

Type 1 diabetes guideline update: literature search strategies

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Introduction

Search strategies used for the Type 1 Diabetes guideline update were run in accordance with the NICE Guidelines Manual 2012. All searches were run up to 28 August 2014 unless otherwise stated. Any studies added to the databases after this date were not included unless specifically stated in the text. Where possible searches were limited to retrieve material published in English.

For questions not covered in the original NICE guideline the dates searched for each database were as follows in Table 1. For questions in the original guideline that were updated, searches were undertaken from 2003 onwards – the date of the last searches conducted for the original guideline. Dates searched for each question are documented in the tables under each question in section 1.3.

Table 1: Database date parameters

Database	Dates searched
Medline	1946 – 28 August 2014
Embase	1980 – August 2014 (week 34)
The Cochrane Library	Cochrane Reviews to 2014 Issue 7 of 12 CENTRAL to 2014 Issue 7 of 12 DARE, HTA and NHSEED to 2013 Issue 3 of 4

Clinical searches

Searches for **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane Library (Wiley). Typically, searches were constructed in the following way:

- A PICO format was used for intervention searches. **Population (P)** terms were combined with **Intervention (I)** and sometimes **Comparison (C)** terms (as indicated in the tables under each individual question in 1.3). An intervention can be a drug, a procedure or a diagnostic test. **Outcomes (O)** are rarely used in search strategies for interventions. Study type filters were added where appropriate (see 1.1).
- A PEO format was used for **prognosis** searches where population (P) terms were combined with exposure (E) terms and sometimes outcomes (O).

In addition to the databases outlined above, searches for the structured education question (1.3.1) were run in PsycINFO (OVID).

Economic searches

Searches for **economic evidence** were run in Medline (Ovid), Embase (Ovid), the NHS Economic Evaluations Database (NHS EED), the Health Technology Assessment (HTA) database and the Health Economic Evaluation Database (HEED). NHS EED and HTA were searched via the Cochrane (Wiley) or Centre for Reviews and Dissemination (CRD) interfaces. For Medline and Embase an economic filter (see 1.1.6) was added to the standard populations (see 1.2). All other searches were conducted using only population terms.

1.1 Study filter search terms

1.1.1 Systematic review (SR) search terms

Medline search terms

1.	meta-analysis/
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2.	meta-analysis as topic/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic* or evidence*) adj2 (review* or overview*)).ti,ab.
5.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7.	(search* adj4 literature).ab.
8.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	cochrane.jw.
10.	or/1-9

Embase search terms

1.	systematic review/
2.	meta-analysis/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic or evidence) adj2 (review* or overview*)).ti,ab.
5.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7.	(search* adj4 literature).ab.
8.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	((pool* or combined) adj2 (data or trials or studies or results)).ab.
10.	cochrane.jw.
11.	or/1-10

1.1.2 Randomised controlled trials (RCT) search terms

Medline search terms

1.	randomized controlled trial.pt.
2.	controlled clinical trial.pt.
3.	randomi#ed.ab.
4.	placebo.ab.
5.	randomly.ab.
6.	clinical trials as topic.sh.
7.	trial*.ti.
8.	or/1-7

Embase search terms

1.	random*.ti,ab.
2.	factorial*.ti,ab.
3.	(crossover* or cross over*).ti,ab.
4.	((doubl* or singl*) adj blind*).ti,ab.
5.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
6.	crossover procedure/
7.	single blind procedure/
8.	randomized controlled trial/

9.	double blind procedure/
10.	or/1-9

1.1.3 Observational studies (OBS) search terms

Medline search terms

1.	epidemiologic studies/
2.	exp case control studies/
3.	exp cohort studies/
4.	cross-sectional studies/
5.	case control.ti,ab.
6.	(cohort adj (study or studies or analys*)).ti,ab.
7.	((follow up or observational or uncontrolled or non randomi#ed or nonrandomi#ed or epidemiologic*) adj (study or studies)).ti,ab.
8.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)).ti,ab.
9.	or/1-8

Embase search terms

1.	clinical study/
2.	exp case control study/
3.	family study/
4.	longitudinal study/
5.	retrospective study/
6.	prospective study/
7.	cross-sectional study/
8.	cohort analysis/
9.	follow-up/
10.	cohort*.ti,ab.
11.	9 and 10
12.	case control.ti,ab.
13.	(cohort adj (study or studies or analys*)).ti,ab.
14.	((follow up or observational or uncontrolled or non randomi#ed or nonrandomi#ed or epidemiologic*) adj (study or studies)).ti,ab.
15.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)).ti,ab.
16.	or/1-8,11-15

1.1.4 Cohort studies search terms

Medline search terms

1.	exp cohort studies/
2.	cross-sectional studies/
3.	retrospective studies/
4.	((prospective or cross sectional or retrospective or follow up or longitudinal or comparative) and (study or studies or review or analys*)).ti,ab.
5.	comparative study.pt.
6.	(cohort* or participant*).ti,ab.

7.	or/1-6
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Embase search terms

1.	comparative study/
2.	longitudinal study/
3.	prospective study/
4.	cross-sectional study/
5.	retrospective study/
6.	cohort analysis/
7.	((prospective or retrospective or cross sectional or follow up or longitudinal or comparative) and (study or studies or review or analys*)).ti,ab.
8.	(cohort* or participant*).ti,ab.
9.	or/1-8

Cochrane search terms

#1.	MeSH descriptor: [cohort studies] explode all trees
#2.	MeSH descriptor: [cross-sectional studies] this term only
#3.	((prospective or retrospective or "cross sectional" or "follow up" or longitudinal or comparative) and (study or studies or review or analys*)):ti,ab
#4.	comparative study:pt
#5.	(cohort* or participant*).ti,ab
#6.	#1 or #2 or #3 or #4 or #5

1.1.5 Prognostic (PROG) studies search terms

Medline search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.
3.	(predict* and (outcome* or risk* or model*)):ti,ab.
4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)):ti,ab.
5.	decision*.ti,ab. and logistic models/
6.	(decision* and (model* or clinical*)):ti,ab.
7.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)):ti,ab.
8.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or auc or calibration or indices or algorithm or multivariable).ti,ab.
9.	roc curve/
10.	or/1-9

Embase search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.
3.	(predict* and (outcome* or risk* or model*)):ti,ab.
4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)):ti,ab.
5.	decision*.ti,ab. and statistical model/
6.	(decision* and (model* or clinical*)):ti,ab.
7.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or

	factor* or model*).ti,ab.
8.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or auc or calibration or indices or algorithm or multivariable).ti,ab.
9.	receiver operating characteristic/
10.	or/1-9

1.1.6 Health economic (ECON) search terms

Medline search terms

1.	economics/
2.	value of life/
3.	exp "costs and cost analysis"/
4.	exp economics, hospital/
5.	exp economics, medical/
6.	exp resource allocation/
7.	economics, nursing/
8.	economics, pharmaceutical/
9.	exp "fees and charges"/
10.	exp budgets/
11.	budget*.ti,ab.
12.	cost*.ti,ab.
13.	(economic* or pharmaco?economic*).ti,ab.
14.	(price* or pricing*).ti,ab.
15.	(financ* or fee or fees or expenditure* or saving*).ti,ab.
16.	(value adj2 (money or monetary)).ti,ab.
17.	resourc* allocat*.ti,ab.
18.	(fund or funds or funding* or funded).ti,ab.
19.	(ration or rations or rationing* or rationed).ti,ab.
20.	ec.fs.
21.	or/1-20

Embase search terms

1.	health economics/
2.	exp economic evaluation/
3.	exp health care cost/
4.	exp fee/
5.	budget/
6.	funding/
7.	resource allocation/
8.	budget*.ti,ab.
9.	cost*.ti,ab.
10.	(economic* or pharmaco?economic*).ti,ab.
11.	(price* or pricing*).ti,ab.
12.	(financ* or fee or fees or expenditure* or saving*).ti,ab.
13.	(value adj2 (money or monetary)).ti,ab.
14.	resourc* allocat*.ti,ab.

15.	(fund or funds or funding* or funded).ti,ab.
16.	(ration or rations or rationing* or rationed).ti,ab.
17.	or/1-16

1.1.7 Quality of life (QOL) search terms

Medline search terms

1.	quality-adjusted life years/
2.	sickness impact profile/
3.	(quality adj2 (wellbeing or well being)).ti,ab.
4.	sickness impact profile.ti,ab.
5.	disability adjusted life.ti,ab.
6.	(qal* or qtime* or qwb* or daly*).ti,ab.
7.	(euroqol* or eq5d* or eq 5d*).ti,ab.
8.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
9.	(health utility* or utility score* or disutilit*).ti,ab.
10.	(hui or hui1 or hui2 or hui3).ti,ab.
11.	health* year* equivalent*.ti,ab.
12.	(hye or hyes).ti,ab.
13.	rosser.ti,ab.
14.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
15.	(sf36 or sf 36 or short form 36 or shortform 36 or shortform36).ti,ab.
16.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
17.	(sf12 or sf 12 or short form 12 or shortform 12 or shortform12).ti,ab.
18.	(sf8 or sf 8 or short form 8 or shortform 8 or shortform8).ti,ab.
19.	(sf6 or sf 6 or short form 6 or shortform 6 or shortform6).ti,ab.
20.	or/1-20

Embase search terms

1.	quality adjusted life year/
2.	"quality of life index"/
3.	short form 12/ or short form 20/ or short form 36/ or short form 8/
4.	sickness impact profile/
5.	(quality adj2 (wellbeing or well being)).ti,ab.
6.	sickness impact profile.ti,ab.
7.	disability adjusted life.ti,ab.
8.	(qal* or qtime* or qwb* or daly*).ti,ab.
9.	(euroqol* or eq5d* or eq 5d*).ti,ab.
10.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
11.	(health utility* or utility score* or disutilit*).ti,ab.
12.	(hui or hui1 or hui2 or hui3).ti,ab.
13.	health* year* equivalent*.ti,ab.
14.	(hye or hyes).ti,ab.
15.	rosser.ti,ab.
16.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
17.	(sf36 or sf 36 or short form 36 or shortform 36 or shortform36).ti,ab.

18.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
19.	(sf12 or sf 12 or short form 12 or shortform 12 or shortform12).ti,ab.
20.	(sf8 or sf 8 or short form 8 or shortform 8 or shortform8).ti,ab.
21.	(sf6 or sf 6 or short form 6 or shortform 6 or shortform6).ti,ab.
22.	or/1-21

1.2 Population search strategies

Medline search terms

1.	diabetes mellitus, type 1/
2.	diabetic ketoacidosis/
3.	((diabet* or dm) adj4 (type 1 or type1 or type i or type one)).ti,ab.
4.	(diabet* adj2 (autoimmun* or auto immun*)).ti,ab.
5.	lada.ti,ab.
6.	(diabet* adj2 (brittle or labile)).ti,ab.
7.	(diabet* adj2 (sudden onset or juvenile or childhood)).ti,ab.
8.	(diabet* adj3 (keto* or acido* or gastropare*)).ti,ab.
9.	(dm1 or iddm or t1d* or dka).ti,ab.
10.	((diabet* adj2 (insulin depend* or insulin deficien*)) not non insulin depend*).ti,ab.
11.	diabetes mellitus.ti.
12.	(diabet* adj3 (type 2 or type ii)).ti.
13.	11 not 12
14.	or/1-10,13
15.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
16.	(pregnan* or gestation*).ti.
17.	14 not (15 or 16)
18.	letter/
19.	editorial/
20.	news/
21.	exp historical article/
22.	anecdotes as topic/
23.	comment/
24.	case report/
25.	(letter or comment*).ti.
26.	or/18-25
27.	26 not (randomized controlled trial/ or random*.ti,ab.)
28.	animals/ not humans/
29.	exp animals, laboratory/
30.	exp animal experimentation/
31.	exp models, animal/
32.	exp rodentia/
33.	(rat or rats or mouse or mice).ti.
34.	or/27-33
35.	17 not 34

Embase search terms

1.	insulin dependent diabetes mellitus/
2.	juvenile diabetes mellitus/
3.	diabetic ketoacidosis/
4.	((diabet* or dm) adj4 (type 1 or type1 or type i or type one)).ti,ab.
5.	(diabet* adj2 (autoimmun* or auto immun*)).ti,ab.
6.	lada.ti,ab.
7.	(diabet* adj2 (brittle or labile)).ti,ab.
8.	(diabet* adj2 (sudden onset or juvenile or childhood)).ti,ab.
9.	(diabet* adj3 (keto* or acido* or gastropare*)).ti,ab.
10.	(dm1 or iddm or t1d* or dka).ti,ab.
11.	((diabet* adj2 (insulin depend* or insulin deficien*)) not non insulin depend*).ti,ab.
12.	diabetes mellitus.ti.
13.	(diabet* adj3 (type 2 or type ii)).ti.
14.	12 not 13
15.	or/1-11,14
16.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
17.	(pregnan* or gestation*).ti.
18.	15 not (16 or 17)
19.	letter.pt. or letter/
20.	note.pt.
21.	editorial.pt.
22.	case report/ or case study/
23.	(letter or comment*).ti.
24.	or/19-23
25.	24 not (randomized controlled trial/ or random*.ti,ab.)
26.	animal/ not human/
27.	nonhuman/
28.	exp animal experiment/
29.	exp experimental animal/
30.	animal model/
31.	exp rodent/
32.	(rat or rats or mouse or mice).ti.
33.	or/25-32
34.	18 not 33

Cochrane search terms

#1.	MeSH descriptor diabetes mellitus, type 1 explode all trees
#2.	MeSH descriptor diabetic ketoacidosis, this term only
#3.	((diabet* or dm) near/4 ("type 1" or type1 or "type i" or "type one")):ti,ab
#4.	(diabet* near/2 (autoimmun* or "auto immun*")):ti,ab
#5.	(diabet* near/2 (brittle or labile)):ti,ab
#6.	(diabet* near/2 ("sudden onset" or juvenile or child*)):ti,ab
#7.	(diabet* near/3 (keto* or acido* or gastropare*)):ti,ab
#8.	(dm1 or iddm or t1d* or dka or lada):ti,ab

#9.	(diabet* near/2 (insulin next depend*)):ti,ab
#10.	(#9 and not "non insulin dependent")
#11.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #10)
#12.	"diabetes mellitus":ti
#13.	(diabet* near/3 ("type 2" or "type ii")):ti
#14.	(#12 and not #13)
#15.	(#11 or #14)
#16.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)):ti
#17.	(#15 and not #16)
#18.	(pregnan* or gestation*):ti
#19.	(#17 and not #18)

PsycINFO search terms

1.	((diabet* or dm) adj4 (type 1 or type1 or type i or type one)).ti,ab.
2.	(diabet* adj2 (autoimmun* or auto immun*)).ti,ab.
3.	lada.ti,ab.
4.	(diabet* adj2 (brittle or labile)).ti,ab.
5.	(diabet* adj2 (sudden onset or juvenile or childhood)).ti,ab.
6.	(diabet* adj3 (keto* or acido* or gastropare*)).ti,ab.
7.	(dm1 or iddm or t1d* or dka).ti,ab.
8.	((diabet* adj2 (insulin depend* or insulin deficien*)) not non insulin depend*).ti,ab.
9.	diabetes mellitus.ti.
10.	(diabet* adj3 (type 2 or type ii)).ti.
11.	9 not 10
12.	or/1-8,11
13.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
14.	12 not 13

1.3 Searches for specific questions

1.3.1 Differential diagnosis

For the the following question a broad diabetes population was used, hence the searches for this question are reproduced in full below.

1. In adults and young people with diabetes, what is the best marker (c-peptides plus or minus antibodies) to distinguish between type 1 diabetes, type 2 diabetes and other forms of diabetes?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 or type 2 diabetes	Markers	The following filters were used in Medline and Embase only: RCTs or SRs or cohort studies [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	diabetes mellitus, type 1/
2.	diabetic ketoacidosis/
3.	((diabet* or dm) adj4 (type 1 or type1 or type i or type one)).ti,ab.
4.	(diabet* adj2 (autoimmun* or auto immun*)).ti,ab.
5.	(lada or mody).ti,ab.
6.	(diabet* adj2 (brittle or labile)).ti,ab.
7.	(diabet* adj2 (sudden onset or maturity onset or juvenile or childhood)).ti,ab.
8.	(diabet* adj3 (keto* or acido* or gastropare*)).ti,ab.
9.	(dm1 or iddm or t1d* or dka).ti,ab.
10.	((diabet* adj2 (insulin depend* or insulin deficien*)) not non insulin depend*).ti,ab.
11.	diabetes mellitus.ti.
12.	or/1-11
13.	(pregnan* or gestation*).ti.
14.	12 not 13
15.	letter/
16.	editorial/
17.	news/
18.	exp historical article/
19.	anecdotes as topic/
20.	comment/
21.	case report/
22.	(letter or comment*).ti.
23.	or/15-22
24.	23 not (randomized controlled trial/ or random*.ti,ab.)
25.	animals/ not humans/
26.	exp animals, laboratory/
27.	exp animal experimentation/
28.	exp models, animal/
29.	exp rodentia/
30.	(rat or rats or mouse or mice).ti.
31.	or/24-30
32.	14 not 31
33.	c-peptide/
34.	*autoantibodies/
35.	glutamate decarboxylase/
36.	insulinoma/
37.	glucose-6-phosphatase/
38.	c peptide*.ti,ab.
39.	((islet cell or decarboxylase or glutamic or insulinoma) and (antibod* or anti bod* or autoantibod*)).ti,ab.
40.	zinc transporter 8.ti,ab.
41.	(islet adj5 (phosphatase or catalytic)).ti,ab.
42.	(igrp* or ica* or ia-2* or ia2* or znt8* or gad*).ti,ab.
43.	or/33-42
44.	32 and 43

45.	(diagnos* or screen* or test*).ti,ab,hw.
46.	exp "sensitivity and specificity"/
47.	roc curve/
48.	area under curve/
49.	proportional hazards models/
50.	(roc or auc or (area and curve)).ti,ab.
51.	(sensitivity or specificity).ti,ab.
52.	gold standard.ab.
53.	(predictive value* or ppv or npv).ti,ab.
54.	likelihood ratio*.ti,ab.
55.	or/46-55
56.	44 and 55

Embase search terms

1.	insulin dependent diabetes mellitus/
2.	juvenile diabetes mellitus/
3.	diabetic ketoacidosis/
4.	((diabet* or dm) adj4 (type 1 or type1 or type i or type one)).ti,ab.
5.	(diabet* adj2 (autoimmun* or auto immun*)).ti,ab.
6.	(lada or mody).ti,ab.
7.	(diabet* adj2 (brittle or labile)).ti,ab.
8.	(diabet* adj2 (sudden onset or maturity onset or juvenile or childhood)).ti,ab.
9.	(diabet* adj3 (keto* or acido* or gastropare*)).ti,ab.
10.	(dm1 or iddm or t1d* or dka).ti,ab.
11.	((diabet* adj2 (insulin depend* or insulin deficien*)) not non insulin depend*).ti,ab.
12.	diabetes mellitus.ti.
13.	or/1-12
14.	(pregnan* or gestation*).ti.
15.	13 not 14
16.	letter.pt. or letter/
17.	note.pt.
18.	editorial.pt.
19.	case report/ or case study/
20.	(letter or comment*).ti.
21.	or/16-20
22.	21 not (randomized controlled trial/ or random*.ti,ab.)
23.	animal/ not human/
24.	nonhuman/
25.	exp animal experiment/
26.	exp experimental animal/
27.	animal model/
28.	exp rodent/
29.	(rat or rats or mouse or mice).ti.
30.	or/22-29
31.	15 not 30

32.	c peptide/
33.	glutamate decarboxylase 65 antibody/
34.	insulinoma/
35.	*autoantibody/
36.	glucose 6 phosphatase/
37.	((islet cell or decarboxylase or glutamic or insulinoma) and (antibod* or anti bod* or autoantibod*)).ti,ab.
38.	zinc transporter 8.ti,ab.
39.	(islet adj5 (phosphatase or catalytic)).ti,ab.
40.	(igrp* or ica* or ia-2* or ia2* or znt8* or gad*).ti,ab.
41.	or/32-40
42.	31 and 41
43.	(diagnos* or screen* or test*).ti,ab,hw.
44.	exp "sensitivity and specificity"/
45.	receiver operating characteristic/
46.	area under the curve/
47.	proportional hazards model/
48.	(roc or auc or (area and curve)).ti,ab.
49.	(sensitivity or specificity).ti,ab.
50.	gold standard.ab.
51.	(predictive value* or ppv or npv).ti,ab.
52.	likelihood ratio*.ti,ab.
53.	or/45-54
54.	42 and 53

Cochrane search terms

#1.	MeSH descriptor: [diabetes mellitus, type 1] explode all trees
#2.	MeSH descriptor: [diabetic ketoacidosis] this term only
#3.	((diabet* or dm) near/4 ("type 1" or type1 or "type i" or "type one")):ti,ab
#4.	(diabet* near/2 (autoimmun* or "auto immun*")):ti,ab
#5.	(diabet* near/2 (brittle or labile)):ti,ab
#6.	(diabet* near/2 ("sudden onset" or "maturity onset" or juvenile or child*)):ti,ab
#7.	(diabet* near/3 (keto* or acido* or gastropare*)):ti,ab
#8.	(dm1 or iddm or t1d* or dka or lada or mody):ti,ab
#9.	(diabet* near/2 (insulin next depend*)):ti,ab
#10.	#9 and not "non insulin dependent"
#11.	diabetes mellitus:ti
#12.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11
#13.	(pregnan* or gestation*):ti
#14.	#12 not #13
#15.	MeSH descriptor: [c-peptide] this term only
#16.	MeSH descriptor: [autoantibodies] this term only
#17.	MeSH descriptor: [glutamate decarboxylase] this term only
#18.	MeSH descriptor: [insulinoma] this term only
#19.	MeSH descriptor: [glucose-6-phosphatase] this term only
#20.	(c next (peptide or peptides)):ti,ab

#21.	((“islet cell” or decarboxylase or glutamic or insulinoma) and (antibody or antibodies or “anti body” or “anti bodies” or autoantibody or autoantibodies)):ti,ab
#22.	(“zinc transporter 8”):ti,ab
#23.	(islet* and (phosphatase or catalytic)):ti,ab
#24.	(igrp* or ica* or “ia-2” or ia2* or znt8* or gad*):ti,ab
#25.	#15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24
#26.	#14 and #25
#27.	MeSH descriptor: [diagnosis] explode all trees
#28.	(diagnos* or screen* or test*):ti,ab
#29.	MeSH descriptor: [sensitivity and specificity] explode all trees
#30.	MeSH descriptor: [area under curve] this term only
#31.	MeSH descriptor: [proportional hazards models] this term only
#32.	((roc or auc) or (area and curve)):ti,ab
#33.	(sensitivity or specificity):ti,ab
#34.	“gold standard”:ab
#35.	(“predictive value” or ppv or npv):ti,ab
#36.	“likelihood ratio”:ti,ab
#37.	#27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36
#38.	#37 and #26

1.3.2 Structured education programmes

2. In adults with type 1 diabetes, what is the most effective structured education programme?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Structured education programme	The following filters were used in Medline and Embase only: RCT, SR	2003 – 28 August 2014 [see Table 1]

Medline search terms

1.	self care/
2.	patient education as topic/
3.	(self adj (manage* or care or regulat* or monitor*)):ti.
4.	(educat* or learn* or teach* or train* or program* or dafne):ti.
5.	((train* or teach* or educat* or psycho*) and (model* or program* or structured or intervention* or support or diet* or eat*)):ab.
6.	or/1-5

Embase search terms

1.	patient education/
2.	self care/
3.	education program/
4.	eating/
5.	education/
6.	learning/
7.	diabetes education/
8.	(self adj (manage* or care or regulat* or monitor*)):ti.

9.	(educat* or learn* or teach* or train* or program* or dafne).ti.
10.	((train* or teach* or educat* or psycho*) and (model* or program* or structured or intervention* or support or diet* or eat*)).ab.
11.	or/1-10

PsycINFO search terms

1.	health education/
2.	client education/
3.	self management/
4.	educational programs/
5.	individual education programs/
6.	(self adj (manage* or care or regulat* or monitor*)).ti.
7.	(educat* or learn* or teach* or train* or program* or dafne).ti.
8.	((train* or teach* or educat* or psycho*) and (model* or program* or structured or intervention* or support or diet* or eat*)).ab.
9.	or/1-8

Cochrane search terms

#1.	MeSH descriptor patient education as topic, this term only
#2.	MeSH descriptor self care, this term only
#3.	(self next (manage* or care or regulat* or monitor*)):ti
#4.	(educat* or learn* or teach* or train* or program* or dafne):ti
#5.	((train* or teach* or educat* or psycho*) and (model* or program* or structured or intervention* or support or diet* or eat*)):ab
#6.	(#1 or #2 or #3 or #4 or #5)

1.3.3 Carbohydrates

3. In adults with type 1 diabetes, what is the clinical and cost-effectiveness of carbohydrate counting / restriction for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Carbohydrates	The following filters were used in Medline and Embase only: RCTs or SRs or cohort studies [Medline and Embase only]	All available dates [see Table 1]

Medline search terms

1.	(carb or carbs or carbohydrate*).ti,ab,hw.
----	--

Embase search terms

1.	(carb or carbs or carbohydrate*).ti,ab,hw.
----	--

Cochrane search terms

#1.	(carb or carbs or carbohydrate*):ti,ab,kw
-----	---

1.3.4 Diet

4. In adults with type 1 diabetes, what is the clinical and cost-effectiveness of a diet based on the glycaemic index for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	High glycaemic index diet	The following filters were used in Medline and Embase only: RCTs or SRs.	All available dates [see Table 1]

Medline search terms

1.	glycemic index/
2.	exp dietary carbohydrates/
3.	(glyc?emic index or gi).ti,ab.
4.	((carbohydrate? or cho) adj3 (count* or quant* or exchang* or diet* or intake)).ti,ab.
5.	chox.ti,ab.
6.	or/1-6

Embase search terms

1.	glycemic index/
2.	exp dietary carbohydrates/
3.	(glyc?emic index or gi).ti,ab.
4.	((carbohydrate? or cho) adj3 (count* or quant* or exchang* or diet* or intake)).ti,ab.
5.	chox.ti,ab.
6.	or/1-6

Cochrane search terms

#1.	MeSH descriptor: [Glycemic Index] this term only
#2.	MeSH descriptor: [Dietary Carbohydrates] explode all trees
#3.	(glyc?emic index or GI):ti,ab,kw
#4.	((carbohydrate? or CHO) near/3 (count* or quant* or exchang* or diet* or intake)):ti,ab,kw
#5.	chox:ti,ab
#6.	{or #1-#5}

1.3.5 HbA_{1c}

The same search strategy was used for the following two questions.

5. In adults with type 1 diabetes, what is the optimum target HbA_{1c} level that should be achieved to reduce the risk of complications?
6. In adults with type 1 diabetes, what is optimum frequency of HbA_{1c} monitoring for effective diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	HbA _{1c}	The following filters were used in Medline and Embase only: RCTs or SRs or observational studies or prognostic studies [Medline and	All available dates [see Table 1]

Population	Intervention	Study filter used	Date parameters
		Embase only]	

Medline search terms

1.	*hemoglobin a, glycosylated/
2.	time factors/
3.	1 and 2
4.	((hba1c or hba or ghb or hbaic or a1c or hba1) adj3 (target* or profile* or goal* or timing or time* or frequency or frequent* or regularity or regular* or rate or control* or optimal or optimum or level or levels or concentration* or lower* or rais* or change* or higher or association* or recorded or decreas* or model* or control)).ti,ab.
5.	((glycosylated or glycated or glycoslated) adj3 (haemoglobin or hemoglobin) adj3 (target* or profile* or goal* or timing or time* or frequency or frequent* or regularity or regular* or rate or control* or optimal or optimum or level or levels or concentration* or lower* or rais* or change* or higher or association* or recorded or decreas* or model* or control)).ti,ab.
6.	or/4-5
7.	(hba1c or hba or ghb or hbaic or a1c or hba1).ti,ab.
8.	((glycosylated or glycated or glycoslated) adj3 (haemoglobin or hemoglobin)).ti,ab.
9.	or/7-8
10.	((timing or time* or frequency or frequent* or regularity or regular* or rate) adj3 (monitor* or test* or check*)).ti,ab.
11.	9 and 10
12.	3 or 6 or 11

Embase search terms

1.	*glycosylated hemoglobin/
2.	time/
3.	1 and 2
4.	((hba1c or hba or ghb or hbaic or a1c or hba1) adj3 (target* or profile* or goal* or timing or time* or frequency or frequent* or regularity or regular* or rate or control* or optimal or optimum or level or levels or concentration* or lower* or rais* or change* or higher or association* or recorded or decreas* or model* or control)).ti,ab.
5.	((glycosylated or glycated or glycoslated) adj3 (haemoglobin or hemoglobin) adj3 (target* or profile* or goal* or timing or time* or frequency or frequent* or regularity or regular* or rate or control* or optimal or optimum or level or levels or concentration* or lower* or rais* or change* or higher or association* or recorded or decreas* or model* or control)).ti,ab.
6.	or/4-5
7.	(hba1c or hba or ghb or hbaic or a1c or hba1).ti,ab.
8.	((glycosylated or glycated or glycoslated) adj3 (haemoglobin or hemoglobin)).ti,ab.
9.	or/7-8
10.	((timing or time* or frequency or frequent* or regularity or regular* or rate) adj3 (monitor* or test* or check*)).ti,ab.
11.	9 and 10
12.	3 or 6 or 11

Cochrane search terms

#1.	MeSH descriptor: [hemoglobin a, glycosylated] this term only
#2.	MeSH descriptor: [time factors] this term only
#3.	#1 and #2
#4.	((hba1c or hba or ghb or hbaic or a1c or hba1) near/3 (target* or profile* or goal* or timing or

	time* or frequency or frequent* or regularity or regular* or rate or control* or optimal or optimum or level or levels or concentration* or lower* or rais* or change* or higher or association* or recorded or decreas* or model* or control)):ti,ab,kw
#5.	((glycosylated or glycated or glycoslated) near/3 (haemoglobin or hemoglobin) near/3 (target* or profile* or goal* or timing or time* or frequency or frequent* or regularity or regular* or rate or control* or optimal or optimum or level or levels or concentration* or lower* or rais* or change* or higher or association* or recorded or decreas* or model* or control)):ti,ab,kw
#6.	{or #4-#5}
#7.	(hba1c or hba or ghb or hbaic or a1c or hba1):ti,ab,kw
#8.	((glycosylated or glycated or glycoslated) near/3 (haemoglobin or hemoglobin)):ti,ab,kw
#9.	{or #7-#8}
#10.	((timing or time* or frequency or frequent* or regularity or regular* or rate) near/3 (monitor* or test* or check*)):ti,ab,kw
#11.	#9 and #10
#12.	#3 or #6 or #11

1.3.6 Self-monitoring of blood glucose (SMBG)

The same search strategy was used for the following two questions.

7. In adults with type 1 diabetes, what is optimum timing and frequency to self-monitor blood glucose for effective diabetic control?
8. In adults with type 1 diabetes, what is the optimum glucose target/profile for self-monitoring of blood glucose for effective diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Self-monitoring of blood glucose	None	All available dates [see Table 1]

Medline search terms

1.	blood glucose/ or (blood adj glucose*).ti,ab. or (blood adj sugar*).ti,ab.
2.	self monitor*.ti,ab.
3.	1 and 2
4.	blood glucose self-monitoring/
5.	((home or self) adj6 (blood or glucose) adj6 (monitor* or test*)):ti,ab.
6.	(hmbg* or smbg*).ti,ab.
7.	((glyc?emic or glucose) adj2 (target* or profile*)):ti,ab.
8.	or/4-7
9.	3 or 8

Embase search terms

1.	*glucose blood level/ or (blood adj glucose*).ti,ab. or (blood adj sugar*).ti,ab.
2.	self monitor*.ti,ab.
3.	1 or 2
4.	*blood glucose monitoring/
5.	((home or self) adj6 (blood or glucose) adj6 (monitor* or test*)):ti,ab.
6.	(smbg* or hmbg*).ti,ab.
7.	((glyc?emic or glucose) adj4 (target* or profile*)):ti,ab.
8.	or/4-7

9.	3 or 8
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Cochrane search terms

#1.	MeSH descriptor: [blood glucose] this term only
#2.	(blood near/1 glucose*):ti,ab,kw
#3.	(blood near/1 sugar*):ti,ab,kw
#4.	{or #1-#3}
#5.	self monitor* :ti,ab,kw
#6.	#4 and #5
#7.	MeSH descriptor: [blood glucose self-monitoring] this term only
#8.	((home or self) near/6 (blood or glucose) near/6 (monitor* or test*)):ti,ab,kw
#9.	(smbg* or hmbg*):ti,ab,kw
#10.	((glycaemic or glycemic or glucose) near/4 (target* or profile*)):ti,ab,kw
#11.	{or #7-#10}
#12.	#6 or #11

1.3.7 Glucose monitoring

The same search strategy was used for the following three questions.

9. In adults with type 1 diabetes, is retrospective continuous glucose monitoring more effective than care without continuous glucose monitoring (with SMBG) for improving diabetic control?
10. In adults with type 1 diabetes, is real-time continuous glucose monitoring more effective than SMBG continuous glucose monitoring for optimum diabetic control?
11. In adults with type 1 diabetes, is continuous real-time monitoring more effective than intermittent real-time monitoring for optimum diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Glucose monitoring	The following filters were used in Medline and Embase only: RCTs or SRs or cohort studies [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	blood glucose self-monitoring/
2.	((glucose or continuous or real time or intermittent or retrospective) and monitor*).ti.
3.	((glucose or continuous or real time or intermittent or retrospective) adj5 (monitor* or measure*)),ab.
4.	(cgm* or bgm* or smbg*).ti,ab.
5.	*hemoglobin a, glycosylated/ and monitor*.ti,ab.
6.	or/1-5

Embase search terms

1.	blood glucose monitoring/
2.	blood glucose meter/
3.	((glucose or continuous or real time or intermittent or retrospective) and monitor*).ti.
4.	((glucose or continuous or real time or intermittent or retrospective) adj5 (monitor* or measure*)),ab.

5.	(cgm* or bgm* or smbg*).ti,ab.
6.	*glycosylated hemoglobin/ and monitor*.ti,ab.
7.	or/1-6

Cochrane search terms

#1.	MeSH descriptor: [blood glucose self-monitoring] explode all trees
#2.	((glucose or continuous or "real time" or intermittent or retrospective) and monitor*):ti
#3.	((glucose or continuous or "real time" or intermittent or retrospective) near/5 (monitor* or measure*)):ab
#4.	(cgm* or bgm* or smbg*):ti,ab
#5.	#1 or #2 or #3 or #4

1.3.8 Technologies

12. In adults with type 1 diabetes, what are the benefits of technologies (bolus calculators and downloads) for self-monitoring of blood glucose?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Technologies	None	All available dates [see Table 1]

Medline search terms

1.	blood glucose self-monitoring/
2.	((blood or glucose or glycemic or sugar) adj6 (manage* or monitor* or test* or target* or control*)):ti,ab.
3.	(home or self).ti,ab.
4.	2 and 3
5.	(hmbg* or smbg* or finger prick*).ti,ab.
6.	or/1,4-5
7.	((new* or recent* or edge or latest or state or mobile or emerg* or innovat*) adj3 technolog*).ti,ab.
8.	application*.ti,ab.
9.	(in check or dafne online or on track or tracker or easy diabetes or ration wizard or calorie counter or diabetes self-management or diabetes diary or diabetes manager or diabetes planner or diabetes log* or glucose companion or diabetes companion or diabetes pilot or diabetes management system or diabetes recorder or bg monitor or my diabetes).ti,ab.
10.	or/7-9
11.	6 and 10
12.	patient-centered care/mt
13.	(smart phone* or smartphone* or iphone* or android or app or apps or mobile phone* or cell phone*).ti,ab.
14.	download*.ti,ab.
15.	cellular phone/
16.	((bolus or insulin dose) adj3 (calculator* or wizard*)):ti,ab.
17.	(carbs adj2 cals).ti,ab.
18.	(glucose buddy or insulin dose calculator pro or ibgstar or mysugr or tactiohealth or diamedic or rapidcalc or diappbetes or diabetes gps or healthsome g for glucose or bant or betabetes or ontrack or glucool diabetes or sidiary or dialog or ifora or glucatrends or d sharp or diabetical or glucowave or track3).ti,ab.

19.	or/12-18
20.	11 or 19

Embase search terms

1.	*blood glucose monitoring/
2.	((blood or glucose or glyceimic or sugar) adj6 (manage* or monitor* or test* or target* or control*)).ti,ab.
3.	(home or self).ti,ab.
4.	2 and 3
5.	(hmbg* or smbg* or finger prick*).ti,ab.
6.	or/1,4-5
7.	((new* or recent* or edge or latest or state or mobile or emerg* or innovat*) adj3 technolog*).ti,ab.
8.	application*.ti,ab.
9.	(in check or dafne online or on track or tracker or easy diabetes or ration wizard or calorie counter or diabetes self-management or diabetes diary or diabetes manager or diabetes planner or diabetes log* or glucose companion or diabetes companion or diabetes pilot or diabetes management system or diabetes recorder or bg monitor or my diabetes).ti,ab.
10.	or/7-9
11.	6 and 10
12.	(smart phone* or smartphone* or iphone* or android or app or apps or mobile phone* or cell phone*).ti,ab.
13.	download*.ti,ab.
14.	mobile phone/
15.	((bolus or insulin dose) adj3 (calculator* or wizard*)).ti,ab.
16.	(glucose buddy or insulin dose calculator pro or ibgstar or mysugr or tactiohealth or diamedic or rapidcalc or diappbetes or diabetes gps or healthsome g for glucose or bant or betabetes or ontrack or glucool diabetes or sidiary or dialog or ifora or glucatrends or d sharp or diabetical or glucowave or track3).ti,ab.
17.	(carbs adj2 cal).ti,ab.
18.	or/12-17
19.	11 or 18

Cochrane search terms

#1.	MeSH descriptor: [blood glucose self-monitoring] this term only
#2.	((blood or glucose or glyceimic or sugar) near/6 (manage* or monitor* or test* or target* or control*)).ti,ab,kw
#3.	(home or self):ti,ab,kw
#4.	#2 and #3
#5.	(hmbg* or smbg* or finger prick*):ti,ab,kw
#6.	#1 or #4 or #5
#7.	((new* or recent* or edge or latest or state or mobile or emerg* or innovat*) near/3 technolog*):ti,ab,kw
#8.	application*:ti,ab,kw
#9.	(in check or dafne online or on track or tracker or easy diabetes or ration wizard or calorie counter or diabetes self-management or diabetes diary or diabetes manager or diabetes planner or diabetes log* or glucose companion or diabetes companion or diabetes pilot or diabetes management system or diabetes recorder or bg monitor or my diabetes):ti,ab,kw
#10.	{or #7-#9}

#11.	#6 and #10
#12.	(smart phone* or smartphone* or iphone* or android or app or apps or mobile phone* or cell phone*):ti,ab,kw
#13.	download*:ti,ab,kw
#14.	MeSH descriptor: [cellular phone] this term only
#15.	((bolus or insulin dose) near/3 (calculator* or wizard*)):ti,ab,kw
#16.	(carbs near/2 cals):ti,ab,kw
#17.	(glucose buddy or insulin dose calculator pro or ibgstar or mysugr or tactiohealth or diamedic or rapidcalc or diappbetes or diabetes gps or healthsome g for glucose or bant or betabetes or ontrack or glucool diabetes or sidiary or dialog or ifora or glucatrends or d sharp or diabetical or glucowave or track3):ti,ab,kw
#18.	{or #12-#17}
#19.	#11 or #18

1.3.9 Long-acting/basal insulins

The same search strategy was used for the following two questions.

13. In adults with type 1 diabetes, what are the most effective long-acting insulins (detemir vs. degludec vs. glargine vs. NPH) for optimal diabetic control?

14. In adults with type 1 diabetes, is once daily basal insulin more effective than twice daily basal insulin for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Long-acting insulins	The following filters were used in Medline and Embase only: RCTs and SRs [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	insulin, isophane/
2.	insulin, long-acting/
3.	(detemir* or degludec* or glargine*).ti,ab.
4.	(tresiba* or lantus* or optisulin* or levemir*).ti,ab.
5.	((isofan* or isophan* or nph or protaphan* or lente) and insulin*).ti,ab.
6.	(lente adj2 (hypurin* or insulin*)).ti,ab.
7.	(protamin* and (zinc or neutral or hagedorn)).ti,ab.
8.	(insuman adj5 basal).ti,ab.
9.	(humulin* adj (i or n or r)).ti,ab.
10.	(actraphan* or berlinsulin* or insulatard* or monotard* or mixtard* or novolin* or iletin* or umuline* or orgasuline*).ti,ab.
11.	or/1-10

Embase search terms

1.	long acting insulin/
2.	insulin degludec/
3.	insulin glargine/
4.	insulin detemir/

5.	isophane insulin/
6.	(detemir* or degludec* or glargine*).ti,ab.
7.	(tresiba* or lantus* or optisulin* or levemir*).ti,ab.
8.	((isofan* or isophan* or nph or protaphan* or lente) and insulin*).ti,ab.
9.	(lente adj2 (hypurin* or insulin*)).ti,ab.
10.	(protamin* and (zinc or neutral or hagedorn)).ti,ab.
11.	(insuman* adj5 basal).ti,ab.
12.	(humulin* adj (i or n or r)).ti,ab.
13.	(actraphan* or berlinsulin* or insulatard* or monotard* or mixtard * or novolin* or iletin* or umuline* or orgasuline*).ti,ab.
14.	or/1-13

Cochrane search terms

#1.	MeSH descriptor: [insulin, long-acting] explode all trees
#2.	(detemir* or degludec* or glargine*).ti,ab
#3.	(tresiba* or lantus* or detemir* or optisulin* or levemir*).ti,ab
#4.	((isofan* or isophan* or nph or protaphan* or lente) and insulin*).ti,ab
#5.	(lente near/2 (hypurin or insulin or insulins)).ti,ab
#6.	(protamin* and (zinc or neutral or hagedorn)).ti,ab
#7.	(insuman near/5 basal).ti,ab
#8.	("humulin i" or "humulin n" or "humulin r").ti,ab
#9.	(actraphan* or berlinsulin* or insulatard* or monotard* or mixtard * or novolin* or iletin* or umuline* or orgasuline*).ti,ab
#10.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9

1.3.10 Rapid-acting insulins

15. In adults with type 1 diabetes, which are the most effective rapid-acting insulins for meal times: analogues vs. human (intermediate NPH), for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Rapid-acting insulins	The following filters were used in Medline and Embase only: RCTs or SRs or cohort studies [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	postprandial period/
2.	(prandial* or postprandial* or preprandial*).ti,ab.
3.	(meal* or premeal or postmeal).ti,ab.
4.	(lunch* or dinner* or breakfast*).ti,ab.
5.	or/1-4
6.	exp insulin,short-acting/
7.	(insulin* and (short or rapid)).ti,ab.
8.	(insulin* and (fast adj3 act*)).ti,ab.
9.	(aspart or glulisine or lispro).ti,ab.

10.	((porcine or bovine or animal or human) adj3 insulin*).ti,ab.
11.	(nph or neutral protamine hagedorn).ti,ab.
12.	or/6-11
13.	5 and 12

Embase search terms

1.	postprandial state/
2.	(prandial* or postprandial* or preprandial*).ti,ab.
3.	(meal* or premeal or postmeal).ti,ab.
4.	(lunch* or dinner* or breakfast*).ti,ab.
5.	or/1-4
6.	short acting insulin/
7.	insulin aspart/
8.	insulin glulisine/
9.	insulin lispro/
10.	(insulin* and (short or rapid)).ti,ab.
11.	(insulin* and (fast adj3 act*)).ti,ab.
12.	(aspart or glulisine or lispro).ti,ab.
13.	((porcine or bovine or animal or human) adj3 insulin*).ti,ab.
14.	(nph or neutral protamine hagedorn).ti,ab.
15.	or/6-14
16.	5 and 15

Cochrane search terms

#1.	MeSH descriptor: [postprandial period] this term only
#2.	(prandial* or postprandial* or preprandial*):ti,ab
#3.	(meal* or premeal or postmeal):ti,ab
#4.	(lunch* or dinner* or breakfast*):ti,ab
#5.	#1 or #2 or #3 or #4
#6.	MeSH descriptor: [insulin, short-acting] explode all trees
#7.	(insulin* and (short or rapid)):ti,ab
#8.	(insulin* and (fast near/3 act*)):ti,ab
#9.	(aspart or glulisine or lispro):ti,ab
#10.	((porcine or bovine or animal or human) near/3 insulin*):ti,ab
#11.	(nph or "neutral protamine hagedorn"):ti,ab
#12.	#6 or #7 or #8 or #9 or #10 or #11
#13.	#5 and #12

1.3.11 Mixed insulins

16. In adults with type 1 diabetes, what are the most effective mixed insulins (degludec-aspart vs. glargine vs. NPH) for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Mixed insulins	The following filters were used in Medline and Embase only: RCTs or SRs [Medline and	All available dates [see Table 1]

Population	Intervention	Study filter used	Date parameters
		Embase only]	

Medline search terms

1.	biphasic insulins/
2.	((biphasic or mix* or premix*) adj4 insulin*).ti,ab.
3.	(novomix* or biasp* or iasp* or mixtard* or idegasp*).ti,ab.
4.	(degludec* adj3 aspart).ti,ab.
5.	(insuman* adj3 comb*).ti,ab.
6.	((humalog* or bd or lispro* or novolog* or aspart* or novolin* or humulin* or isophan* or nph* or neutral protamine hagedorn or glulisine or insuman*) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
7.	(degludec* adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
8.	((tresiba* or optisulin*) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
9.	((isofan* or protaphan* or lente) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
10.	((isofan* or protaphan* or lente) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
11.	((actraphan* or berlinsulin* or insulatard* or monotard* or iletin* or umuline* or orgasuline*) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
12.	((hypurin or porcine) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
13.	or/1-12

Embase search terms

1.	biphasic insulin/
2.	((biphasic or mix* or premix*) adj4 insulin*).ti,ab.
3.	(novomix* or biasp* or iasp* or mixtard* or idegasp*).ti,ab.
4.	(degludec* adj3 aspart).ti,ab.
5.	(insuman* adj3 comb*).ti,ab.
6.	((humalog* or bd or lispro* or novolog* or aspart* or novolin* or humulin* or isophan* or nph* or neutral protamine hagedorn or glulisine or insuman*) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
7.	(degludec* adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
8.	((tresiba* or optisulin*) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
9.	((isofan* or protaphan* or lente) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
10.	(protamin* adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
11.	((actraphan* or berlinsulin* or insulatard* or monotard* or iletin* or umuline* or orgasuline*) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
12.	((hypurin or porcine) adj4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")).ti,ab.
13.	or/1-12

Cochrane search terms

#1.	MeSH descriptor: [biphasic insulins] this term only
#2.	((biphasic or mix* or premix*) near/4 insulin*):ti,ab,kw
#3.	(novomix* or biasp* or iasp* or mixtard* or idegasp*):ti,ab,kw

#4.	((humalog* or lispro* or novolog* or aspart* or novolin* or humulin* or isophan* or nph* or neutral protamine hagedorn or glulisine or insuman*) near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#5.	(degludec* near/3 aspart):ti,ab,kw
#6.	(insuman* near/3 comb*):ti,ab,kw
#7.	(degludec* near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#8.	((tresiba* or optisulin*) near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#9.	((isofan* or protaphan* or lente) near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#10.	((isofan* or protaphan* or lente) near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#11.	((actraphan* or berlinsulin* or insulatard* or monotard* or iletin* or umuline* or orgasuline*) near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#12.	((hypurin or porcine) near/4 (mix* or premix* or biphasic or "25" or "30" or "50" or "70" or "75")):ti,ab,kw
#13.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12

1.3.12 Metformin and GLP-1 agonists

17. In adults with type 1 diabetes, are metformin (with or without insulin), or GLP1-agonists (with or without insulin) as effective as insulin alone for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Metformin or exenatide or liraglutide or pramlintide	The following filters were used in Medline and Embase only: RCTs or SRs [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	metformin/
2.	*glucagon-like peptide 1/
3.	(metformin* or exenatide* or exendin 4 or pramlintide* or liraglutide*).ti,ab.
4.	(byetta* or bydureon* or symlin* or victoza* or glucophage* or riomet* or fortamet* or glumetza* or bolamyn* or glucient* or metabet*).ti,ab.
5.	or/1-4

Embase search terms

1.	metformin/
2.	*glucagon like peptide 1/
3.	exendin 4/
4.	pramlintide/
5.	liraglutide/
6.	(metformin* or exenatide* or exendin 4 or pramlintide* or liraglutide*).ti,ab.
7.	(byetta* or bydureon* or symlin* or victoza* or glucophage* or riomet* or fortamet* or glumetza* or bolamyn* or glucient* or metabet*).ti,ab.
8.	or/1-7

Cochrane search terms

#1.	MeSH descriptor: [metformin] this term only
#2.	(metformin* or exenatide* or "exendin 4" or pramlintide* or liraglutide*):ti,ab
#3.	(byetta* or bydureon* or symlin* or victoza* or glucophage* or riomet* or fortamet* or glumetza* or bolamyn* or glucient* or metabet*):ti,ab
#4.	#1 or #2 or #3

1.3.13 Glucose injections

The same search strategy was used for the following two questions.

18. In adults with type 1 diabetes, what is the optimum needle length for insulin delivery?

19. In adults with type 1 diabetes, what is the optimum injection site and rotation for insulin delivery?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Needles (length, site, rotation)	The following filters were used in Medline and Embase only: RCTs or SRs or cohort studies [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	needles/
2.	syringes/
3.	(needle* or syringe* or pen or pens or microneedle* or vial*).ti,ab.
4.	(inject* and (length or gauge* or width or technique* or site* or rotat*)).ti,ab.
5.	(autopen or clikstar or humapen or novopen or opticlik or optipen or flexpen or solostar or kwikpen or flextouch or miriopen).ti,ab.
6.	or/1-5

Embase search terms

1.	insulin pen/
2.	needle/
3.	syringe/
4.	(needle* or syringe* or pen or pens or microneedle* or vial*).ti,ab.
5.	(inject* and (length or gauge* or width or technique* or site* or rotat*)).ti,ab.
6.	(autopen or clikstar or humapen or novopen or opticlik or optipen or flexpen or solostar or kwikpen or flextouch or miriopen).ti,ab.
7.	or/1-6

Cochrane search terms

#1.	MeSH descriptor: [needles] this term only
#2.	MeSH descriptor: [syringes] this term only
#3.	(pen or pens or microneedle* or vial* or syringe* or needle*):ti,ab
#4.	(inject* and (length or gauge* or width or technique* or rotat* or site*)):ti,ab
#5.	(autopen or clikstar or humapen or novopen or opticlik or optipen or flexpen or solostar or kwikpen or flextouch or miriopen):ti,ab
#6.	#1 or #2 or #3 or #4 or #5

1.3.14 Pancreas transplantation

For the following question specific sources were used to obtain the data on referral criteria.

20. Which adults with type 1 diabetes are most suitable to be considered for a pancreas transplant, or pancreatic islet cell transplantation?

1.3.15 Hypoglycaemic awareness

The same search strategy was used for the following two questions.

21. In adults with type 1 diabetes, how is impaired awareness of hypoglycaemia best identified and quantified?

22. In adults with type 1 diabetes and impaired awareness of hypoglycaemia, what is the most effective strategy for recovering hypoglycaemia awareness?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Hypoglycaemic awareness	None	All available dates [see Table 1]

Medline search terms

1.	exp hypoglycemia/
2.	(hypoglycaem* or hypoglycem* or hypo glycem* or hypo glycaem*).ti,ab.
3.	(low adj3 blood adj3 (sugar or glucose)).ti,ab.
4.	((glycemic or glycaemic) adj control).ti,ab.
5.	or/1-4
6.	awareness/
7.	(aware* or unaware*).ti,ab.
8.	(symptom* adj3 (detect* or recogni*)).ti,ab.
9.	(gold or clarke or ryan or danish or pedersen or bjergaard).ti,ab.
10.	or/6-9
11.	5 and 10
12.	((glycaem* or glycem* or hypoglycem* or hypoglycaem*) adj2 (impair* or recogni* or aware* or unaware* or identif* or quantif* or problem* or autonomic or iatrogenic)).ti,ab.
13.	(iah or haaf).ti,ab.
14.	((hypo or beta or hypoglycaem* or hypoglycem*) adj3 (burden or compass or score* or scale* or method* or algorithm* or recurrent)).ti,ab.
15.	or/12-14
16.	11 or 15

Embase search terms

1.	exp hypoglycemia/
2.	(hypoglycaem* or hypoglycem* or hypo glycem* or hypo glycaem*).ti,ab.
3.	(low adj3 blood adj3 (sugar or glucose)).ti,ab.
4.	((glycemic or glycaemic) adj control).ti,ab.
5.	or/1-4
6.	awareness/
7.	(aware* or unaware*).ti,ab.
8.	(symptom* adj3 (detect* or recogni*)).ti,ab.
9.	(gold or clarke or ryan or danish or pedersen or bjergaard).ti,ab.

10.	or/6-9
11.	5 and 10
12.	((glycaem* or glycem* or hypoglycem* or hypoglycaem*) adj2 (impair* or recogni* or aware* or unaware* or identif* or quantif* or problem* or autonomic or iatrogenic)).ti,ab.
13.	(iah or haaf).ti,ab.
14.	((hypo or beta or hypoglycaem* or hypoglycem*) adj3 (burden or compass or score* or scale* or method* or algorithm* or recurrent)).ti,ab.
15.	or/12-14
16.	11 or 15

Cochrane search terms

#1.	MeSH descriptor: [hypoglycemia] explode all trees
#2.	(hypoglycaem* or hypoglycem* or hypo glycem* or hypo glycaem*):ti,ab
#3.	(low near/3 blood near/3 (sugar or glucose)):ti,ab
#4.	((glycemic or glycaemic) near/1 control):ti,ab
#5.	{or #1-#4}
#6.	MeSH descriptor: [awareness] this term only
#7.	(aware* or unaware*):ti,ab
#8.	(symptom* near/3 (detect* or recogni*)):ti,ab
#9.	(gold or clarke or ryan or danish or pedersen or bjergaard):ti,ab
#10.	{or #6-#9}
#11.	#5 and #10
#12.	((glycaem* or glycem* or hypoglycem* or hypoglycaem*) near/2 (impair* or recogni* or aware* or unaware* or identif* or quantif* or problem* or autonomic or iatrogenic)):ti,ab
#13.	(haaf or iah):ti,ab
#14.	((hypo or beta or hypoglycaem* or hypoglycem*) near/3 (burden or compass or score* or scale* or method* or algorithm* or recurrent)):ti,ab
#15.	{or #12-#14}
#16.	#11 or #15

1.3.16 Ketone monitoring

The same search strategy was used for the following two questions.

23. In adults with type 1 diabetes (including atypical ketosis-prone diabetes), does patient self-monitoring of blood (and urine) ketones reduce the incidence of diabetic ketoacidosis and hospital admissions?

24. In adults with type 1 diabetes does in-patient monitoring of blood ketones by the healthcare professional reduce the length of hospital stay, exposure to IV insulin and the development of in-hospital complications:

- a. in patients with suspected diabetic ketoacidosis?
- b. in patients admitted with diabetic ketoacidosis and/or those that get it in hospital.

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Ketone monitoring	None	All available dates [see Table 1]

Medline search terms

1.	ketone bodies/
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2.	3-hydroxybutyric acid/
3.	(hydroxybutyrate or hydroxybutyric).ti,ab.
4.	(ketone* or ketosis or ketogenesis).ti,ab.
5.	or/1-4
6.	monitoring, physiologic/
7.	blood glucose self-monitoring/
8.	point-of-care systems/
9.	predictive value of tests/
10.	"sensitivity and specificity"/
11.	exp reagent kits, diagnostic/
12.	(test* or monitor* or screen* or measure* or detect* or diagnos* or predict* or sensitivity or specificity).ti,ab.
13.	or/6-12
14.	5 and 13

Embase search terms

1.	3 hydroxybutyric acid/
2.	ketone/
3.	ketone body/
4.	ketogenesis/
5.	ketonuria/
6.	(hydroxybutyrate or hydroxybutyric).ti,ab.
7.	(ketone* or ketosis or ketogenesis).ti,ab.
8.	or/1-7
9.	patient monitoring/
10.	monitoring/
11.	blood glucose monitoring/
12.	diagnostic test accuracy study/
13.	diagnostic value/
14.	glucose blood level/
15.	predictive value/
16.	"sensitivity and specificity"/
17.	point of care testing/
18.	test strip/
19.	(test* or monitor* or screen* or measure* or detect* or diagnos* or predict* or sensitivity or specificity).ti,ab.
20.	or/9-19
21.	8 and 20

Cochrane search terms

#1.	MeSH descriptor ketone bodies, this term only
#2.	MeSH descriptor ketosis, this term only
#3.	MeSH descriptor 3-hydroxybutyric acid, this term only
#4.	(hydroxybutyrate or hydroxybutyric):ti,ab
#5.	(ketone* or ketosis or ketogenesis):ti,ab
#6.	(#1 or #2 or #3 or #4 or #5)

#7.	MeSH descriptor monitoring, physiologic, this term only
#8.	MeSH descriptor blood glucose self-monitoring, this term only
#9.	MeSH descriptor point-of-care systems, this term only
#10.	MeSH descriptor predictive value of tests, this term only
#11.	MeSH descriptor sensitivity and specificity, this term only
#12.	MeSH descriptor reagent kits, diagnostic explode all trees
#13.	(test* or monitor* or screen* or measure* or detect* or diagnos* or predict* or sensitivity or specificity):ti,ab
#14.	(#7 or #8 or #9 or #10 or #11 or #12 or #13)
#15.	(#6 and #14)

1.3.17 Aspirin for primary prevention of cardiovascular events

For the following question a broad diabetes population was used, hence the searches for this question are reproduced in full below.

25. In adults with type 1 diabetes, is aspirin an effective anti-platelet agent for the primary prevention of cardiovascular events?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Diabetes	Aspirin	The following filters were used in Medline and Embase only: RCTs or SRs [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	diabet*.ti,ab,hw.
2.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
3.	(pregnan* or gestation* or foot or feet or optic or eye* or retin* or ocular).ti.
4.	1 not (2 or 3)
5.	(acetylsalicylic acid or aspirin).ti,ab,hw.
6.	4 and 5
7.	letter/
8.	editorial/
9.	news/
10.	exp historical article/
11.	anecdotes as topic/
12.	comment/
13.	case report/
14.	(letter or comment*).ti.
15.	or/7-14
16.	15 not (randomized controlled trial/ or random*.ti,ab.)
17.	animals/ not humans/
18.	exp animals, laboratory/
19.	exp animal experimentation/
20.	exp models, animal/

21.	exp rodentia/
22.	(rat or rats or mouse or mice).ti.
23.	or/16-22
24.	6 not 23

Embase search terms

1.	diabet*.ti,ab,hw.
2.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
3.	(pregnan* or gestation* or foot or feet or optic or eye* or retin* or ocular).ti.
4.	1 not (2 or 3)
5.	letter.pt. or letter/
6.	note.pt.
7.	editorial.pt.
8.	case report/ or case study/
9.	(letter or comment*).ti.
10.	or/5-9
11.	10 not (randomized controlled trial/ or random*.ti,ab.)
12.	animal/ not human/
13.	nonhuman/
14.	exp animal experiment/
15.	exp experimental animal/
16.	animal model/
17.	exp rodent/
18.	(rat or rats or mouse or mice).ti.
19.	or/11-18
20.	4 not 19
21.	aspirin.ti,ab,hw.
22.	*acetylsalicylic acid/
23.	20 and (21 or 22)

Cochrane search terms

#1.	MeSH descriptor diabetes mellitus explode all trees
#2.	diabet*:ti,ab
#3.	(#1 or #2)
#4.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)):ti
#5.	(pregnan* or gestation* or foot or feet or optic or eye* or retin* or ocular):ti
#6.	(#3 and not (#4 or #5))
#7.	MeSH descriptor aspirin, this term only
#8.	("acetylsalicylic acid" or aspirin):ti,ab
#9.	(#6 and (#7 or #8))

1.3.18 IV insulin

26. In adults with type 1 diabetes who have been admitted to hospital (elective and emergency), what is the most effective intravenous insulin dose-adjustment devices and regimens for optimal diabetic control?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	IV insulin	The following filters were used in Medline and Embase only: RCTs or SRs or Observational studies [Medline and Embase only]	All available dates [see Table 1]

Medline search terms

1.	exp insulins/
2.	exp administration, intravenous/
3.	1 and 2
4.	(ivit or vriii).ti,ab.
5.	((intravenous* or iv) adj6 insulin*).ti,ab.
6.	((infusion* adj6 insulin*) not subcutaneous).ti,ab.
7.	((actraphan* or aspart or berlinsulin* or biasp* or degludec* or detemir* or glargine* or glulisine or humalog* or humulin* or hypurin or iasp* or idegasp* or iletin* or insulatard* or insuman or isofan* or isophan* or lantus* or lente or levemir* or lispro or mixtard* or monotard* or novolin* or novolog* or novomix* or optisulin* or orgasuline* or protaphan* or protamin* or tresiba* or umuline*) adj6 (intravenous* or iv or infusion*).ti,ab.
8.	or/4-7
9.	3 and 8

Embase search terms

1.	exp insulin derivative/
2.	intravenous drug administration/
3.	1 and 2
4.	exp insulin derivative/iv [intravenous drug administration]
5.	(ivit or vriii).ti,ab.
6.	((intravenous* or iv) adj6 insulin*).ti,ab.
7.	((infusion* adj6 insulin*) not subcutaneous).ti,ab.
8.	((actraphan* or aspart or berlinsulin* or biasp* or degludec* or detemir* or glargine* or glulisine or humalog* or humulin* or hypurin or iasp* or idegasp* or iletin* or insulatard* or insuman or isofan* or isophan* or lantus* or lente or levemir* or lispro or mixtard* or monotard* or novolin* or novolog* or novomix* or optisulin* or orgasuline* or protaphan* or protamin* or tresiba* or umuline*) adj6 (intravenous* or iv or infusion*).ti,ab.
9.	or/4-8
10.	3 or 9

Cochrane search terms

#1.	MeSH descriptor: [insulins] explode all trees
#2.	MeSH descriptor: [administration, intravenous] explode all trees
#3.	#1 and #2
#4.	(ivit or vriii):ti,ab
#5.	((intravenous* or iv) near/6 insulin*):ti,ab
#6.	((infusion* near/6 insulin*) not subcutaneous):ti,ab
#7.	((actraphan* or aspart or berlinsulin* or biasp* or degludec* or detemir* or glargine* or glulisine or humalog* or humulin* or hypurin or iasp* or idegasp* or iletin* or insulatard* or insuman or isofan* or isophan* or lantus* or lente or levemir* or lispro or mixtard* or

	monotard* or novolin* or novolog* or novomix* or optisulin* or orgasuline* or protaphan* or protamin* or tresiba* or umuline*) near/6 (intravenous* or iv or infusion*)):ti,ab
#8.	{or #4-#7}
#9.	#3 or #8

1.3.19 Gastroparesis

For the following question a broad diabetes population was used, hence the searches for this question are reproduced in full below.

27. In adults with type 1 diabetes, what is the most effective treatment for gastroparesis?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Diabetes	Gastroparesis	The following filters were used in Medline and Embase only: RCTs, SRs and cohort studies [Medline and Embase only]	2003 - 28 August 2014 [see Table 1]

Medline search terms

1.	diabet*.ti,ab,hw.
2.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
3.	(pregnan* or gestation*).ti.
4.	1 not (2 or 3)
5.	letter/
6.	editorial/
7.	news/
8.	exp historical article/
9.	anecdotes as topic/
10.	comment/
11.	case report/
12.	(letter or comment*).ti.
13.	or/5-12
14.	13 not (randomized controlled trial/ or random*.ti,ab.)
15.	animals/ not humans/
16.	exp animals, laboratory/
17.	exp animal experimentation/
18.	exp models, animal/
19.	exp rodentia/
20.	(rat or rats or mouse or mice).ti.
21.	or/14-20
22.	4 not 21
23.	(gastropare* or gastropleg*).ti,ab,hw.
24.	exp gastrointestinal motility/
25.	((gastr* or stomach) adj3 (empty* or motility or dysmotility or transit or passage or aton* or pares* or paralys*)).ti,ab.
26.	or/23-25

27.	22 and 26
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Embase search terms

1.	diabet*.ti,ab,hw.
2.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)).ti.
3.	(pregnan* or gestation*).ti.
4.	1 not (2 or 3)
5.	letter.pt. or letter/
6.	note.pt.
7.	editorial.pt.
8.	case report/ or case study/
9.	(letter or comment*).ti.
10.	or/5-9
11.	10 not (randomized controlled trial/ or random*.ti,ab.)
12.	animal/ not human/
13.	nonhuman/
14.	exp animal experiment/
15.	exp experimental animal/
16.	animal model/
17.	exp rodent/
18.	(rat or rats or mouse or mice).ti.
19.	or/11-18
20.	4 not 19
21.	stomach emptying/
22.	stomach paresis/
23.	gastrointestinal motility/
24.	gastrointestinal transit/
25.	migrating myoelectric complex/
26.	peristalsis/
27.	(gastropare* or gastroleg*).ti,ab.
28.	((gastr* or stomach) adj3 (empty* or motility or dysmotility or transit or passage or aton* or pares* or paralys*)).ti,ab.
29.	or/21-28
30.	20 and 29

Cochrane search terms

#1.	MeSH descriptor diabetes mellitus explode all trees
#2.	diabet*:ti,ab
#3.	(#1 or #2)
#4.	((children or adolescen* or school* or infant* or teenage* or paediatric* or pediatric*) not (adult* or onset)):ti
#5.	(pregnan* or gestation*):ti
#6.	(#3 and not (#4 or #5))
#7.	MeSH descriptor gastrointestinal motility explode all trees
#8.	MeSH descriptor gastroparesis, this term only
#9.	(gastropare* or gastroleg*):ti,ab

#10.	((gastr* or stomach) near/3 (empty* or motility or dysmotility or transit or passage or aton* or pares* or paraly*)):ti,ab
#11.	(#6 and (#7 or #8 or #9 or #10))

1.3.20 Thyroid disease

28.How should adults with type 1 diabetes be monitored for thyroid disease, and how frequently?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Exposure	Study filter used	Date parameters
Type 1 diabetes	Thyroid disease	The following filters were used in Medline and Embase only: RCTs or SRs or cohort studies or prognostic [Medline and Embase only]	All available dates [see Table 1]

Medline search terms

1.	exp thyroid diseases/ not exp thyroid neoplasms/
2.	exp thyroid hormones/ or thyroid function tests/ or thyrotropin-releasing hormone/
3.	(thyroid* or hypothyroid* or hyperthyroid* or hyperthyrox* or myxedem* or myxoedem* or thyrotoxic*).ti,ab.
4.	(hashimoto* or ords or euthyroid* or grave* or nodular struma or plummer* or hashitoxicosis or goitre or goiter or thyroglossal duct*).ti,ab.
5.	(peroxidase or antithyroglobulin*).ti,ab.
6.	(protein-bound iodine or pbi).ti,ab.
7.	(thyroxine or thyrotropin or triiodothyronine or diiodothyronine or iodothyronine or dextrothyroxine or diiodotyrosine or monoiodotyrosine or iodotyrosine).ti,ab.
8.	or/1-7

Embase search terms

1.	exp thyroid disease/ not exp thyroid tumor/
2.	thyroid hormone/ or thyroid function test/ or protirelin/
3.	(thyroid* or hypothyroid* or hyperthyroid* or hyperthyrox* or myxedem* or myxoedem* or thyrotoxic*).ti,ab.
4.	(hashimoto* or ords or euthyroid* or grave* or nodular struma or plummer* or hashitoxicosis or goitre or goiter or thyroglossal duct*).ti,ab.
5.	(peroxidase or antithyroglobulin*).ti,ab.
6.	(protein-bound iodine or pbi).ti,ab.
7.	(thyroxine or thyrotropin or triiodothyronine or diiodothyronine or iodothyronine or dextrothyroxine or diiodotyrosine or monoiodotyrosine or iodotyrosine).ti,ab.
8.	or/1-7

Cochrane search terms

#1.	MeSH descriptor: [thyroid diseases] explode all trees
#2.	MeSH descriptor: [thyroid neoplasms] explode all trees
#3.	#1 not #2
#4.	MeSH descriptor: [thyroid hormones] explode all trees
#5.	MeSH descriptor: [thyroid function tests] this term only
#6.	MeSH descriptor: [thyrotropin-releasing hormone] this term only
#7.	(thyroid* or hypothyroid* or hyperthyroid* or hyperthyrox* or myxedem* or myxoedem* or

	thyrotoxic*):ti,ab
#8.	(hashimoto* or ords or euthyroid* or grave* or nodular struma or plummer* or hashitoxicosis or goitre or goiter or thyroglossal duct*):ti,ab
#9.	(peroxidase or antithyroglobulin*):ti,ab
#10.	(protein-bound iodine or pbi):ti,ab
#11.	(thyroxine or thyrotropin or triiodothyronine or diiodothyronine or iodothyronine or dextrothyroxine or diiodotyrosine or monoiodotyrosine or iodotyrosine):ti,ab
#12.	{or #4-#11}
#13.	#3 or #12

1.3.21 Neuropathy

29. In adults with type 1 diabetes, what is the most effective treatment for insulin-induced neuropathy?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention	Study filter used	Date parameters
Type 1 diabetes	Neuropathy	The following filters were used in Medline and Embase only: RCTs or SRs or observational studies [Medline and Embase only]	All available dates [see Table 1]

Medline search terms

1.	diabetic neuropathies/
2.	polyneuropathies/
3.	mononeuropathies/
4.	(neuropath* or polyneuropath* or mononeuropath* or neuriti* or polyneuriti* or mononeuriti*).ti,ab.
5.	third nerv*.ti,ab.
6.	((diabet* or insulin*) adj3 (amyotroph* or neuralgi*)).ti,ab.
7.	or/1-6

Embase search terms

1.	diabetic neuropathy/
2.	polyneuropathy/
3.	mononeuropathy/
4.	autonomic neuropathy/
5.	peripheral neuropathy/
6.	(neuropath* or polyneuropath* or mononeuropath* or neuriti* or polyneuriti* or mononeuriti*).ti,ab.
7.	third nerv*.ti,ab.
8.	((diabet* or insulin*) adj3 (amyotroph* or neuralgi*)).ti,ab.
9.	or/1-8

Cochrane search terms

#1.	MeSH descriptor: [diabetic neuropathies] this term only
#2.	MeSH descriptor: [polyneuropathies] this term only
#3.	MeSH descriptor: [mononeuropathies] this term only

#4.	(neuropath* or polyneuropath* or mononeuropath* or neuriti* or polyneuriti* or mononeuriti*):ti,ab
#5.	("third nerve"):ti,ab
#6.	((diabet* or insulin*) near/3 (amyotroph* or neuralgi*)):ti,ab
#7.	{or #1-#6}

1.4 Economic searches

1.4.1 Economic reviews

Economic searches were run in Medline and Embase by combining the standard population with the economic filter (1.1.6) and limiting by a date range of 2009 onwards. Economic searches were executed in the HEED and CRD (NHS EED and HTA) databases by running a population with a date limit of 2003 onwards. Search terms are given below.

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Study filter used	Date parameters
Type 1 diabetes	The following filters were used in Medline and Embase only: Economic [only Embase and Medline]	2009 – 28 August 2014 (Medline and Embase) 2003 - 28 August 2014 (NHS EED, HTA and HEED)

CRD (NHS EED, HTA) search terms

#1.	MeSH descriptor diabetes mellitus, type 1 explode all trees
#2.	MeSH descriptor diabetic ketoacidosis
#3.	(diabet*)
#4.	MeSH descriptor blood glucose
#5.	((blood near1 (glucose* or sugar)))
#6.	((((glucose or sugar or glyceimic) near2 (control* or monitor* or level* or measur* or test*)))
#7.	#1 or #2 or #3 or #4 or #5 or #6

HEED search terms

1.	ax=diabet*
2.	ax=type 1
3.	ax=type i
4.	ax=insulin dependent
5.	ax=autoimmune
6.	ax=sudden onset
7.	ax=juvenile
8.	ax=childhood
9.	cs=1 and (2 or 3 or 4 or 5 or 6 or 7 or 8)

1.4.2 Quality of life reviews

Quality of life (QOL) searches were run in Medline and Embase by combining the standard population with the QOL filter (1.1.7) and limiting to a date range of 2003 onwards.

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Study filter used	Date parameters
Type 1 diabetes	The following filters were used in	2003 - 28 August 2014

Population	Study filter used	Date parameters
	Medline and Embase only: QOL	