

## Guideline topic: Epilepsy in adults

### General comments

Update of SIGN 70 Diagnosis and management of epilepsy in adults 2003

### Search coverage

#### Patient searches

The patient search was conducted using the search strategy outlined below in conjunction with the new patient search filter.

Databases covered: **Medline, embase, cochrane**

Dates covered: **2001 - 2012**

Total hits: 3913

Sifted result: 275

#### Systematic reviews

Databases covered: *Medline, Cochrane, embase*

Dates covered: *2001- July 2012*

Total hits: 3913

Sifted result: 273

Papers requested: 157

#### RCTs

Databases covered: *Medline+ MIP, embase*

Dates covered: *2001- Nov/Dec 2012, April/May 2013*

Total hits: 7035

Sifted result: 85

Papers requested: 53

#### Observational studies/ Searches without filter

Databases covered: *Medline + MIP, embase, CINAHL for KQs 12,17,21,22 and Psychinfo for KQs 12, 24,25,26,30,31,33*

Dates covered: *2001- Nov/Dec 2012, April/May 2013*

Total hits: 36398

Sifted result: 1109

Papers requested: 431

#### Update search

The update search was conducted with the patient stem search and the systematic review search filter from the SIGN website and the RCT filter [Cochrane Highly Sensitive Search Strategy: sensitivity and precision maximizing version 2008](#).

Databases covered: *Cochrane, Medline + MIP, embase,*

Dates covered: *2013-March 2014*

Total hits: 36398

Sifted Result: 105

Papers requested: 15

### Search strategies

The following are listings of the main Medline strategies used for this guideline. All conventions and symbols are from the Ovid implementation of Medline. Strategies used in other databases were substantially the same, though different terminology may have been used to take account of different thesauri used in non-Medline databases.

Search filters were added to identify studies of a particular type (systematic review, RCT etc.) Systematic Review and Observational filters used are on the SIGN website. RCT filter used is the [Cochrane Highly Sensitive Search Strategy: sensitivity and precision maximizing version 2008](#).

**Patient & Generic Stem:**

## Medline

- 1 exp Epilepsy/
- 2 epilep\$.tw.
- 3 (seizure\$ or convulsion\$).tw.
- 4 or/1-3

## Embase

- 1 exp "seizure, epilepsy and convulsion"/
- 2 epilep\$.tw.
- 3 (seizure\$ or convulsion\$).tw.
- 4 or/1-3

**Scope of searches for RCTs, observational studies (OBS) and no filter (NOF) searches**

KQ	Type of studies	Date range	Initial recall	Sifted result
1	RCT	1990- Jul 2013	2249	22
2	NoF	1946 - Apr-2013	4185	49
3	RCT	1946-Apr2013	293	14
4 and 5	NoF	1990-Jul 2012	4925	222
6	NoF	1946-May 2013	342	44
7	RCT	2001 – Nov2012	2064	18
8	NoF	1946 - May 2013	449	16
9	NoF	1946 -Apr 2013	319	42
10	NoF	2007 - Sept 2013	2974	79
11	Obs	2007 - Apr 2013	279	18
12	NoF	1946 - May 2013	341	16
13	NoF	2001-Jan 2013	2052	34
14	NoF	2001- Dec 2012	448	19
15	NoF	2001-Nov 2012	142	6
16	NoF	2001-Nov 2012	442	15
17	NoF	2001-Dec 2012	322	21
18	SR	2001 – Jul 2012	3	3
19	RCT	2001-Dec 2012	1272	16
20	NoF	1946-Apr 2013	878	16
21	NoF	2006-Apr2013	2051	32
22	NoF	2001- May 2013	1235	45
23	NoF	1946-Apr 2013	771	127
24 and 31	NoF	1946-Apr2013	1934	136
25	Obs	1946 - May 2013	2727	19
26	Obs	2010 - May 2013	2239	42
27	NoF	2001-Aug 2013	903	24
28	Obs	1946 - Sept 2013	1396	60
29	NoF	2001- Feb 2013	911	15
30	NoF	1946-Apr2013	1794	9
32	SR	2001- Sept 2013	9	10
33	NoF	1946 - Jun 2013	1067	3
Update	SR and RCT	Jul 2012 – Feb 2014	516 + 1041	105

**Medline Search strategies used for specific key questions:****KQ 1 Levetiracetam Monotherapy**

- 1 levetiracetam.tw.
- 2 keppra.tw.
- 3 or/1-2

**KQ1 Zonisamide monotherapy**

- 1 zonisamide.tw.
- 2 zonegran.tw.
- 3 or/1-2

**KQ 2 Retigabine, rufinamide, perampanel**

- 1 retigabine.tw.
- 2 ezogabine.tw.
- 3 (D-23129 or D23129).tw.
- 4 1 or 2 or 3
- 5 perampanel.tw.
- 6 Fycompa.tw.
- 7 rufinamide.tw.
- 8 Banzel.tw.
- 9 Inovelon.tw.
- 10 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9

**KQ2 Felbamate, Stiripentol**

- 1 felbamate.tw.
- 2 felbatol.tw.
- 3 stiripentol.tw.
- 4 diacomit.tw.
- 5 1 or 2 or 3 or 4

**KQ2 Steroids, bromide**

- 1 Bromides/
- 2 bromide\$.tw.
- 3 exp Steroids/
- 4 steroid\$.tw.
- 5 or/1-4

**KQ3 Deep Brain Stimulation or Trigeminal Nerve Stimulation**

1. Deep Brain Stimulation/
2. Trigeminal Nerve/
3. ((trigeminal or fifth cranial) adj nerve).tw.
4. ((trigeminal or deep brain or fifth cranial) adj3 stimulat\$).tw.
5. (TNS or eTNS).tw.
6. DBS.tw.
7. or/1-6

**KQ4 and 5 Status epilepticus (prolonged and serial seizures) and benzodiazepines.**

1. exp Benzodiazepines/
2. lorazepam.tw.
3. diazepam.tw.
4. midazolam.tw.
5. clonazepam.tw.
6. exp Hydantoins/
7. phenytoin.tw.
8. Valproic Acid/
9. Phenobarbital/
10. valproate.tw.
11. phenobarbitone.tw.
12. thiopental.tw.
13. Propofol/
14. propofol.tw.
15. Ketamine/
16. ketamine.tw.
17. or/1-16
18. Status Epilepticus/

19. status epilepticus.tw.
20. ((convulsive or refractive) adj status).tw. (
21. ((prolong\$ or serial or repeat\$ or repetitive or cluster\$) adj seizure\$).tw.
22. or/17-22
23. 17 and 22

#### **KQ6 AEDs and BMD**

1. drug therapy/
2. ((antiepileptic or anti-epileptic) adj drug\$).tw.
3. AED.tw.
4. or/1-3
5. osteoporosis/ or osteoporosis, postmenopausal/
6. bone mineral density.tw.
7. bmd.tw.
8. (bone adj2 (densit\$ or loss or mass or content or demineral\$ or strength or weak\$ or fragil\$ or decalcifi\$ or absor\$ or reabsor\$)).tw.
9. Bone Density/
10. or/5-9
11. 4 and 10

#### **KQ7 Rational polytherapy**

1. Dose-Response Relationship, Drug/
2. exp Anticonvulsants/
3. Drug Therapy, Combination/
4. Drug Synergism/
5. Drug Interactions/
6. polytherapy.tw.
7. ((combination or adjuvant or adjunctive or concomitant) adj therapy).tw.
8. (concomitant adj (anti-epileptic\$ or antiepileptic\$ or AED\$)).tw.
9. ((optimal or rational or AED\$ or anti-epileptic\$ or antiepileptic\$) adj combination\$).tw.
10. therapeutic synerg\$.tw.
11. synergism.tw.
12. add-on phase.tw.
13. rational polytherapy.tw.
14. or/1-14

#### **KQ8 Switching to Generic drugs**

1. Drugs, Generic/
2. therapeutic equivalency/
3. ((generic or innovator or patent or off-patent or bioequivalen\$ or brand) adj2 drug\$).tw.
4. or/1-3

#### **KQ9 Plasma concentrations**

1. exp Pregnancy/
2. pregnan\$.tw.
3. gestat\$.tw.
4. or/1-3
5. exp Drug Therapy/
6. (drug\$ or drugs).tw.
7. 4 or 5
8. (drug\$ adj2 (monitor\$ or concentrat\$ or manipul\$ or adjust\$)).tw.
9. (AED\$ adj2 (monitor\$ or concentrat\$ or manipul\$ or adjust\$)).tw.
10. (dos\$ adj2 (monitor\$ or concentrat\$ or manipul\$ or adjust\$)).tw.
11. (plasma adj2 (monitor\$ or concentrat\$)).tw.
12. (AED\$ adj5 "therapeutic drug\$ monitor\$").tw.
13. or/8-13
14. 4 and 7 and 13

#### **KQ10 Pregnancy and AEDs**

1. exp Pregnancy/
2. pregnan\$.tw.
3. gestat\$.tw.
4. or/1-3
5. exp Drug Therapy/
6. ((anti-epileptic or antiepileptic) adj drug\$.tw.
7. AED.tw.
8. or/5-8
9. offspring.tw.
10. progeny.tw.
11. ((child\$ or bab\$) adj5 epilep\$.tw.
12. or/9-12
13. 4 and 8 and 12

### **KQ10 risk of epilepsy**

- 1 (geneti\$ adj (risk or disorder or mutation or counsel\$ or factor\$ or history or defect or predisposition)).tw.
- 2 1 and epilepsy stem results
- 3 ((geneti\$ or relative\$ or descendant\$ or consang\$ or family or probands or twin\$ or sibling\$ or offspring) adj6 epilep\$.tw.
- 4 2 or 4

### **KQ10 Teratogenicity**

1. exp Anticonvulsants/
2. (anti-epileptic\$ or antiepileptic\$ or AED\$.tw.
3. or/1-2
4. Abnormalities, Drug-Induced/
5. teratogen\$.tw.
6. Congenital Abnormalities/
7. ((congenital or birth) adj (abnormal\$ or defect\$)).tw.
8. deformit\$.tw.
9. malform\$.tw.
10. MCM\$.tw.
11. or/4-10
12. 3 and 11

### **KQ11 Pregnancy**

1. exp Pregnancy/
2. pregnan\$.tw.
3. gestat\$.tw.
4. or/1-3
5. exp Drug Therapy/
6. ((anti-epileptic or antiepileptic) adj drug\$.tw.
7. AED.tw.
8. or/5-7
9. 4 and 8

### **KQ12 Pre-pregnancy counselling**

1. (prepregnancy or pre-pregnancy or "pre pregnancy").tw.
2. (preconception\$ or pre-conception\$ or "pre conception").tw.
3. (plan\$ adj3 (conceive or conception or pregnan\$)).tw.
4. reproductive health.tw.
5. exp Family Planning Services/
6. (family planning or planned parenthood).tw.
7. exp counseling/
8. (counsel\$ or educat\$ or inform\$ or advice or advise or instruct\$.tw.
9. or/1-6
10. or/7-8

11. 9 and 10
12. exp preconception care/
13. 11 or 12

### **KQ13 Epilepsy and pregnancy**

1. exp Pregnancy/
2. pregnan\$.ti.
3. gestat\$.ti.
4. (labor or labour).ti.
5. (birth or delivery).ti.
6. or/1-5
7. 6 and epilepsy stem results
8. exp Hypertension, Pregnancy-Induced/
9. 7 not 8
10. exp Diabetes, Gestational/
11. 9 not 10

**Note :limited to Female, Free-text searching limited to Title only**

### **KQ14 Contraception**

1. exp Anticonvulsants/
2. (anti-epileptic\$ or anti epileptic\$ or anti-convulsant\$ or anti convulsant\$.tw.
3. 1 or 2
4. exp Contraception/
5. ((birth or fertility) adj control).tw.
6. contracepti\$.tw.
7. 4 or 5 or 6
8. 3 and 7

### **KQ15 Vitamin K**

1. exp Pregnancy/
2. pregnan\$.tw.
3. gestat\$.tw.
4. or/1-3
5. exp Vitamin K/
6. vitamin k.tw.
7. naphthoquinone\$.tw.
8. or/5-7
9. 4 and 8

### **KQ16 Folic Acid**

1. exp Pregnancy/
2. pregnan\$.tw.
3. gestat\$.tw.
4. or/1-3
5. Folic Acid/
6. (folic or folate).tw.
7. "vitamin b9".tw.
8. or/5-8
9. 4 and 8

### **KQ17 Menopause**

1. exp "menopause and climacterium"/
2. menopaus\$.tw.
3. climacter\$.tw.
4. or/1-3

### **KQ19 Older people and AEDs**

1. (anti-epileptic\$ or antiepileptic\$.tw.
2. (anti-convulsant\$ or anticonvulsant\$.tw.
3. exp Anticonvulsants/
4. AED\$.tw.
5. or/1-4
6. exp Aged/
7. (elder\$ or old\$.tw.
8. 6 or 7
9. 5 and 8

### **KQ20 Elderly people and QoL**

1. exp Aged/
2. (elder\$ or old\$.tw.
3. 1 or 2
4. (HRQOL or QOL or HQOL).tw.
5. "Quality of Life"/
6. (quality adj3 (lif\$ or liv\$)).tw.
7. QOLIE.tw
8. or/4-7
9. 3 and 8

### **KQ21 Models of care**

1. Ambulatory Care/
2. "Delivery of Health Care"/
3. Program Evaluation/
4. "Outcome Assessment (Health Care)"/
5. General Practice/
6. Family Practice/
7. (epilep\$ adj4 (center or centre)).tw.
8. (epilep\$ adj3 special\$.tw.
9. (epilep\$ adj2 nurs\$.tw.
10. (neuroI\$ adj2 clinic\$.tw.
11. (care adj2 (model\$ or shared or special\$)).tw.
12. or/1-11

### **KQ22 Self-management**

1. Patient Education as Topic/
2. Self Care/
3. (self adj (management or care)).tw.
4. or/1-3
5. (epilep\$ adj3 (information or educat\$ or counsel\$ or aware\$ or teach\$)).tw.
6. 4 and results of epilepsy stem search
7. 5 or 6

### **KQ23 SUDEP**

- 1 SUDEP.tw.
- 2 "sudden unexpected death in epilepsy".tw.
- 3 (epilep\$ adj2 (death or mortal\$ or fatal\$)).tw.
- 4 or/1-3

### **KQ24 and 31**

1. mental disorders/
2. exp mood disorders/
3. mental health/
4. mental health services/

5. exp depression/
6. (depress\$ or psychiatric or mental health).tw.
7. or/1-6
8. exp Psychiatric Status Rating Scales/
9. "rating scale\$.tw.
10. (screen\$ adj2 (tool\$ or test\$ or questionnaire\$ or scale\$)).tw.
11. or/8-10
12. 7 and 11 and results of epilepsy stem
13. ((screen\$ or diagnos\$ or test\$ or eval\$) adj2 (depress\$ or low mood or psycho\$ or anxi\$ or melachol\$ or unhapp\$ or sadness or dysphori\$ or dysthymi\$ or desponden\$)).tw.
14. 13 and results of epilepsy stem
15. 12 or 14

### **KQ25 Anti-depressants**

1. Depression/
2. exp Mood Disorders/
3. Mental Disorders/
4. mental health/
5. (depress\$ or low mood or melachol\$ or unhapp\$ or sadness or dysphori\$ or dysthymi\$ or desponden\$).tw.
6. or/1-5
7. 10 and results of epilepsy stem search
8. psychotropic drugs/ or exp antidepressive agents/ or exp antidepressive agents, second-generation/ or exp antidepressive agents, tricyclic/
9. (anti-depress\$ or antidepress\$).tw.
10. exp Serotonin Uptake Inhibitors/
11. exp Monoamine Oxidase Inhibitors/
12. SSRI.tw.
13. exp Adrenergic Uptake Inhibitors/
14. (NRI or NaSSA or SNRI or SARI or NDRI or NDDI or SSRE).tw.
15. or/8-14
16. 7 and 15

### **KQ26 Talking therapies**

1. exp psychotherapy/ or exp behavior therapy/ or exp psychoanalytic therapy/ or exp psychotherapeutic processes/
2. Counseling/
3. ((cognitive or dialectic) adj behav\$).tw.
4. ((psychodynamic or humanistic or group or relationship) adj therap\*\$).tw.
5. "acceptance and commitment".tw.
6. mindful\$.tw.
7. "positive psychol\$.tw.
8. psychotherap\$.tw.
9. or/1-8

### **KQ27 Sleep apnoea**

1. exp apnea/ or exp sleep apnea syndromes/
2. apnoe\$.tw.
3. apne\$.tw.
4. hypopne\$.tw.
5. or/1-4

### **KQ28 Hand held video**

1. exp Video Recording/
2. ((mobil\$ or hand-held or ?phone\$ or digital or portable) adj5 (video or camera or record\$ or tape or taping)).tw.
3. 1 or 2



### **KQ28 short term video eeg, telemetry, polysomnography**

1. (short adj2 video eeg).tw.
2. (short adj2 video electroencephalogra\$).tw.
3. 1 or 2
4. 3 and results of epilepsy stem
5. polysomnogra\$.ti,ab.
6. 5 and results of epilepsy stem
7. video telemetry.tw.
8. 7 and results of epilepsy stem

### **KQ29 cardiology**

- 1 exp Arrhythmias, Cardiac/
- 2 ((cardiac or heart) adj (arrhythmia\$ or dysrhythmia\$)).tw.
- 3 tachycardia.tw.
- 4 bradycardia.tw.
- 5 fibrillation.tw.
- 6 tachyarrhythmia.tw.
- 7 "ectopic beat\$".tw.
- 8 "sick sinus".tw.
- 9 "heart block".tw.
- 10 "long QT syndrome".tw.
- 11 LQTS.tw.
- 12 premature ventricular contraction.tw.
- 13 or/1-12
- 14 exp Electrocardiography/
- 15 cardiography.tw.
- 16 electrocardiography.tw.
- 17 implant\$ loop record\$.tw.
- 18 or/14-17
- 19 13 and 18

### **KQ30 Cognitive rehabilitation**

- 1 Cognitive Therapy/
- 2 Psychotherapy/
- 3 Neuropsychology/
- 4 neuropsychology.tw.
- 5 (rehabilitat\$ adj3 (memory or learning or cognit\$)).tw.
- 6 or/1-5

### **KQ33 Downs and dementia**

1. Down Syndrome/
2. "down\$ syndrome".tw.
3. "trisomy 21".tw.
4. mongolism.tw.
5. or/1-4