

## Online Supplementary Material

**Title: Evidence used in model based economic evaluations for evaluating pharmacogenetic and pharmacogenomic tests: a systematic review protocol**

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Literature Searching

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R)

Host: OVID

Data Parameters: 1946 to Present

Date Searched: 05/03/2015

Searcher: CC Press Checked: JP

Hits: 4034

Search Strategy:

	Search Strategy	Notes (# refers to line)
Intervention	<p>1 Genetic Testing/ (27360)</p> <p>2 ((gene\$ or genom\$) adj3 test\$).ti,ab,kw,ot. (47181)</p> <p>3 ((gene\$ or genom\$) adj3 screen\$).ti,ab,kw,ot. (28598)</p> <p>4 ((gen\$ variant\$ or gen\$ variation\$) and (test\$ or screen\$)).ti,ab,kw,ot. (13508)</p> <p>5 (DNA adj5 (test\$ or screen\$)).ti,ab,kw,ot. (21814)</p> <p>6 *DNA/ and (test\$ or screen\$).ti,ab,kw,ot. (11567)</p> <p>7 exp Pharmacogenetics/ (9577)</p> <p>8 (pharmacogenetic\$ or pharmacogenomic\$).ti,ab,kw,ot. (10846)</p> <p>9 *Genotype/ (6096)</p> <p>10 (genotype or genotyping).ti,ab,kw,ot. (146862)</p> <p>11 or/1-10 (279529)</p>	<p>1. MeSH term. No explosion available;</p> <p>2. Truncation to capture genes and genome or genomic;</p> <p>6. The MeSH term has been focused here (indicated by the * symbol). Focused MeSH terms are studies in which the focused MeSH term represents a core topic for the study. The MeSH term is then further focused by free text;</p> <p>7. Pharmacogenetics has been exploded to capture Toxicogenetics;</p> <p>9. The MeSH term has been focused here; and</p> <p>11. Lines 1-10 are combined using OR, meaning that all of the lines are to be searched.</p> <p>The free-text lines are being searched on: title (ti), abstract (ab), author assigned keyword (kw) and original title (ot)</p>
Search Filter	<p>12 exp *decision support techniques/ (18297)</p> <p>13 ((economic adj3 evaluat\$) or (cost\$ adj3 (utility or decision or benefit or consequence or model or effect\$ or minimisation or minimization)) or (CBA or CEA or CUA) or DAM or (decision adj3 (model\$ or analytic or tree)) or (model based or model-based) or Pharmacoeconomics).ti,ab,kw,ot. (168759)</p> <p>14 12 or 13 (185150)</p>	<p>12. This line has been exploded to capture the MeSH, 'data interpretation, statistical.' The MeSH term has been focused.</p> <p>13. This free-text line is used to locate studies that might have models or modelling data as a part of their analysis. It looks for cost effectiveness, cost utility, cost benefit and cost minimisation (UK and US variants) as well as cost</p>

		consequence. It also employs the use of acronyms for these types of analysis, such as: CBA (cost benefit analysis), Cost effectiveness analysis (CEA) and Cost utility analysis (CUA).
Search logic	15 11 and 14 (5020)	15. This line combines the intervention set (lines 1-10: being combined at line 11) AND the search filter (lines 12 or 13: being combined at line 14).
Search limits	16 (letter or editorial or historical article).pt. (1539038) 17 15 not 16 (4961) 18 exp animals/ not humans.sh. (4003797) 19 17 not 18 (4187) 20 (rat or rats or mouse or mice or hamster or hamsters or animal or animals or dog or dogs or cat or cats or bovine or sheep or primate or primates).ti,ab,kw. (3022018) 21 19 not 20 (4034)	16. This line removes the listed publication types from the search. This takes the total search (at line 15) and removes the listed publication types at line 17. 18. This study is only interested in human populations so line 18 seeks to remove studies conducted on (or indexing) animals. It does this using the same Boolean NOT connector as at line 16, and it uses the Cochrane limit to remove these studies[1].

Notes: N/A

File Name: MEDLINE RIS 4034.txt

Database: EMBASE

Host: OVID

Data Parameters: 1974 to 2015 April 03

Date Searched: 05/03/2015

Searcher: CC

Hits: 5496

Search Strategy:

	Search Strategy	Notes (# refers to line)
Intervention	1 genetic screening/ (49977) 2 ((gene\$ or genom\$) adj3 test\$).ti,ab,kw,ot. (62763) 3 ((gene\$ or genom\$) adj3 screen\$).ti,ab,kw,ot. (36107)	1. This is the EMTREE term for the MEDLINE MeSH term genetic testing. There was no explosion available, as with the MEDLINE search;

	<p>4 ((gen\$ variant\$ or gen\$ variation\$) and (test\$ or screen\$)).ti,ab,kw,ot. (18152)</p> <p>5 (DNA adj5 (test\$ or screen\$)).ti,ab,kw,ot. (27287)</p> <p>6 *DNA/ and (test\$ or screen\$).ti,ab,kw,ot. (13586)</p> <p>7 exp pharmacogenetics/ (22746)</p> <p>8 (pharmacogenetic\$ or pharmacogenomic\$).ti,ab,kw,ot. (18005)</p> <p>9 *genotype/ (20957)</p> <p>10 (genotype or genotyping).ti,ab,kw,ot. (194302)</p> <p>11 or/1-10 (374521)</p>	<p>2. Truncation to capture genes and genome or genomic;</p> <p>6. The MeSH term has been focused here (indicated by the * symbol) and free text terms are used to further focus the controlled indexing term for specificity;</p> <p>7. Pharmacogenetics has been exploded to capture pharmacogenomics and toxicogenetics;</p> <p>9. The MeSH term has been focused here (indicated by the * symbol); and</p> <p>11. Lines 1-10 are combined using OR, meaning that they are all to be searched.</p> <p>The free-text lines are being searched on: title (ti), abstract (ab), author assigned keyword (kw) and original title (ot)</p>
Search Filter	<p>12 exp *decision support techniques/ (7483)</p> <p>13 ((economic adj3 evaluat\$) or (cost\$ adj3 (utility or decision or benefit or consequence or model or effect\$ or minimisation or minimization)) or (CBA or CEA or CUA) or DAM or (decision adj3 (model\$ or analytic or tree)) or (model based or model-based) or Pharmacoeconomics).ti,ab,kw,ot. (223720)</p> <p>14 12 or 13 (230319)</p>	<p>13. This free-text line is used to locate studies, which might have models or modelling data as a part of their analysis. It looks for cost effectiveness, cost utility, cost benefit and cost minimisation (UK and US variants). It also employs the use of acronyms for these types of analysis, such as: CBA (cost benefit analysis), Cost effectiveness analysis (CEA) and Cost utility analysis (CUA).</p>
Search logic	<p>15 11 and 14 (6562)</p>	<p>15. This line combines the intervention set (lines 1-10: being combined at line 11) AND the search filter (lines 12 or 13: being combined at line 14).</p>
Search limits	<p>16 (letter or editorial).pt. (1350686)</p> <p>17 15 not 16 (6527)</p> <p>18 exp animals/ not exp humans/ (4319013)</p> <p>19 17 not 18 (5694)</p> <p>20 (rat or rats or mouse or mice or hamster</p>	<p>16. This line removes the listed publication types from the search. This takes the total search (at line 15) and removes the listed publication types at line 17. The</p>

	<p>or hamsters or animal or animals or dog or dogs or cat or cats or bovine or sheep or primate or primates).ti,ab,kw. (3496419) 21 19 not 20 (5496)</p>	<p>publication type, historical article, is not listed as an EMBASE publication type as it is in MEDLINE. 18. This search is only interested in human populations so line 18 seeks to remove studies conducted on (or indexing) animals. It does this using the same Boolean NOT connector as at line 16, and it uses the Cochrane limit to remove these studies[1].</p>
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Notes: N/A

File Name: N/A

Database: NHS EEDs

Host: Wiley Interface

Data Parameters: Issue 1 of 4, January 2015 (see notes)

Date Searched: 05/03/2015

Searcher: CC

Hits: 1822

Search Strategy:

	Search Strategy	Notes (# refers to line)
Intervention	<p>ID Search Hits</p> <p>#1 MeSH descriptor: [Genetic Testing] this term only 513</p> <p>#2 ((gene* or genom*) near/3 test*) 2512</p> <p>#3 ((gene* or genom*) near/3 screen*) 914</p> <p>#4 ((gen* variant* or gen* variation*) and (test* or screen*)) 8066</p> <p>#5 (DNA near/5 (test* or screen*)) 598</p> <p>#6 MeSH descriptor: [DNA] this term only 428</p> <p>#7 (test* or screen*) 202901</p> <p>#8 #6 and #7 136</p> <p>#9 MeSH descriptor: [Pharmacogenetics] explode all trees 277</p> <p>#10 (pharmacogenetic* or pharmacogenomic*) 966</p> <p>#11 MeSH descriptor: [Genotype] this</p>	<p>1. MeSH term. No explosion available;</p> <p>2. Truncation to capture genes and genome or genomic;</p> <p>9. Pharmacogenetics has been exploded to capture Toxicogenetics;</p> <p>13. Lines 1-12 are combined as an OR, meaning that they are all to be searched.</p> <p>This search is run on the following fields: Title, Abstract and Keywords</p> <p>This search was completed by downloading the returns from NHS EEDs only, therefore the search filter was not used.</p>

term only	2695	
#12	(genotype or genotyping)	6488
#13	#1 or #2 or #3 or #4 or #5 or #8 or #9 or #10 or #11 or #12	17179

Notes: NHS EEDs is no longer updated as a bibliographic resource so the data parameters are 1994 to Jan 2015

File Name: N/A

Database: Econlit

Host: Ebsco Host

Data Parameters: 1886-Current

Date Searched: 05/03/2015

Searcher: CC

Hits: 145

Search Strategy:

	Query	Limiters/Expanders	Last Run Via	Results
S9	S7 and S8	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	145
S8	TI ( ((economic N2 evaluat*) or (cost* N2 (utility or decision or benefit or consequence or model or effect* or minimisation or minimization)) or (CBA or CEA or CUA) or DAM or (decision N2 (model* or analytic or tree)) or (model based or model-based) or Pharmacoeconomics) ) OR AB ( ((economic N2 evaluat*) or (cost* N2 (utility or decision or benefit or consequence or model or effect* or minimisation or minimization)) or (CBA or CEA or CUA) or DAM or	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	39,843

	(decision N2 (model* or analytic or tree)) or (model based or model-based) or Pharmacoeconomics)			
S7	(S1 OR S2 OR S3 OR S4 OR S5 OR S6)	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	1,609
S6	TI ((genotype or genotyping) ) OR AB ((genotype or genotyping) )	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	117
S5	TI ((pharmacogenetic* or pharmacogenomic*)) OR AB ((pharmacogenetic* or pharmacogenomic*))	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	7
S4	TI (((DNA N4 (test* or screen*)) ) OR AB ((DNA N4 (test* or screen*)) and (test* or screen*)) )	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	20
S3	TI (((gen* variant* or gen* variation*) and (test* or screen*)) ) OR AB (((gen*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research	106

	variant* or gen* variation*) and (test* or screen*))		Databases Search Screen - Advanced Search Database - EconLit	
S2	TI (((gene* or genom*) N2 screen*)) OR AB (((gene* or genom*) N2 screen*))	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	51
S1	TI (((gene* or genom*) N2 test*)) OR AB (((gene* or genom*) N2 test*))	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - EconLit	1,333

Notes: N/A

File Name: N/A

Database: Web of Science (Conference Proceedings Citation Index- Science (CPCI-S) and  
Conference Proceedings Citation Index- Social Science & Humanities (CPCI-SSH) --1990-  
present

Host: ISI

Data Parameters: 1900-2015-02-24

Date Searched: 05/03/2015

Searcher: CC

Hits: 568

Search Strategy:

	Search Strategy	Notes (# refers to line)
Intervention	# <a href="#">2,302</a> 1 TOPIC: (((gene or genes or genetic or genom*) near/2 test*)) NOT TOPIC: (((animal or animals or rat	The search lines here have been run on the TOPIC search field. This searches: title, abstract, author



	<p>or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))</p> <p>Indexes=CPCI-S, CPCI-SSH Timespan=All years</p> <p># <a href="#">1,601</a> TOPIC: (((gene or genes or genetic or genom*) near/2 screen*)) NOT TOPIC: (((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))</p> <p>Indexes=CPCI-S, CPCI-SSH Timespan=All years</p> <p># <a href="#">8,209</a> TOPIC: ((gen* variant* or gen* variation*) and (test* or screen*)) NOT TOPIC: (((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))</p> <p>Indexes=CPCI-S, CPCI-SSH Timespan=All years</p> <p># <a href="#">572</a> TOPIC: (((gene or genes or genetic or genom*) near/2 (variant* or variation*) and (test*))) NOT TOPIC: (((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or</p>	<p>keyword, and keyword plus.</p> <p>There is no controlled syntax in this database so we have used a pragmatic search string to remove animal studies.</p>
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	<p>pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))  Indexes=CPCI-S, CPCI-SSH  Timespan=All years</p> <p># <a href="#">1,288</a> TOPIC: (((DNA near/4 (test* or screen*)))) NOT TOPIC: (((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))  5  Indexes=CPCI-S, CPCI-SSH  Timespan=All years</p> <p># <a href="#">1,784</a> TOPIC: (((pharmacogenetic* or pharmacogenomic*))) NOT TOPIC: (((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))  6  Indexes=CPCI-S, CPCI-SSH  Timespan=All years</p> <p># <a href="#">18,645</a> TOPIC: (((genotype or genotyping))) NOT TOPIC: (((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or</p>	
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	<p>cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))</p> <p>Indexes=CPCI-S, CPCI-SSH</p> <p>Timespan=All years</p>	
Search Filter	<p># <a href="#">120,700</a> TOPIC: (((((economic near/2  8 evaluat*) or (cost* near/2 (utility or decision or benefit or consequence or model or effect* or minimisation or minimization)) or (CBA or CEA or CUA) or DAM or (decision near/2 (model* or analytic or tree)) or ("model based" or "model-based") or Pharmacoeconomics))) NOT TOPIC: (((((animal or animals or rat or rats or mouse or mice or murine or rodent or rodents or hamster or hamsters or pig or pigs or porcine or rabbit or rabbits or animal or animals or dogs or dog or cats or cow or bovine or sheep or ovine or monkey or monkeys or fish or fishes))))</p> <p>Indexes=CPCI-S, CPCI-SSH</p> <p>Timespan=All years</p>	
Search logic	<p># <a href="#">32,180</a> #7 OR #6 OR #5 OR #4 OR #3  9 OR #2 OR #1</p> <p>Indexes=CPCI-S, CPCI-SSH</p> <p>Timespan=All years</p> <p># <a href="#">568</a> #9 AND #8  10</p> <p>Indexes=CPCI-S, CPCI-SSH</p> <p>Timespan=All years</p>	

Notes: N/A

File Name: N/A

1. Lefebvre C, Manheimer E, Glanville J. Searching for studies. In: Higgins JPT, Green S, eds. Cochrane Handbook for Systematic Reviews of Interventions Version 5.10 (updated March 2011): The Cochrane Collaboration, 2011.