

Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes

Search strategies

September 2014

Contents

1. Scoping searches.....	3
2. Main searches.....	4
3. Patient decision aids	8
4. Economic evaluations and quality of life data	14

1. Scoping searches

Scoping searches were undertaken on the following websites and databases (listed in alphabetical order) in July 2013 to provide information for scope development and project planning. Browsing or simple search strategies were employed.

Guidelines/websites	Systematic reviews/economic evaluations
Canadian Medical Association Infobase Clinical Knowledge Summaries COMET (Core Outcome Measures in Effectiveness Trials) Department of Health General Pharmaceutical Council Guidelines International Network (GIN) Healthtalk Online Map of Medicine Ministry of Health NZ National Health and Medical Research Council (Australia) NHS England NICE NICE Evidence Patient UK Royal Pharmaceutical Society SIGN TRIP US National Guideline Clearing House	Cochrane Database of Systematic Reviews DARE DUETS (UK Database of Uncertainties about the Effects of Treatment) HEED HTA Database National Institute for Health Research (NIHR) Health Technology Assessment Programme NHS EED The NIHR Health Services and Delivery Research (HS&DR) Prospero TRIP

2. Main searches

Sources searched for the guideline

- ASSIA (Proquest)
- CINAHL (HDAS)
- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- Database of Abstracts of Reviews of Effects – DARE (Wiley)
- Health Technology Assessment Database – HTA (Wiley)
- EMBASE (Ovid)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)
- Social Care Online
- Social Policy and Practice (Ovid)
- Social Service Abstracts (Proquest)
- Sociological Abstracts (Proquest)

Identification of evidence for clinical questions

The searches were conducted between November 2013 and May 2014. The aim of the searches was to identify evidence for each of the clinical questions. The MEDLINE search strategies and details of sources searched for each question are presented below. They were translated for use in all other databases.

a. Medicines-related patient safety incidents

What systems for identifying, reporting and learning from medicines-related patient safety incidents are effective and cost-effective in reducing medicines-related patient safety incidents, compared to usual care?

Database: Ovid MEDLINE(R) <1946 to November Week 3 2013> Search Strategy:

1 ((report* or learn* or identif*) adj2 (system* or process* or procedure* or practice* or method*)).tw. 107203

2 NRLS.tw. 54

3 "Root Cause Analysis"/ 79

4 (root cause adj4 analy*).tw. 456

5 Pharmacists/og or Pharmaceutical services/og 1926

6 exp Quality Improvement/ 4666

7 exp Quality Assurance, Health Care/ 257873

8 exp "Outcome and Process Assessment (Health Care)"/ 737693

9 ((serious* or significan*) adj2 (event* or incident*) adj2 (audit* or analy* or report*)).tw. 1687

10 Safety Management/ 16686

11 (safe* adj4 manage*).tw. 5728

12 ((computer* or electronic) adj2 alert*).tw. 271

13 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 1089591

14 exp Adverse Drug Reaction Reporting Systems/ 5830

15 (avoid* or prevent* or uninten* or unexpected).tw. 1182647

16 14 and 15 875

17 (medication* adj4 thermomet*).tw.2

18 ((Stop* or start) adj4 (tool* or screen*) adj4 (medic* or vaccin* or pharmaceutical*)).tw. 5

19 ((PINCER adj4 (medic* or vaccin* or pharmaceutical*)) or "pharmacist - led information technology for medication errors").tw. 2

20 (beer* criteria or beer* list).tw. 248

21 16 or 17 or 18 or 19 or 20 1125

22 exp Patient Admission/ 18672

23 exp Patient Readmission/ 7975

24 22 or 23 26227

25 exp Pharmaceutical preparations/ 648195

26 24 and 25 384

27 ((admission* or readmission*) adj2 (medic* or vaccin* or pharmaceutical*)).tw. 2563

28 26 or 27 2927

29 28 and 15 369

30 exp Medication Errors/ 11216

31 ((prescri* or medic* or vaccin* or pharmaceutical* or dispens* or monitor*) adj4 (error* or incident* or mistake* or harm*)).tw.11722

32 (adverse adj4 (effect* or event*) adj4 (medic* or vaccin* or pharmaceutical*)).tw.5374

33 32 and 15 1263

34 ((missed or forgot* or forget) adj4 (medic* or vaccin* or pharmaceutical*)).tw. 836

35 (near miss adj4 (medic* or vaccin* or pharmaceutical*)).tw. 20

36 29 or 30 or 31 or 33 or 34 or 35 21564

37 13 and 36 5719

38 37 or 21 6662

39 animals/ not humans/ 3974347

40 38 not 39 6643

41 limit 40 to (english language and yr="2000 -Current") 5532

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA and Embase

b. Medicines-related communication systems

What communication systems are effective and cost-effective in reducing sub-optimal use of medicines and improving patient outcomes from medicines when patients move from one care setting to another, compared to usual care, or other intervention?

Database: Ovid MEDLINE(R) <1946 to January Week 4 2014>

Search Strategy:

1 Patient Transfer/ 5610

2 exp "Continuity of Patient Care"/ 14254

3 ((transfer* or move* or moving or continuity or transition* or hando*) adj4 (hospital* or "primary care" or "secondary care" or "tertiary care" or "respite care" or "social care" or ward* or theatre* or theater* or hospice* or "care home" or home* or community)).tw. 10129

4 (patient* adj4 (transfer* or move* or moving or continuity or transition* or hando*)).tw. 24555 pat

5 ((interfacilit* or inter facilit*or intrafacilit* or intra facilit*or inter hospital* or interhospital* or intrahospital* or intra hospital*) adj4 (transfer*or move* or moving)).tw. 1

6 1 or 2 or 3 or 4 or 5 48562

7 Patient Discharge/ 18191

8 exp Medical Records/ 82840

9 Patient access to records/ 797

10 exp Telemedicine/ 14924

11 (discharge* adj4 (summar* or counsell* or letter* or plan*)).tw. 4440

12 (summar* adj1 care adj1 record*).tw. 24

13 ((core or standard*) adj1 data).tw. 2924

14 (standard* adj1 template*).tw. 246

15 ((patient*adj2 held adj2 record*) or (patient* adj2 passport*)).tw. 14

16 (telemedicine or telehealth or ehealth or (mobile adj1 health)).tw. 7233

17 (case* adj4 meeting*).tw. 705

18 ((communicat* or record* or document*) adj2 (system* or process* or method*)).tw. 32870

19 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 149150

20 6 and 19 5014

21 limit 20 to (english language and yr="2000 -Current") 3181

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA Embase, CINAHL, Social Care Online, Social Policy and Practice, ASSIA, Social Service Abstracts and Sociological Abstracts.

c. Medication review and Medicines reconciliation

The search for the following review questions was combined:

What is the effectiveness and cost-effectiveness of medication reviews to reduce sub-optimal use of medicines and medicines-related patient safety incidents, compared to usual care?

What is the effectiveness and cost-effectiveness of medicines reconciliation to reduce sub-optimal use of medicines and medicines-related patient safety incidents, compared to usual care?

Database: Ovid MEDLINE(R) <1946 to January Week 1 2014>

Search Strategy:-

1 exp "Drug Utilization Review"/ 2899

2 ("medication* review*" or "medicine* review*").tw. 752

3 "drug* utili?ation* review*".tw. 269

4 "drug* use review*".tw. 120

5 ("medication* regimen* review*" or "medicine* regimen* review*").tw. 13

6 1 or 2 or 3 or 4 or 5 3810

7 exp Medication Reconciliation/ 251

8 ("medication reconcil*" or "medicine* reconcil*").tw. 384

9 7 or 8 503

10 6 or 9 4266

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA and Embase

d. Self-management plans

What is the effectiveness and cost-effectiveness of using self-management plans to improve patient outcomes from medicines, compared to usual care?

Database: Ovid MEDLINE(R) <1946 to March Week 4 2014>

Search Strategy:

1 *self care / 12073

2 ((action or individual or written or personal) adj1 plan*).tw. 4656

3 ((self manage* or self care or self monitor*) adj1 (plan* or program* or solution* or education or support or intervention*)).tw. 2513

4 (expert adj1 patient* adj1 program*).tw. 43

5 1 or 2 or 3 or 4 17302

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA and Embase

3. Patient decision aids

What is the effectiveness and cost-effectiveness of using patient decision aids in consultations involving medicines use to improve patient outcomes, compared to usual care or other intervention?

Database: Ovid MEDLINE(R) <1946 to March Week 3 2014> Search Strategy:

1 decision support techniques/ 11825

2 Decision Support Systems, Clinical/ 4675

3 Decision Trees/ 8662

4 Decision Making/ 66713

5 choice behavior/ 21027

6 ((decision* or decid*) adj1 (support* or aid* or tool* or algorithm* or board* or guide* or counsel*)).tw. 10551

7 Decision Making, Computer-Assisted/ 2379

8 (comput* adj2 decision making).tw. 168

9 ((tool* or method* or support* or aid* or tool* or algorithm* or interactiv* or evidence based) adj3 (risk information* or risk communication* or risk presentation* or risk graphic*)).tw. 124

10 (share* adj1 decision*).tw. 2010

11 (inform* adj (choice* or decision* or decide* or consent* or behavio?r)).tw. 25750

12 adaptive conjoint analys?s.tw. 28

13 ((decision* or option*) adj1 grid*).tw. 12

14 patient medication knowledge/ 49

15 patient education as topic/ 69194

16 patient education handout/ 3930

17 informed consent/ 30932

18 patient-centered care/ 10330

19 health behavior/ 32666

20 or/1-19 265725

21 drug prescriptions/ 21755

22 prescription drugs/ 2746

23 medication therapy management/ 640

24 self medication/ 3941

25 inappropriate prescribing/ 661

26 pharmaceutical preparations/ 41957

27 pharmacy/ 7819

28 pharmacists/ 10451

29 ((patient* or consumer* or key worker* or keyworker* or care giver* or caregiver* or client*) adj4 (pharmacist* or pharmacy or pharmacies or drug* or medication* or medicine* or vaccin* or pharmaceutical* or prescription* or prescribe or prescribing or prescribed)).tw.99502

30 or/21-29 177020

31 20 and 30 8605

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA Embase and CINAHL.

a. Clinical decision support

What is the effectiveness and cost-effectiveness of using clinical decision support to reduce sub-optimal use of medicines and improve patient outcomes from medicines, compared to usual care or other intervention?

Database: Ovid MEDLINE(R) <1946 to April wk 5 2014>

Search Strategy:

1 Decision Support Systems, Clinical/ 4734

2 Decision Making, Computer-Assisted/ 2385

3 ((computer* or clinical*) adj2 decision* adj2 (support* or system*)).tw. 2606

4 (decision* adj2 support* adj2 system*).tw. 3010

5 (CDSS or CCDS).tw. 1106

6 1 or 2 or 3 or 4 or 5 10027

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA and Embase

b. Review Question g:

What models of organisational and cross-sector working are effective and cost-effective in reducing sub-optimal use of medicines and improving patient outcomes from medicines, compared to usual care, or other intervention?

Database: Ovid MEDLINE(R) <1946 to February Week 4 2014>

Search Strategy:

-
- 1 patient care team/ 51480
 - 2 professional role/ 8025
 - 3 interprofessional relations/ 42833
 - 4 professional patient relations/ 21163
 - 5 interdisciplinary communication/ 10000
 - 6 "Delivery of Health Care, Integrated"/ 8129
 - 7 "Continuity of Patient Care"/ 14137
 - 8 cooperative behavior/ 27980
 - 9 models,organizational/ 14734
 - 10 models, theoretical/ 102172
 - 11 program, evaluation/ 44976
 - 12 program, development/ 22130
 - 13 models,educational/ 7530
 - 14 organizational case studies/ 9729
 - 15 case management/8192
 - 16 (multidisciplinary or multi-disciplinary or mdt or multipartner* or multi-partner* or multisector or multi-sector or multi-agency or multiagency or multiprofessional or multi-professional or intraprofessional or intra-professional or interprofessional or inter-professional or transdisciplinary or trans-disciplinary or interdisciplinary or inter-disciplinary or intradisciplinary or intra-disciplinary).tw.65414
 - 17 (multiple adj1 disciplin*).tw. 524
 - 18 (crosssector or cross-sector or across sector or intersector or inter-sector or inter-organization* or cross organization* or across organization* or cross disciplin* or across disciplin*).tw. 1688
 - 19 (interagency or inter-agency).tw. 1526
 - 20 ((sector* or organization* or profession*) adj2 (boundar* or led)).tw. 1018
 - 21 ((nurse* or pharmac* or "social care" or "key worker*") adj2 led).tw. 2288
 - 22 ((integrat* or combined or collaborat*or continuity) adj2 (care* or team* or service* or network* or system*)).tw. 21028

- 23 (partnership adj2 (work* or training)).tw. 754
- 24 ("whole system* approach*" or "whole system* working").tw. 71
- 25 ("managed clinical network*" or "one-stop shop" or "chain of care" or "whole health economy" or "case conferencing").tw. 334
- 26 ((organi?ation* or care or work*) adj2 model*).tw. 13380
- 27 or/1-26 414991
- 28 medication errors/ 10087
- 29 Inappropriate prescribing/ 649
- 30 Medication Adherence/ 6771
- 31 medication therapy management/ 636
- 32 ((appropriate or optim* or inappropriat* or suboptim* or sub-optim* or unnecessary or incorrect* or in-correct* or excessive or multiple or concurrent* or adher* or compli* or dexter* or inadequate) adj2 (medicine* or medicat* or prescrip* or prescrib* or drug* or vaccin*)).tw. 33239
- 33 (underdos* or under-dos* or underprescrib* or underprescrip* or (under adj1 prescript*)).tw. 1538
- 34 (overdos* or over-dos* or overprescrib* or overprescrip* or (over adj1 prescript*)).tw. 14852
- 35 "medication appropriateness index".tw. 59
- 36 (quality adj2 (prescrib* or prescrip* or medicat*)).tw. 790
- 37 (improv* adj2 (prescrib* or prescrip* or pharmaco*)).tw. 3762
- 38 Prescription drugs/ 2725
- 39 Drug therapy/ 27732
- 40 Community pharmacy services/ 2704
- 41 Pharmacy service, hospital/ 9715
- 42 Pharmacies/ 3807
- 43 Pharmaceutical services/ 4153
- 44 Pharmaceutical care/ 4153
- 45 or/28-44 112246
- 46 27 and 45 7840

Additionally searched in Medline-in- Process, CDSR, CENTRAL, DARE, HTA Embase, CINAHL, Social Care Online, Social Policy and Practice, ASSIA, Social Service Abstracts and Sociological Abstracts.

c. Study design filters

The MEDLINE systematic reviews and RCT search filters that were used for the review questions above are presented below. They were translated for use in the MEDLINE In-

Process, Embase , CINAHL, ASSIA, Social Service Abstracts and Sociological Abstracts databases.

d. Systematic reviews filter

1. Meta-Analysis.pt.
2. Meta-Analysis as Topic/
3. Review.pt.
4. exp Review Literature as Topic/
5. (metaanaly\$ or metanaly\$ or (meta adj3 analy\$)).tw.
6. (review\$ or overview\$).ti.
7. (systematic\$ adj5 (review\$ or overview\$)).tw.
8. ((quantitative\$ or qualitative\$) adj5 (review\$ or overview\$)).tw.
9. ((studies or trial\$) adj2 (review\$ or overview\$)).tw.
10. (integrat\$ adj3 (research or review\$ or literature)).tw.
11. (pool\$ adj2 (analy\$ or data)).tw.
12. (handsearch\$ or (hand adj3 search\$)).tw.
13. (manual\$ adj3 search\$).tw.
14. or/1-13
15. animals/ not humans/
16. 14 not 15

e. RCT filter

1. Randomized Controlled Trial.pt.
2. Controlled Clinical Trial.pt.
3. Clinical Trial.pt.
4. exp Clinical Trials as Topic/
5. Placebos/
6. Random Allocation/
7. Double-Blind Method/
8. Single-Blind Method/
9. Cross-Over Studies/
10. ((random\$ or control\$ or clinical\$) adj3 (trial\$ or stud\$)).tw.
11. (random\$ adj3 allocat\$).tw.
12. placebo\$.tw.

13. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj (blind\$ or mask\$)).tw.

14. (crossover\$ or (cross adj over\$)).tw.

15. or/1-14

16. animals/ not humans/

17. 15 not 16

4. Economic evaluations and quality of life data

Sources searched to identify economic evaluations

- NHS Economic Evaluation Database – NHS EED (Wiley)
- Health Economic Evaluations Database – HEED (Wiley)
- Embase (Ovid)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)

Health economics studies

Economic searches were undertaken for all review questions. Filters were applied to the clinical search strategy. The searches were carried out within the same time period as the clinical searches.

Health economics filters

The MEDLINE economic evaluations and quality of life search filters are presented below. They were translated for use in the MEDLINE In-Process and Embase databases.

Economic evaluations filter

1. Economics/
2. exp "Costs and Cost Analysis"/
3. Economics, Dental/
4. exp Economics, Hospital/
5. exp Economics, Medical/
6. Economics, Nursing/
7. Economics, Pharmaceutical/
8. Budgets/
9. exp Models, Economic/
10. Markov Chains/
11. Monte Carlo Method/
12. Decision Trees/
13. econom\$.tw.
14. cba.tw.
15. cea.tw.
16. cua.tw.
17. markov\$.tw.
18. (monte adj carlo).tw.

19. (decision adj3 (tree\$ or analys\$)).tw.
20. (cost or costs or costing\$ or costly or costed).tw.
21. (price\$ or pricing\$).tw.
22. budget\$.tw.
23. expenditure\$.tw.
24. (value adj3 (money or monetary)).tw.
25. (pharmacoeconomic\$ or (pharmaco adj economic\$)).tw.
26. or/1-25

Quality of life filter

1. "Quality of Life"/
2. quality of life.tw.
3. "Value of Life"/
4. Quality-Adjusted Life Years/
5. quality adjusted life.tw.
6. (qaly\$ or qald\$ or qale\$ or qtime\$).tw.
7. disability adjusted life.tw.
8. daly\$.tw.
9. Health Status Indicators/
10. (sf36 or sf 36 or short form 36 or shortform 36 or sf thirtysix or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw.
11. (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six).tw.
12. (sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or short form twelve).tw.
13. (sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen).tw.
14. (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw.
15. (euroqol or euro qol or eq5d or eq 5d).tw.
16. (qol or hql or hqol or hrqol).tw.
17. (hye or hyes).tw.
18. health\$ year\$ equivalent\$.tw.
19. utilit\$.tw.
20. (hui or hui1 or hui2 or hui3).tw.

21. disutili\$.tw.
22. rosser.tw.
23. quality of wellbeing.tw.
24. quality of well-being.tw.
25. qwb.tw.
26. willingness to pay.tw.
27. standard gamble\$.tw.
28. time trade off.tw.
29. time tradeoff.tw.
30. tto.tw.
31. or/1-30