Appendix D: Search strategies

This guideline was developed in accordance with the process for clinical guidelines set out in 'The guidelines manual' (2012). There is more information about how NICE clinical guidelines are developed on the NICE website.

D.1 Search strategies

The evidence reviews used to develop the guideline recommendations were underpinned by systematic literature searches, following the methods described in 'The guidelines manual' 2012. The aim of the systematic searches was to comprehensively identify the published evidence to answer the review questions developed by the guideline development group (GDG) and the Internal Clinical Guidelines (ICG) team.

The search strategies for the review questions were developed by the Information Services Team with advice from the ICG team. Structured questions were developed using the PICO (population, intervention, comparison, outcome) model and translated into search strategies using subject heading and free text terms. The strategies were run across a number of databases and date restrictions were included when requested by the ICG team.

The NHS Economic Evaluation Database (NHS EED) and the Health Economic Evaluations Database (HEED) were searched for economic evaluations. Search filters for economic evaluations and quality of life studies were used on bibliographic databases. Date restrictions were included when requested by the ICG team.

GDG members were also asked to alert the ICG team to any additional evidence, published, unpublished or in press, that met the inclusion criteria.

The searches were undertaken between July 2013 and February 2014. The re-run searches took place in August 2014.

D.1.1 Scoping searches for questions carried across from CG119

MEDLINE search strategies for the 'Diabetic foot problems' guideline

Scoping searches

- Scoping searches were undertaken on the following websites and databases (listed in alphabetical order) in November 2009 to provide information for scope development and project planning. Browsing or simple search strategies were employed.

• **Guidelines/websites**	• **Systematic reviews/economic evaluations**
• 3M Health Care Ltd	• BMJ Clinical Evidence

This search strategy from 2011 underpin section 4.1 of the full guideline which has not been update by an evidence review

• Abbott Vascular • American Association of Clinical Endocrinologists • American College of Foot and Ankle Surgeons • American College of Physicians - Diabetes portal (foot problems) • American Diabetes Association • American Podiatric Medical Association • American Professional Wound Care Association (APWCA) • Ark Therapeutics • Association For The Advancement of Wound Care (AAWC) • Association of British Clinical Diabetologists ABCD • Australian Diabetes Society • Australasian Podiatry Council • Australian Wound Management Association • Boston Scientific • British Medical Association	• Cochrane Database of Systematic Reviews (CDSR) • Database of Abstracts of Reviews of Effects (DARE) • Health Economic Evaluations Database (HEED) • Health Technology Assessment (HTA) Database • NHS Economic Evaluation Database (NHS EED) • NHS R&D Service Delivery and Organisation (NHS SDO) Programme • National Institute for Health Research (NIHR) Health Technology Assessment Programme • TRIP Database

This search strategy from 2011 underpin section 4.1 of the full guideline which has not been updated by an evidence review

(BMA) • British Society for Antimicrobial Chemotherapy • British Society for Paediatric Endocrinology and Diabetes (BSPED) • Canadian Association of Wound Care • Canadian Diabetes Association • Canadian Medical Association Infobase • Centers for Disease Control and Prevention website (US) • Clinical Knowledge Summaries • ConvaTec • Cordis (Johnson & Johnson) • Department of Health • Diabetes 1.org • Diabetes Australia • Diabetes Federation of Ireland • Diabetes Lower Extremity Research Group – DIALEX • Diabetes Network • Diabetes New Zealand	

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

• Diabetes UK • The Diabetic Foot: a resource for health care professionals • Diabetic Foot Online • European Association for the Study of Diabetes • European Pressure Ulcer Advisory Panel • European Tissue Repair Society • European Wound Management Association • Foot.com • Foot in Diabetes (UK) • Guidelines International Network (GIN) • International Diabetes Federation • International Diabetes Institute • International Working Group on the Diabetic Foot • Joslin Diabetes Center • KCI Medical Ltd • Molnlycke Health Care	

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

• National Audit Office • National Center for Chronic Disease Prevention and Health Promotion: Diabetes Public Health Resource • National Diabetes Education Initiative • National Diabetes Information Clearinghouse (NDIC) • National Guideline Clearing House (US) • National Health and Medical Research Council (Australia) • National Institute for Health and Clinical Excellence (NICE) - published & in development • National Institute for Health and Clinical Excellence (NICE) - Topic Selection • National Institute for Innovation and Improvement • NHS Diabetes/National Diabetes Support Team • NHS Evidence – National Library of Guidelines • NHS Evidence - Specialist Collections	

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

• New Zealand Guidelines Group • Oxford International Wound Foundation • The Podiatry Institute USA • Royal College of General Practitioners • Royal College of Nursing • Royal College of Paediatrics and Child Health • Royal College of Physicians • Royal College of Surgeons • Scottish Diabetes Specialist Podiatrists (SDSP) • Scottish Intercollegiate Guidelines Network (SIGN) • The Society of Chiropodists and Podiatrists • Society for Endocrinology, Metabolism and Diabetes Of South Africa • South African Diabetic Foot Working Group • Tissue Viability Society • World Diabetes Foundation	

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

• World Health Organisation (WHO) – Diabetes • World Union of Wound Healing Societies • World Wide Wounds • Wound Care Information Network • Wound Care Institute • Wound Care Society • The Wound Healing Research Unit • Wound Management Association of Ireland • Wounds UK	

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

D.12 Scoping searches for the 2015 update

Scoping searches were undertaken in March 2013 using the following websites and databases (listed in alphabetical order); browsing or simple search strategies were employed. The search results were used to provide information for scope development and project planning.

Guidance/guidelines

Department of Health

Canadian Medical Association Infobase

Guidelines International Network (GIN)

National Health and Research Council

New Zealand Guidelines Group

NHS Scotland

NICE Clinical Knowledge Summaries

NICE Evidence Services (previously NHS Evidence)

NICE Guidance

Professional bodies/associations/societies

Royal Colleges

Scottish Intercollegiate Guidelines Network (SIGN)

US National Guideline Clearing House

World Health Organization (WHO)

Systematic reviews/economic evaluations

Clinical Evidence

Cochrane Database of Systemic Reviews (CDSR)

Database of Abstracts of Reviews of Effects (DARE)

Health Technology Assessment Database (HTA)

National Institute for Health Research Health Technology assessment Programme

NHS R&D Service Delivery and Organisation Programme

Prospero

TRIP Database

Health Economic Evaluations Database (HEED)

NHS Economic Evaluation Database (NHS EED)

D.12.3 Main searches for questions carried across from CG119

RQ1: What are the key components and organisations of hospital care to ensure optimal management of people with diabetic foot problems?

Sources searched for the guideline

- Allied and Complementary Medicine Database – AMED (HDAS/Search 2)
- British Nursing Index – BNI (HDAS/Search 2)
- Health Business Elite (HDAS/Search 2)
- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- Database of Abstracts of Reviews of Effects – DARE (Wiley and CRD website)
- Health Technology Assessment Database – HTA (Wiley and CRD website)
- Cumulative Index to Nursing and Allied Health Literature - CINAHL (HDAS/Search 2)
- EMBASE (Ovid)
- Health Management Information Consortium - HMIC (HDAS/Search 2)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)
- PsycINFO (Ovid)

Update 2011

Identification of evidence on diabetic foot problems

- The searches were conducted between the 24th-25th of February 2010. The aim of the searches was to identify evidence on diabetic foot problems.
- The MEDLINE search strategy is presented below. It was translated for use in all of the other databases.

Database: Ovid MEDLINE(R) <1950 to February Week 2 2010>

- 1 Diabetic Foot/
- 2 (diabet$ and (foot$ or feet$)).tw.
- 3 1 or 2

Economic evaluations and quality of life data

Sources searched to identify economic evaluations

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

Identification of health economics and quality of life studies on diabetic foot problems

- The searches were undertaken between 25th February – 3rd March 2010. The MEDLINE search strategy that was used is presented in the section above (**Identification of evidence on diabetic foot problems**). Search filters to retrieve economic evaluations and quality of life papers were appended to the search strategies to identify relevant evidence. 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**
  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/

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

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 adj2 (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$.tw.
24 (value adj2 (money or monetary)).tw.
25 (pharmacoeconomic$ or (pharmaco adj economic$)).tw.
26 or/1-25

- **Quality of life**
  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.

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

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

This search strategy from 2011 underpins section 4.1 of the full guideline which has not been updated by an evidence review

32

D.12.4 Main searches for the 2015 update

The following sources were searched for the topics presented in the sections below.

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)

D.12.5 Systematic reviews and mapping searches

The MEDLINE search strategies are presented below. They were translated for use in each of the other databases.

RQ2: In UK current practice, are there existing definitions and compositional models (including skills and specialism) for the foot protection team and the multidisciplinary foot care team?

Ovid MEDLINE <1946 to July week 1 2012>

1 exp Diabetes Mellitus/

2 Foot Diseases/

3 Ulcer/

4 Gangrene/

5 Osteomyelitis/

6 or/2-5

7 1 and 6

8 Diabetic Foot/

9 (Diabe* adj4 (foot* or feet* or toe* or ulcer* or gangrene* or osteomyelit*)).tw.

10 or/7-9

11 "Delivery of health care"/ or "delivery of health care, integrated"/

12 (Deliver* adj4 (healthcare* or health-care* or care*)).tw.

13 "Organization and Administration"/

14 "Outcome and Process Assessment (Health Care)"/

15 "Outcome Assessment (Health Care)"/

16 "Process Assessment (Health Care)"/

17 Models, Nursing/ or Models, Organizational/

18 ((Nurs* or organi?ation*) adj1 model*).tw.

19 or/11-18

20 Community Health Services/ or Community Health Centers/ or Community health nursing/

21 (Communit* adj4 (centre* or center* or service* or health* or healthcare* or health-care* or care* or nurs*)).tw.

22 Primary Health Care/

23 exp General Practice/

24 (Primar* adj4 (health* or healthcare* or health-care* or care*)).tw.

25 Outpatient Clinics, Hospital/

26 (Outpatient* adj2 (clinic* or centre* or center* or service* or room* or unit* or hospital* or ward* or department*)).tw.

27 exp emergency service, hospital/

28 triage/

29 (Emergenc* adj2 (clinic* or centre* or center* or service* or room* or unit* or hospital* or ward* or department* or accident*)).tw.

30 (Triage* or casualt*).tw.

31 (AED or ER).tw.

32 or/20-31

33 ((General* or famil* or doctor*) adj4 (practic* or surger* or physician*)).tw.

34 Physicians/ or general practitioners/ or physicians, family/ or physicians, primary care/

35 Consultants/ or Specialization/

36 Nurse Practitioners/ or exp Specialties, Nursing/ or Nurse Clinicians/

37 Diabetologist*.tw.

38 (Diabe* adj4 (nurs* or doctor* or consultant* or physician*)).tw.

39 Podiatry/

40 Orthopedics/

41 (Podiat* or Chiropod* or Ortho*).tw.

42 or/33-41

43 ((Foot* or feet*) adj4 (team* or service* or clinic* or centre* or center* or unit* or hospital* or ward* or department* or protect*)).tw.

44 MDFT.tw.

45 Patient Care Management/

46 Comprehensive Health Care/

47 Physician's Practice Patterns/

48 Nursing Process/ (6249)

49 exp Patient Care Planning/

50 exp Patient Care Team/

51 Interdisciplinary Communication/

52 Interprofessional Relations/

53 ((Patient* or health* or healthcare* or health-care* or medical* or practic* or physician* or doctor* or nurs* or consultant* or special* or multidisciplinar* or multi-disciplinar* or multi disciplinar* or interdisciplinar* or inter-disciplinar* or inter disciplinar* or multiservice* or multi-service* or multi service* or interprofession* or inter-profession* or inter profession*) adj1 (team* or staff* or group* or care* or approach* or service* or communicat* or relation*)).tw.

54 or/43-53

55 Guideline Adherence/

56 Practice Guidelines as Topic/

57 ((Care* or clinical* or integrate* or multidisciplinar* or multi-disciplinar* or multi disciplinar* or critical* or combin* or interdisciplinar* or inter-disciplinar* or inter disciplinar* or adherenc* or practice* or complian*) adj1 (pathway* or path* or plan* or protocol* or procedure* or program* or programme* or manag* or process* or outline* or algorithm* or map* or schedul* or therap* or communicat* or guideline* or guidance*)).tw.

58 (Qualit* adj4 outcome* adj4 framework*).tw.

59 QOF.tw.

60 ((Qualit* or clinical) adj4 (standard* or indicator* or audit* or report*)).tw.

61 or/55-60

62 Total quality management/

63 ((Total or contin*) adj4 qualit* adj4 manage*).tw.

64 Managed care programs/

65 Disease management/

66 ((Case* or care* or diseas*) adj4 manage*).tw.

67 or/62-66

68 Clinical Competence/

69 Professional Competence/

70 ((Clinical* or profession* or staff*) adj4 (competen* or skill*)).tw.

71 or/68-70

72 19 or 32 or 42 or 54 or 61 or 67 or 71

73 10 and 72

74 Animals/ not Humans/

75 73 not 74

76 limit 75 to english language

The search strategy below was used for the following research questions:

RQ3: When and with what criteria should people with diabetes be referred to the foot protection team or the multidisciplinary foot care team?

RQ4: What are the clinical utilities of assessment and risk stratification tools for examining the feet of people with diabetes and classifying risk of foot problems?

RQ5: How often should people with diabetes at risk of developing foot problems be reviewed?

RQ6: What is the effectiveness of different prevention strategies for people with diabetes at risk of developing foot problems? This includes information, advice and education about self-monitoring and preventing foot problems, appropriate footwear, provision of foot orthoses, and skin and nail care.

RQ7: What are the clinical utilities and accuracy of tools for assessing and diagnosing:foot ulcers (including severity), soft tissue infections, osteomyelitis and gangrene?

RQ8: How often should people with diabetes who have foot ulcers, soft tissue infections, osteomyelitis or gangrene be reviewed?

RQ9: What is the effectiveness of different management strategies for people with diabetes who have foot ulcers, soft tissue infections, osteomyelitis or gangrene? This includes information, advice and education about self-monitoring and preventing further foot problems, appropriate footwear, blood glucose management, provision of foot orthoses, and skin and nail care.

RQ11: What is the clinical effectiveness of different antibiotic regimens and antimicrobial therapies for foot infection (with or without osteomyelitis) in people with diabetes?

RQ14: What are the indicators for referral to specialist services such as investigative or interventional radiology, orthopaedic or vascular services, specialist pain management and specialist orthotics?

Ovid MEDLINE(R) <1946 to June Week 2 2013>

1 exp Diabetes Mellitus/

2 Diabet*.tw.

3 or/1-2

4 Foot Diseases/

5 Ulcer/

6 Gangrene/

1	7	Osteomyelitis/
2	8	soft tissue infections/ or wound infection/
3	9	((Foot* or feet* or toe* or tissue* or wound*) adj4 (infect* or disease*)).tw.
4	10	or/4-9
5	11	3 and 10
6	12	Diabetic Foot/
7	13	(Diabe* adj4 (foot* or feet* or toe* or ulcer* or gangrene* or osteomyelit*)).tw.
8	14	or/11-13
9	15	Animals/ not Humans/
10	16	14 not 15
11	17	limit 16 to english language
12	18	Meta-Analysis.pt.
13	19	Meta-Analysis as Topic/
14	20	Review.pt.
15	21	exp Review Literature as Topic/
16	22	(metaanaly$ or metanaly$ or (meta adj2 analy$)).tw.
17	23	(review$ or overview$).ti.
18	24	(systematic$ adj4 (review$ or overview$)).tw.
19	25	((quantitative$ or qualitative$) adj4 (review$ or overview$)).tw.
20	26	((studies or trial$) adj1 (review$ or overview$)).tw.
21	27	(integrat$ adj2 (research or review$ or literature)).tw.
22	28	(pool$ adj1 (analy$ or data)).tw.
23	29	(handsearch$ or (hand adj2 search$)).tw.
24	30	(manual$ adj2 search$).tw.
25	31	or/18-30
26	32	animals/ not humans/
27	33	31 not 32
28	34	Randomized Controlled Trial.pt.
29	35	Controlled Clinical Trial.pt.
30	36	Clinical Trial.pt.
31	37	exp Clinical Trials as Topic/
32	38	Placebos/
33	39	Random Allocation/

1	40	Double-Blind Method/
2	41	Single-Blind Method/
3	42	Cross-Over Studies/
4	43	((random$ or control$ or clinical$) adj2 (trial$ or stud$)).tw.
5	44	(random$ adj2 allocat$).tw.
6	45	placebo$.tw.
7	46	((singl$ or doubl$ or trebl$ or tripl$) adj (blind$ or mask$)).tw.
8	47	(crossover$ or (cross adj over$)).tw.
9	48	or/34-47
10	49	animals/ not humans/
11	50	48 not 49
12	51	Epidemiologic Studies/
13	52	exp Case-Control Studies/
14	53	exp Cohort Studies/
15	54	Cross-Sectional Studies/
16	55	Comparative Study.pt.
17	56	case control$.tw.
18	57	case series.tw.
19	58	(cohort adj (study or studies)).tw.
20	59	cohort analy$.tw.
21	60	(follow up adj (study or studies)).tw.
22	61	(observational adj (study or studies)).tw.
23	62	longitudinal.tw.
24	63	prospective.tw.
25	64	retrospective.tw.
26	65	cross sectional.tw.
27	66	or/51-65
28	67	animals/ not humans/
29	68	66 not 67
30	69	33 or 50 or 68
31	70	17 and 69
32	71	17 not 70
33		

RQ10: What is the clinical effectiveness of surgical or non-surgical debridement, wound dressings and off-loading?

Ovid MEDLINE(R) <1946 to November Week 3 2013>

1 exp Diabetes Mellitus/

2 Diabet*.tw.

3 or/1-2

4 Foot Diseases/

5 Ulcer/

6 Gangrene/

7 Osteomyelitis/

8 soft tissue infections/ or wound infection/

9 ((Foot* or feet* or toe* or tissue* or wound*) adj4 (infect* or disease*)).tw.

10 or/4-9

11 3 and 10

12 Diabetic Foot/

13 (Diabe* adj4 (foot* or feet* or toe* or ulcer* or gangrene* or osteomyelit*)).tw. (6963)

14 or/11-13

15 Debridement/

16 ((Surg* or non-surg* or non surg* or autolytic* or larval* or biological* or sharp* or chemical* or mechanical* or ultrasonic*) adj4 (debride* or therap* or treat*)).tw.

17 ((Remov* or excision*) adj4 (dead* or damage* or infect* or nonliving* or non-living* or non living* or nonviable* or non-viable* or non viable* or devitali?ed* or contaminat* or debride*) adj4 (tissue* or skin*)).tw.

18 exp Wound Healing/

19 (Wound* adj4 (dress* or manage* or heal* or regenerat* or therap* or treat*)).tw.

20 ((Surg* or non-surg* or non surg*) adj4 (off-load* or off load* or intervention*)).tw.

21 Osteotomy/

22 Osteotom*.tw.

23 Orthopedics/ or Orthopedic procedures/

24 (Orthopedic* or orthopaedic*).tw.

25 orthotic devices/ or foot orthoses/

26 (Orthotic* or orthos* or footwear* or foot wear* or foot-wear*).tw.

27 ((Foot* or feet* or shoe* or trainer* or boot* or arch* or insole*) adj4 (support* or device* or insert* or padd* or custom*)).tw.

28 (Rocker* adj4 sole* adj4 (shoe* or trainer* or boot*)).tw.

29 or/15-28
30 14 and 29
31 Animals/ not Humans/
32 30 not 31
33 Randomized Controlled Trial.pt.
34 Controlled Clinical Trial.pt.
35 Clinical Trial.pt.
36 exp Clinical Trials as Topic/
37 Placebos/
38 Random Allocation/
39 Double-Blind Method/
40 Single-Blind Method/
41 Cross-Over Studies/
42 ((random$ or control$ or clinical$) adj3 (trial$ or stud$)).tw.
43 (random$ adj3 allocat$).tw.
44 placebo$.tw.
45 ((singl$ or doubl$ or trebl$ or tripl$) adj (blind$ or mask$)).tw.
46 (crossover$ or (cross adj over$)).tw.
47 or/33-46
48 animals/ not humans/
49 47 not 48
50 32 and 49
51 limit 50 to english language

RQ12: What is the clinical effectiveness of adjunctive treatments in treating diabetic foot problems, for example, dermal or skin substitutes, growth factors, hyperbaric oxygen therapy, bio-debridement, topical negative pressure therapy and electrical stimulation?

Ovid MEDLINE(R) <1946 to November Week 3 2013>

1 exp Diabetes Mellitus/
2 Diabet*.tw.
3 or/1-2
4 Foot Diseases/
5 Ulcer/

6 Gangrene/

7 Osteomyelitis/

8 soft tissue infections/ or wound infection/

9 ((Foot* or feet* or toe* or tissue* or wound*) adj4 (infect* or disease*)).tw.

10 or/4-9

11 3 and 10

12 Diabetic Foot/

13 (Diabe* adj4 (foot* or feet* or toe* or ulcer* or gangrene* or osteomyelit*)).tw.

14 or/11-13

15 (Adjunct* adj4 (treat* or therap* or techni*)).tw.

16 Skin, Artificial/ or Skin Transplantation/ or Tissue Transplantation/ or Transplants/

17 ((Dermal* or skin* or tissue*) adj4 (substitut* or artificial* or transplant* or graft*)).tw.

18 dermatoplast*.tw.

19 Integra.tw.

20 exp "Intercellular Signaling Peptides and Proteins"/

21 (Growth* adj4 (factor* or substanc*)).tw.

22 (Recombinant* adj4 protein*).tw.

23 Leucopatch*.tw.

24 Platelet-Rich Plasma/

25 ((Platelet* or thromb*) adj4 rich* adj4 plasma*).tw.

26 Hyperbaric Oxygenation/

27 (Hyperbaric* adj4 oxygen*).tw.

28 HBOT.tw.

29 Therapeutic irrigation/

30 (Therapeut* adj4 irrigat*).tw.

31 ((Jet or pulse*) adj2 lavage).tw.

32 Debridement/

33 (Hydro-debride* or hydrodebride* or hydro debride* or bio-debride* or biodebride* or bio debride*).tw.

34 Negative-Pressure Wound Therapy/

35 (Negative* adj4 pressure* adj4 (therap* or treat* or techni* or dress* or wound*)).tw.

36 (Vacuum* adj4 assist* adj4 clos*).tw.

37 Electric Stimulation/ or Electric stimulation therapy/

38 Ultrasonography, Doppler/ or Laser-Doppler Flowmetry/

39 Ultrasonics/ or Ultrasonic therapy/

40 ((Electric* or Ultrasonic* or Ultrasonograph* or Ultrasound* or Flowmet*) adj4 (stimulat* or therap* or treat* or techni* or doppler*)).tw.

41 Laser Therapy/ or Laser therapy, low-level/

42 (Laser* adj4 (therap* or treat* or techni*)).tw.

43 ((Surg* or non-surg* or non surg*) adj4 (off-load* or off load* or intervention*)).tw.

44 Biomechanics/

45 ((Biomechanic* or bio-mechanic* or bio mechanic*) adj4 (heal* or therap* or treat* or techni*)).tw.

46 orthotic devices/ or foot orthoses/

47 (Orthotic* or orthos* or footwear* or foot wear* or foot-wear*).tw.

48 ((Foot* or feet* or shoe* or trainer* or boot* or arch* or insole*) adj4 (support* or device* or insert* or padd* or custom*)).tw.

49 (Rocker* adj4 sole* adj4 (shoe* or trainer* or boot*)).tw.

50 or/15-49

51 14 and 50

52 Animals/ not Humans/

53 51 not 52

54 Randomized Controlled Trial.pt.

55 Controlled Clinical Trial.pt.

56 Clinical Trial.pt.

57 exp Clinical Trials as Topic/

58 Placebos/

59 Random Allocation/

60 Double-Blind Method/

61 Single-Blind Method/

62 Cross-Over Studies/

63 ((random$ or control$ or clinical$) adj3 (trial$ or stud$)).tw.

64 (random$ adj3 allocat$).tw.

65 placebo$.tw.

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

67 (crossover$ or (cross adj over$)).tw.

68 or/54-67

69 animals/ not humans/

70 68 not 69

71 53 and 70

72 limit 71 to english language

RQ13: What signs and symptoms or risk factors should prompt healthcare professionals to suspect Charcot arthropathy?

Ovid MEDLINE(R) <1946 to January Week 2 2014>

1 exp Diabetes Mellitus/

2 Diabet*.tw.

3 or/1-2

4 Arthropathy, Neurogenic/

5 ((Neurogenic* or neuropath* or neurotica* or charcot* or tabetic*) adj4 (arthropath* or osteoarthropath* or arthr* or foot* or feet* or toe* or tissue* or wound* or joint*)).tw.

6 or/4-5

7 3 and 6

8 risk factors/

9 risk*.tw.

10 "Signs and Symptoms"/

11 (sign* adj2 symptom*).tw.

12 incidence.sh. or exp mortality/ or follow-up studies.sh. or prognos:.tw. or predict:.tw. or course:.tw.

13 (sensitiv: or diagnos:).mp. or di.fs.

14 limb deformities, congenital/ or exp foot deformities, congenital/

15 (Deformit* or abnormalit* or defect* or damage* or disrupt* or destruct* or distort* or malformat*).tw.

16 Inflammation/

17 sensation/

18 exp pain/

19 Ankle Fractures/ or Fractures, Bone/ or Dislocations/

20 ((Los* or less* or decrease* or poor* or abnormal* or unpleasant*) adj4 (sensat* or sensor* or touch* or feel* or move* or function* or motor* or circulat*)).tw.

21 (Inflammat* or swell* or pain* or aches* or red* or warm* or hot* or heat* or burn* or fracture* or break* or broke* or torn* or instab*).tw.

22 or/8-21

1	23	7 and 22
2	24	Observational Study as Topic/
3	25	Observational Study/
4	26	Epidemiologic Studies/
5	27	exp Case-Control Studies/
6	28	exp Cohort Studies/
7	29	Cross-Sectional Studies/
8	30	Comparative Study.pt.
9	31	case control$.tw.
10	32	case series.tw.
11	33	(cohort adj (study or studies)).tw.
12	34	cohort analy$.tw.
13	35	(follow up adj (study or studies)).tw.
14	36	(observational adj (study or studies)).tw.
15	37	longitudinal.tw.
16	38	prospective.tw.
17	39	retrospective.tw.
18	40	cross sectional.tw.
19	41	or/24-40
20	42	Meta-Analysis.pt.
21	43	Meta-Analysis as Topic/
22	44	Review.pt.
23	45	exp Review Literature as Topic/
24	46	(metaanaly$ or metanaly$ or (meta adj3 analy$)).tw.
25	47	(review$ or overview$).ti.
26	48	(systematic$ adj5 (review$ or overview$)).tw.
27	49	((quantitative$ or qualitative$) adj5 (review$ or overview$)).tw.
28	50	((studies or trial$) adj2 (review$ or overview$)).tw.
29	51	(integrat$ adj3 (research or review$ or literature)).tw.
30	52	(pool$ adj2 (analy$ or data)).tw.
31	53	(handsearch$ or (hand adj3 search$)).tw.
32	54	(manual$ adj3 search$).tw.
33	55	or/42-54

56 animals/ not humans/

57 55 not 56

58 Randomized Controlled Trial.pt.

59 Controlled Clinical Trial.pt.

60 Clinical Trial.pt.

61 exp Clinical Trials as Topic/

62 Placebos/

63 Random Allocation/

64 Double-Blind Method/

65 Single-Blind Method/

66 Cross-Over Studies/

67 ((random$ or control$ or clinical$) adj3 (trial$ or stud$)).tw.

68 (random$ adj3 allocat$).tw.

69 placebo$.tw.

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

71 (crossover$ or (cross adj over$)).tw.

72 or/58-71

73 animals/ not humans/

74 72 not 73

75 41 or 57 or 74

76 23 and 75

77 limit 76 to english language

RQ15: What are the clinical utilities and accuracy of tools for assessment and diagnosis of Charcot arthropathy in people with diabetes?

Ovid MEDLINE(R) <1946 to January Week 5 2014>

1 exp Diabetes Mellitus/

2 Diabet*.tw.

3 or/1-2

4 Arthropathy, Neurogenic/

5 ((Neurogenic* or neuropath* or neurotica* or charcot* or tabetic*) adj4 (arthropath* or osteoarthropath* or arthr* or foot* or feet* or toe* or tissue* or wound* or joint*)).tw.

6 or/4-5

7 3 and 6

8 exp Diagnosis/

9 (Diagnos* or exam* or assess* or test*).tw.

10 Di.fs.

11 Magnetic Resonance Imaging/

12 (Magnetic* adj4 Resonance* adj4 Imag*).tw.

13 (MRI or MRIS or NMR).tw.

14 (Chemical* adj1 shift* adj1 imag*).tw.

15 (Magneti* adj1 transfer* adj1 contrast* adj1 imag*).tw.

16 ((MR or proton*) adj1 (tomograph* or imag* or scan*)).tw.

17 Zeugmatograph*.tw.

18 Neurologic Examination/

19 (Neurolog* adj4 Exam*).tw.

20 "Bone and Bones"/

21 X-Rays/

22 (x ray* or x-ray* or xray*).tw.

23 Radionuclide Imaging/ or Radioisotopes/

24 ((Radionucl* or radioisotope* or Isotope* or bone* or radio*) adj4 (imag* or scan*)).tw.

25 ((Gamma* or high*) adj4 (imag* or scan*)).tw.

26 (Scintigraph* or scintiphotograph* or scintiscan* or scintillat* or scinti or scanograph*).tw.

27 physical examination/ or gait/ or gait disorders, neurological/ or "range of motion, articular"/

28 ((Physical* or clinical*) adj4 (utilit* or suspicio*)).tw.

29 Gait*.tw.

30 skin temperature/

31 ((Skin or foot or feet) adj4 (temp* or heat or hot or warm or burn*)).tw.

32 or/8-31

33 7 and 32

34 Observational Study as Topic/

35 Observational Study/

36 Epidemiologic Studies/

37 exp Case-Control Studies/

38 exp Cohort Studies/

39 Cross-Sectional Studies/

1	40	Comparative Study.pt.
2	41	case control$.tw.
3	42	case series.tw.
4	43	(cohort adj (study or studies)).tw.
5	44	cohort analy$.tw.
6	45	(follow up adj (study or studies)).tw.
7	46	(observational adj (study or studies)).tw.
8	47	longitudinal.tw.
9	48	prospective.tw.
10	49	retrospective.tw.
11	50	cross sectional.tw.
12	51	or/34-50
13	52	Meta-Analysis.pt.
14	53	Meta-Analysis as Topic/
15	54	Review.pt.
16	55	exp Review Literature as Topic/
17	56	(metaanaly$ or metanaly$ or (meta adj3 analy$)).tw.
18	57	(review$ or overview$).ti.
19	58	(systematic$ adj5 (review$ or overview$)).tw.
20	59	((quantitative$ or qualitative$) adj5 (review$ or overview$)).tw.
21	60	((studies or trial$) adj2 (review$ or overview$)).tw.
22	61	(integrat$ adj3 (research or review$ or literature)).tw.
23	62	(pool$ adj2 (analy$ or data)).tw.
24	63	(handsearch$ or (hand adj3 search$)).tw.
25	64	(manual$ adj3 search$).tw.
26	65	or/52-64
27	66	animals/ not humans/
28	67	65 not 66
29	68	Randomized Controlled Trial.pt.
30	69	Controlled Clinical Trial.pt.
31	70	Clinical Trial.pt.
32	71	exp Clinical Trials as Topic/
33	72	Placebos/

73 Random Allocation/

74 Double-Blind Method/

75 Single-Blind Method/

76 Cross-Over Studies/

77 ((random$ or control$ or clinical$) adj3 (trial$ or stud$)).tw.

78 (random$ adj3 allocat$).tw.

79 placebo$.tw.

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

81 (crossover$ or (cross adj over$)).tw.

82 or/68-81

83 animals/ not humans/

84 82 not 83

85 51 or 67 or 84

86 33 and 85

87 Animals/ not Humans/

88 86 not 87

89 limit 88 to english language

RQ16: What is the clinical effectiveness of surgical interventions, adjunctive treatment, off-loading or orthoses for managing Charcot arthropathy?

Ovid MEDLINE(R) <1946 to February Week 1 2014>

1 exp Diabetes Mellitus/

2 Diabet*.tw.

3 or/1-2

4 Arthropathy, Neurogenic/

5 ((Neurogenic* or neuropath* or neurotica* or charcot* or tabetic*) adj4 (arthropath* or osteoarthropath* or arthr* or foot* or feet* or toe* or tissue* or wound* or joint*)).tw.

6 or/4-5

7 3 and 6

8 Orthopedics/ or Surgery, Plastic/ or orthopaedic procedures/ or reconstructive surgical procedures/

9 (Orthopedic* or orthopaedic* or ortho).tw.

10 (Surg* adj4 (plastic* or esthetic* or cosmetic* or intervention* or tech* or reconstruct*)).tw.

11 Fusion*.tw.

12 Osteotomy/ or Arthrodesis/

13 (Osteotom* or ostectom* or arthrodes*).tw.

14 orthopedic fixation devices/ or casts, surgical/ or splints/ or braces/

15 ((Contact* or surg*) adj4 (cast* or splint* or device*)).tw.

16 TCC.tw.

17 Brace*.tw.

18 exp foot bones/su or Ankle joint/su or Ankle injuries/su or Foot Injuries/su or Foot diseases/su or Foot Deformities, Acquired/su or Fractures bone/su

19 (Surg* adj4 (foot* or feet* or ankle*)).tw.

20 exp fracture fixation/ or Internal fixators/ or External fixators/ or Bone plates/

21 ((Fracture* or break* or bone* or internal* or external*) adj4 (fix* or plate* or surg*)).tw.

22 Achilles Tendon/ or Tenotomy/

23 (Achille* adj4 tendon* adj4 (length* or surg* or long* or increas*)).tw.

24 orthotic devices/ or foot orthoses/ or shoes/ or walkers/

25 (Orthotic* or orthos* or footwear* or foot wear* or foot-wear*).tw.

26 ((Foot* or feet* or shoe* or trainer* or boot* or arch* or insole*) adj4 (support* or device* or insert* or padd* or custom*)).tw.

27 (Rocker* adj4 sole* adj4 (shoe* or trainer* or boot*)).tw.

28 ((Crow* or remov*) adj4 (device* or walk* or shoe* or trainer* or boot*)).tw.

29 Charcot restraint orthotic walker.tw.

30 Weight bearing/

31 (Off-load* or off load* or offload*).tw.

32 (Weigh* adj4 bear*).tw.

33 (Adjunct* adj4 (treat* or therap* or surg*)).tw.

34 exp Diphosphonates/

35 (Bisphosphon* or disphosphon* or bisfosfon* or disfosfon*).tw.

36 (Alendron* or Fosamax or Fosavance).tw.

37 (Etidron* or Didronel).tw.

38 (Ibandron* or Bondronat or Bonviva).tw.

39 (Pamidron* or Aredia dry powder).tw.

40 (Risedrona* or Actonel).tw.

41 (Clodron* or Bonefos or Clasteon or Loron).tw.

42 (Zoledron* or Aclasta or Zometa).tw.

43 (Medronat* or Minodronat* or Neridronat* or Oxidronat* or Tiludronat*).tw.

44 or/8-43

45 7 and 44

46 Animals/ not Humans/

47 45 not 46

48 limit 47 to english language

D.17 Health economics searches

The following sources were searched to identify economic evaluations and quality of life data featuring the patient population of diabetic foot:

Ovid MEDLINE

Ovid MEDLINE-in-Process

EMBASE (Ovid)

NHS EED (Wiley)

HEED

The following search filters were added to all clinical search strategies:

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.

1	18	(monte adj carlo).tw.
2	19	(decision adj2 (tree$ or analys$)).tw.
3	20	(cost or costs or costing$ or costly or costed).tw.
4	21	(price$ or pricing$).tw.
5	22	budget$.tw.
6	23	expenditure$.tw.
7	24	(value adj2 (money or monetary)).tw.
8	25	(pharmacoeconomic$ or (pharmaco adj economic$)).tw.
9	26	or/1-25
10	27	"Quality of Life"/
11	28	quality of life.tw.
12	29	"Value of Life"/
13	30	Quality-Adjusted Life Years/
14	31	quality adjusted life.tw.
15	32	(qaly$ or qald$ or qale$ or qtime$).tw.
16	33	disability adjusted life.tw.
17	34	daly$.tw.
18	35	Health Status Indicators/
19 20 21	36	(sf36 or sf 36 or short form 36 or shortform 36 or sf thirtysix or sf thirty six or shortform thirtysix or 29 shortform thirty six or short form thirtysix or short form thirty six).tw.
22 23	37	(sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six).tw. 31
24 25	38	(sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or 33 short form twelve).tw.
26 27	39	(sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or 35 short form sixteen).tw.
28 29	40	(sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or 1 short form twenty).tw.
30	41	(euroqol or euro qol or eq5d or eq 5d).tw.
31	42	(qol or hql or hqol or hrqol).tw.
32	43	(hye or hyes).tw.
33	44	health$ year$ equivalent$.tw.
34	45	utilit$.tw.
35	46	(hui or hui1 or hui2 or hui3).tw.

1	47	disutili$.tw.
2	48	rosser.tw.
3	49	quality of wellbeing.tw.
4	50	quality of well-being.tw.
5	51	qwb.tw.
6	52	willingness to pay.tw.
7	53	standard gamble$.tw.
8	54	time trade off.tw.
9	55	time tradeoff.tw.
10	56	tto.tw.
11	57	or/27-56
12	58	26 or 57
13		