederland.nl/ | Searched; nothing found in English |
| ZonMw – The Netherlands Organisation for Health Research and Development NETHERLANDShttp://www.zonmw.nl | Searched; nothing found in English |
| **For Profit Organizations** |  |
| Abbott Vascular International BVBAhttp://www.abbottvascular.com/int/index.html?fbefk7i | Searched; nothing found |
| ADVI http://www.advi.com/#reimbursement-story | Searched; nothing found |
| AMGENhttp://www.amgen.com/ | Searched; nothing found |
| AstraZeneca PLChttps://www.astrazeneca.com/ | Searched; nothing found |
| Bayer Healthcare/Bayer Pharma Scheringwww.bayer.com | Searched; nothing found  |
| Bristol Myers Squibbhttp://www.bms.com/pages/default.aspx | Searched; nothing found  |
| Eli Lilly and Companyhttps://www.lilly.com/home.aspx | Searched; nothing found  |
| F. Hoffmann-La Roche AGhttp://www.roche.com/index.htm | Searched; nothing found  |
| GlaxoSmithKline, Belgium &USAhttp://www.gsk.com/ | Searched; nothing found  |
| IMS Healthhttp://www.imshealth.com/en/solution-areas/services/services-our-work/strategy-management-consulting | Searched; nothing found  |
| Johnson & Johnson Medical Productshttp://www.jnj.com/ | Searched; nothing found  |
| Medtronichttp://www.medtronic.com/us-en/index.html?cmpid=mdt\_com\_orcl\_us\_home\_f52\_plc\_home&utm\_source=mdt\_com\_orcl\_us\_home&utm\_medium=f5\_redirect&utm\_campaign=PLC\_Launch\_2015 | Searched; nothing found  |
| Merck & Cohttp://www.merck.com/index.html | Searched; nothing found  |
| Merck Serono International SAhttp://www.emdserono.com/en/index.html | Searched; nothing found  |
| Novartishttps://www.novartis.com/ | Searched; nothing found  |
| Pfizer Limitedhttp://www.pfizer.com/ | Searched; nothing found  |
| Sanofi-Aventishttp://en.sanofi.com/rd/rd.aspx | Searched; nothing found  |
| St. Jude Medical, Inc.http://sjm.com/corporate.aspx | Searched; nothing found  |
| UCB Pharma Ltd.http://www.ucb.com/patients/Conditions/neurology/epilepsy | Searched; nothing found  |

**Supplementary Table 2: Data Extraction Form**

**Reference:**

**Focus of the document:**

**Summary of key findings from the document:**

**Document characteristics** (check all the apply)

Methods used/type of paper

Primary research

🞎 Systematic review (needs to have explicit search and selection criteria)

🞎 Randomized Control Trial

🞎 Qualitative study

🞎 Case study

🞎 Mixed methods (select other methods as applicable)

🞎 Other (specify)

Non-research

🞎 Review (not systematic)

🞎 Theory/discussion/policy or position paper

🞎 Commentary/editorial

🞎 Website content

Publication status

🞎 Peer-reviewed journal

🞎 Grey literature

Country or region focus

🞎 General/global focus

🞎 Specific

* Number of countries:
* List specific countries:

**Data extraction of key findings**

Brief summary of the text in the paper as it relates to each data extraction criteria

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **Subcategories** | **Data extraction** | **Brief summary of information related to the data extraction questions** |
| 🞎 Disinvestment/ reassessment approach | 🞎 Definitions | List definitions of terms referring to disinvestment or reassessment |  |
| 🞎 Purpose and benefits | Provide purpose of disinvestment/ reassessment (e.g. efficacy/safety or financial) and benefits |  |
| 🞎 Process | Provide detail on:* Type of process (e.g. HTA based)
* Top-down and/or bottom-up approach
* Passive or active approach
* General process
 |  |
| 🞎 Identification | 🞎 Methods | How is information obtained to identify technology for disinvestment/reassessment  |  |
|  | 🞎 Criteria | List criteria used/proposed to identify technology for disinvestment/reassessment |  |
| 🞎 Prioritization | 🞎 Methods | Detail on process related to prioritization |  |
| 🞎 Criteria | List criteria used/proposed to identify technology for disinvestment/reassessment |  |
| 🞎 Evaluation | 🞎 Process | Include description of assessment bodies, stakeholders providing input, details of process |  |
|  | 🞎 Methods | Describe methodological components for disinvestment/reassessment |  |
|  🞎 Implementation | 🞎 Challenges | Describe challenges encountered to disinvest/reassess  |  |
| 🞎 Financial arrangements | Explain any financial arrangements to implement disinvestment/reassessment* financing systems
* funding organizations
* renumerating providers
* purchasing products and services
* incentivizing stakeholders
 |  |
| 🞎 Delivery arrangements | Explain delivery arrangements (i.e. what medium is used to communicate results) |  |
| 🞎 Implementation process | How decision is implemented (e.g. reinvestment in health care system) |  |
| 🞎 Other | 🞎 Stakeholder engagement | List stakeholders involved in each step of disinvestment/reassessment process |  |
| 🞎 Lessons Learned/ Solutions to overcome barriers | Describe any lessons learned or solutions to overcome barriers |  |
| 🞎 Other | Any other information not captured above |  |

**Supplementary Table 3: Characteristics of Included Articles**

| **Citation (Author and Publication/Access Year)** | **Methods Used/ Type of Paper** | **Focus of Citation** | **Description** | **Countries Described in Article** |
| --- | --- | --- | --- | --- |
| Fenwick et al., 2000 (39) | Discussion  | Proposal of a probabilistic model  | Proposed probabilistic model employed in a case study whose analysis can be used to identify research protocols and to concentrate research upon particular parameters requiring precise estimates | General |
| Elshaug et al., 2007 (4) | Discussion | Examination of key challenges for disinvestment | Five challenges were identified and examined and potential policy-related solutions discussed to advance disinvestment | Australia |
| Ibargoyen-Roteta et al., 2007 (37) | Guideline development | Report on the development of a guideline for health technology disinvestment | Guideline meant to establish a transparent, systematic and explicit process for disinvestment assessment | Spain |
| Pearson and Littlejohns, 2007 (24) | Position | NICE’s current and future support of the English National Health Service (NHS) and technology value | Exploration of NICE policy options to provide NHS guidance on disinvestment  | United Kingdom |
| Ruano-Ravina et al., 2007 (16) | Guideline development | Guideline for assessment of obsolete health technologies | Methodological guideline developed which proposes how to identify, prioritize and assess a technology | Spain |
| Elshaug et al., 2008 (14) | Qualitative  | Challenges of disinvestment and potential solutions | Exploratory study to determine policy stakeholder perspectives on the challenges and nature of disinvestment | Australia |
| Elshaug et al., 2009 (9) | Discussion | Challenges related to decommissioning and obsolescence of health technologies | Assessment of barriers and challenges to decommissioning technology and potential strategies to address technology obsolescence and a plan to carry out disinvestment in Canada | Canada |
| Elshaug et al., 2009 (32) | Discussion | Health technology disinvestment program proposal | Criteria discussed to identify existing, ineffective practices and to prioritize candidates for assessment | Australia |
| Ibargoyen-Roteta et al., 2009 (28) | Survey | Identification and ranking of sources for the identification of potentially obsolete technologies | Questionnaire to identify the most relevant sources sent to HTA speciality group members and results ranked | General |
| Joshi et al., 2009 (17) | Discussion | Health technology obsolescence and potential framework | Discusses practices and policies surrounding obsolescence and proposes a framework for reassessment and decommissioning of health technologies | Canada |
| Hughes and Ferner, 2010 (30) | Discussion | NICE’s disinvestment initiatives | Summary of NICE’s disinvestment activities and suggestion of a framework for identification and appraisal of medicines | United Kingdom |
| Ibargoyen-Roteta et al., 2010 (6) | Guideline development | Development of a guideline for health technology disinvestment | GuNFT hospital and patient level guideline for not funding technologies includes six domains as well as a software component | Spain |
| Morland, 2010 (15) | PowerPoint presentation | National quality and priority setting decisions and clinical practice outcomes | Case study used to examine how national quality and priority setting decisions (including disinvestment) altered clinical practice | Norway |
| Alberta Health Services, 2011 (18) | Website content | Annual report for the Health Technology Assessment & Innovation Department | Mentions development of a reassessment program for end of life-cycle technologies and routine reassessment | Canada |
| Garner and Littlejohns, 2011 (1) | Review | NICE’s disinvestment initiatives | Summary and suggested outcomes of NICE’s disinvestment initiatives | United Kingdom |
| Gerdvilaite and Nachtnebel, 2011 (10) | Systematic review | International frameworks and guidelines for disinvestment | Investigates identification, assessment and dissemination of disinvestment recommendations | Australia, Canada, Spain, UK |
| Hollingworth and Chamberlain, 2011 (40) | Commentary | NICE and disinvestment processes | Recommends NICE reconsider a shift away from HTA of existing technologies for disinvestment decisions | United Kingdom |
| Haas et al., 2012 (21) | Review | Exploration of issues related to disinvestment | Description of HTA disinvestment processes, discussion of candidate identification, implementation of activities and lack of progress/challenges in designing a disinvestment framework | Australia, UK, Germany, Denmark |
| Henshall et al., 2012 (26) | Discussion | Summary of main points from HTAi Policy Forum meeting held January 2012 | Review of candidate disinvestment identification, prioritization, and implementation of decisions | General |
| Jaurlaritza, 2012 (41) | Website content | Describes annual meeting of Health Technology Assessment International which occurred in Balboa | Purpose of summit to examine disinvestment and most cost-effective ways to manage current health technology | General |
| Moynihan, 2012 (36) | Commentary | Summary of disinvestment activities and support of process | Support of disinvestment for treatments where costs and harm outweighs benefits | Australia |
| Scottish Health Technologies Group, 2012 (42) | Website content | Audit method of NICE disinvestment mechanisms in Scotland | Pilot of MaCSWise group’s method of auditing whether or not NICE cost-saving and “do not do” guidance are current practice in NHSScotland | Scotland |
| Watt et al., 2012 (37) | Systematic review and qualitative research (mixed methods) | Stakeholder engagement in disinvestment initiatives | Wide stakeholder engagement; if and how this can improve decision-making processes for disinvestment | Australia |
| Watt et al., 2012 (43) | Review, case study and qualitative research (mixed methods) | Use of evidence from systematic review in disinvestment decisions | Assessment of the value of evidence from systematic reviews to inform expert stakeholder disinvestment deliberations | General |
| Garcia-Armesto et al., 2013 (23) | Discussion | Development of a Spanish disinvestment framework | Review of global disinvestment strategies and proposal of a Spanish disinvestment strategy | Spain |
| Garner et al., 2013 (19) | Review  | To determine if Cochrane reviews can be used to identify low value practices to support disinvestment decisions | Reviewed results from the first 6 months of the Cochrane Quality and Productivity project  | United Kingdom |
| Health Policy Advisory Committee on Technology, 2013 (13) | Discussion | Disinvestment in Australia and New Zealand | Part One: Disinvestment Fundamentals and Part Two: Summary of workshop presentations focused on disinvestment strategies in the Australian and New Zealand Healthcare Systems  | Australia and New Zealand |
| Healthcare Improvement Scotland 2013 (11) | Website content | Scoping report  | Ascertain the quality and quantity of published strategies used to identify, consider and potentially include public perspectives in disinvestment decisions | Scotland |
| MacKean et al., 2013 (2) | Qualitative | Environment assessment and next steps in technology reassessment | Discovery and description of key themes in Health Technology Reassessment and proposed way forward | General |
| Mayer and Nachtnebel, 2013 (44) | Systematic review (only abstract available in English) | International models and strategies for identification of ineffective technologies | Investigates identification, prioritization and assessment of ineffective technologies | General with focus on Austria |
| Polisena et al., 2013 (29) | Systematic review | Review the application of frameworks and tools for disinvestment and resource allocation | Description of the multiple criteria considered for decision making and the strengths and limitations of frameworks in fourteen cases | General |
| Scotland Health Technologies Group, 2013 (25)  | PowerPoint presentation | Scottish Health Technologies Group development day presentations | Challenges to disinvestment; identification and prioritization of technologies for disinvestment and applicability to the Scottish Health Technologies Group | General with focus on Scotland |
| Haines et al., 2014 (35) | Position | Description of a clinical research design for use in disinvestment decisions | Development of a research design which can be used to evaluate a technology for disinvestment where uncertain effectiveness or cost-effectiveness exists | General |
| Health Quality Ontario, 2014 (22) | Website content | Description of the Appropriateness Initiative | Appropriateness Working Group and Health Quality Ontario developed a framework for identifying, prioritizing and assessing interventions that may be being used inappropriately | Canada/Ontario |
| Wilson et al., 2014 (8) | Systematic review and qualitative research (mixed methods) | Development of an explanatory framework for disinvestment | Describes research outline including conduct of a systematic literature search and the use of qualitative research methods to develop a framework for disinvestment | General |
| Gnjidic and Elshaug, 2015 (5) | Commentary  | Review of a scoping review | Highlights a scoping review which summarized the current literature on low-value clinical practices | General |
| O’Callaghan et al., 2015 (45) | Discussion | Relevance of US Choosing Wisely campaign for Australia and recommendations for modification | Reviewed, based on a South Clinical Senate exercise, how the US Choosing Wisely campaign list validity could be maximized while minimizing the US list limitations | Australia |
| Paprica et al., 2015 (27) | Review  | Development of tools and processes for use in disinvestment decisions | Literature review and colloquial evidence (policy stakeholders) combined to develop a definition of appropriateness and a disinvestment framework for selective disinvestment | Canada/Ontario |
| Parkinson et al., 2015 (7) | Systematic review | Review of disinvestment strategies in OECD countries | Systematic review to outline key approaches to identification, assessment and methods of disinvestment. Value-based purchasing, lessons learned, potential role of coverage with evidence and stakeholder management were also determined | UK, France, Canada, Australia, New Zealand |
| Alberta Health Services, 2016 (12) | Website content | Alberta Health Reassessment Program | Schematic of Alberta Health Reassessment Program process | Canada/Alberta |

**Supplementary Table 4: Identification and Prioritization Criteria**

| **Criteria** | **Identification and/or prioritization** | **Number of references** |
| --- | --- | --- |
| Unacceptable potential risk for patient (6, 7, 9, 10)  | Identification | 4 |
| Evidence technology causes overall worsening of health (6, 7, 9)  | Identification | 3 |
| Conflict with clinical practice guidelines, clinical college position statements, Cochrane Review recommendations (9) | Identification | 1 |
| Quality of life poor for patient (6) | Identification | 1 |
| Public interest or controversy (9) | Identification | 1 |
| Off-label reimbursed indications (9) | Identification | 1 |
| Legacy items: Long-established technologies that have never had cost-effectiveness established (9) | Identification | 1 |
| Sufficient evidence available. Evidence should be available and adequate to offer decision-making utility (9) | Identification | 1 |
| Scope of time limited funding with pay for evidence or only in research provisions (9) | Identification | 1 |
| No scientific evidence proving technology improves health (6, 7, 9, 10, 24)  | Identification or Prioritization | 5 |
| Temporal variations in volume between time points (9, 10, 27)  | Identification or prioritization | 3 |
| High budget technologies (9, 10, 16, 24, 25, 26)  | Identification or prioritization | 6 |
| Cost effectiveness (7, 9, 10, 13, 16)  | Identification and/or prioritization | 5 |
| Nomination of a technology by individuals, associations or groups (9, 10, 27)  | Identification or prioritization | 3 |
| Availability of alternative technologies (6, 7, 24, 26)  | Identification or prioritization | 4 |
| Lack of disease burden (Technology not used to treat very severe or life-threatening conditions or vulnerable populations) (7, 9, 10, 16, 24, 25)  | Identification or prioritization | 6 |
| Infrastructure (26) | Prioritization | 1 |
| Level of consensus among stakeholders (including clinicians and consumers) (13, 26) | Prioritization | 2 |
| Ability to overcome stakeholder perceptions (26) | Prioritization | 1 |
| Policy environment and political readiness (26) | Prioritization | 1 |
| Funding to reinvest (26) | Prioritization | 1 |
| Resources for KT implementation (26) | Prioritization | 1 |
| Resources for monitoring impact (26) | Prioritization | 1 |
| Measurable outcomes (13) | Prioritization | 1 |
| An evidence-based recommendation against use by an external body (10, 27) | Prioritization | 2 |
| Safety concerns (7, 10, 16, 27)  | Prioritization | 4 |
| Change likely to provide benefit to a significant number of people (17) | Prioritization | 1 |
| Change would be cost saving (10, 27)  | Prioritization | 2 |
| Impact to public health (e.g. significant percentage of patients received inappropriate technologies) (7, 10, 27)  | Prioritization | 3 |
| Disease frequency (16) | Prioritization | 1 |
| Frequency of use of technology (10, 16)  | Prioritization | 2 |
| Patient preference (10, 16)  | Prioritization | 2 |
| Efficacy/effectiveness/Validity (10, 16)  | Prioritization | 2 |
| Reasonably prevalent to warrant disinvestment (13) | Prioritization | 1 |
| Ability to use financial incentives with changes to: coverage/reimbursement; vendor contracts; formularies/inventories; alignment with existing work program (13) | Prioritization | 1 |

**Supplementary Table 5: Identification and Prioritization Methods**

| **Method** | **Identification and/or prioritization** | **Number of references** |
| --- | --- | --- |
| Clinical effectiveness research (19, 21)  | Identification  | 2 |
| Monitoring published studies, guidelines and systematic reviews (e.g. CADTH, Cochrane Collaboration, BMJ, JAMA, FDA and ECRI Institute) (6, 10, 16, 23, 25, 26)  | Identification | 6 |
| Review of health technology reports and/or new or emerging health technology databases (16) | Identification | 1 |
| New intervention undergone regulatory assessment and considered as a replacement for old technology (9) | Identification | 1 |
| Consultation with clinical speciality groups, clinicians, health care administrators and funders (6, 9, 10, 16, 25, 26) | Identification and/or prioritization | 6 |
| Assessment of variation in technology use (e.g. geographic, provider variation in care) (9, 10, 23, 25, 26, 27)  | Identification or prioritization | 6 |
| Feasibility assessment (25) | Prioritization | 1 |