National Institute for Health and Care Excellence

Consultation

Appendices A-E

Emergency and acute medical care in over 16s: service delivery and organisation

NICE guideline <number>

July 2017

Draft for consultation

Developed by the National Guideline Centre, hosted by the Royal College of Physicians

Royal College of Physicians | The Royal College of Surgeons of England | Royal College of General Practitioners | Royal College of Nursing | NGC National Guideline Centre | NICE accredited

Disclaimer

Healthcare professionals are expected to take NICE guidelines fully into account when exercising their clinical judgement. However, the guidance does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of each patient, in consultation with the patient and, where appropriate, their guardian or carer.

Appendices

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Appendix A: Scope

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

SCOPE

1 Guideline title

Service delivery and organisation for acute medical emergencies.

1.1 Short title

Service delivery and organisation for acute medical emergencies.

2 The remit

The Department of Health has asked NICE to consider the following topic areas:

- Urgent and emergency care.
- Out-of-hours care.
- 7-day services.
- Consultant review within 12 hours of admission.
- Acute medical admissions within the first 48 hours.
- Discharge planning to reduce readmissions.

3 Need for the guideline

3.1 Epidemiology

a) As the population continues to grow and age, there will be increasing demand for acute services for life-threatening emergencies, acute exacerbation of chronic illnesses and routine health problems that need prompt action.

b) A medical emergency can arise in anyone, for example, in people:

- without a previously diagnosed medical condition
- with an acute exacerbation of underlying chronic illness
- after surgery
- after trauma.

c) Data show that the demand on the NHS is substantial and increasing across the whole system, as follows:

- Rising numbers of GP consultations per patient per year. Some patients have found it more difficult to access their GP quickly, increasing the demand for urgent or emergency care services.
- 8.49 million calls to emergency 999 services in 2011/12.
- 4.4 million calls to NHS Direct in 2011/12.
- 2.7 million calls to NHS 111 in 2012/13.
- 8.6 million calls to GP out-of-hours services in 2007/08.
- 6.71 million emergency ambulance journeys in 2011/12.
- 21.7 million attendances at emergency departments, minor injury units and urgent care centres in 2012/13. These attendances increased by 32% since 2003/04. The increase was found to be particularly high in minor emergency department attendances (for example, urgent care centres, minor injury units and walk-in centres). Attendances at major emergency departments increased at a lower rate (13% between 2003/04 and 2012/13) in line with what would be expected from population ageing and growth.
- 5.2 million emergency admissions to England's hospitals in 2012/13. Emergency admissions, which include short-stay and zero length-of-stay admissions (a patient admitted and discharged on the same day) have increased by 40% between 2003/04 and 2010/11. In 2009, emergency admissions cost the NHS about £11 billion, and between 2004 and 2009 they were increasing at a cost of about £83 million per annum.
- Nearly 5% of all admitted patients in England are readmitted as emergency cases within 30 days. Nearly half of readmitted patients return to a hospital within 7 days of their initial discharge. The readmission rate for people aged 16-74 increased from around 7% in

1998/9 to 9% in 2006/7. The equivalent figures for people aged 75 and over are 10% and 14% respectively.

3.2 Current services

a) Urgent and emergency care

For the purposes of this guideline, people needing urgent health care have a health problem that needs immediate attention but their life is not at risk. People needing emergency health care have a health problem that occurs suddenly, needs immediate attention and may be life-threatening. This guideline will cover service organisation and delivery for acute medical emergencies across the NHS but will not provide guidance on the clinical management of specific acute medical emergencies.

b) Out-of-hours care

Out-of-hours services provide primary care to patients who need to be seen quickly when their GP practice is closed. Since 2004 GP practices have been able to opt out of providing out-of-hours care, and responsibility for commissioning these services has been transferred to local commissioning organisations. These organisations operate independently of local GP (in-hours) services and are often orientated around large walk-in centres, where face-to-face care can be provided centrally. A 2010 Department of Health study found that most GP out-of-hours services in England were good, but it also showed that there was an unacceptable degree of variation in standards. The Primary Care Foundation benchmarking audit in 2010 found that in at least 4 local areas, providers were only able to see 60% of patients within 1 hour.

c) 7-day services

The 2011 Hospital guide published by Dr Foster suggested that there was an association between the number of available senior staff and the weekend admission mortality rate. The Keogh 2013 Review into the quality of care and treatment provided by 14 hospital trusts in England (July 2014) reported that most surplus mortality risk was related to emergency admissions, particularly at weekends. Evidence from the

Medical Royal Colleges and the National Confidential Enquiry into Patient Outcome and Death, demonstrated that patients admitted at the weekend have a significantly greater risk of dying within 30 days of admission than those admitted on a weekday. An analysis of health outcomes for the UK and USA shows that weekend admission is associated with a 16% higher mortality. The higher mortality rate is likely to be a consequence of variability in the provision of:

- weekend hospital staffing
- senior decision makers of consultant level skill and experience
- specialist services, such as weekend diagnostic and scientific services
- specialist community and primary care services, which might otherwise support patients on an end-of-life care pathway to die at home.

d) Consultant review within 12 hours of admission

There is evidence that improved patient outcomes are associated with timely consultant input. Professional bodies consistently recommend working patterns that enable rapid consultant assessment for all patients yet variation exists between hospitals and between weekdays and weekends. In 2012 the Academy of Medical Royal Colleges published a report on the Benefits of consultant-delivered care across all services. Currently standards set out by the Society for Acute Medicine and NHS England, 7-days a week state that 'All emergency admissions must be seen and have a thorough clinical assessment by a suitable consultant as soon as possible'.

e) Acute medical admissions within the first 48 hours

Acute internal medicine in the UK has developed over the last 15 years in response to the increasing number of medical admissions, concerns over the quality of acute care, and other external pressures, including the European Working Time Directive. Acute internal medicine is a specialty of medicine concerned with the immediate and early specialist management of adults with a wide range of medical conditions admitted to hospitals for unplanned urgent or emergency care. The care is usually provided by a

multidisciplinary team led by acute physicians in the acute medical unit (AMU) for a designated period (typically between 24 and 72 hours) before discharge from the hospital or transfer to medical wards. A survey from the Society for Acute Medicine shows that more than 90% of acute hospitals have such a unit. Acute medical unit (AMU) is the preferred term for these units; however they have many different names which can cause confusion, for example, medical assessment and planning unit (MAPU), rapid assessment medical unit (RAMU) and emergency assessment unit (EAU) (see also appendix A).

f) Discharge planning to reduce readmissions

Discharge planning is a process that aims to improve the coordination of services after discharge from hospital by considering the patient's needs in the community. The process varies and is not entirely evidence based. Handover to the community and primary care is often neglected.

g) Acute medical care services are facing profound pressures; often the capacity of the service is overwhelmed and the delivery of quality care can be compromised. Many of the necessary components of the healthcare system are in place but are not well-integrated. Navigating the current acute medical emergency service is a challenge. There are also fundamental misconceptions among the public and patients regarding the types of services offered, which can lead to patients accessing a higher level service than required. Lack of standardisation along the acute medical emergency pathway contributes to user dissatisfaction and adverse patient outcomes. Variations in communication between services, opening hours, clinical expertise, access to diagnostic services and terminology may lead to confusion and unnecessary repetition of investigations, history taking and/or assessments. The result is an inefficient system unable to meet increasing demand.

3.3 Policy, regulation and commissioning

3.3.1 Policy

NHS England is currently undertaking a major review of emergency care services to determine how best to reduce the demand for emergency care in hospital and increase the delivery of acute care in the community. Published policies include:

- Department of Health (2001) Reforming emergency care: first steps to a new approach.
- Alberti G (2004) Transforming emergency care in England. Department of Health.
- Department of Health (2005) Improving emergency care in England. House of Commons Committee of Public Accounts.
- Strategic Health Authorities (2009) Good practice in delivering emergency care: a guide for local health communities. Emergency services review.
- Blunt I, Bardsley M, Dixon J (2010) Trends in emergency admissions in England 2004–2009. Kings Fund.
- NHS London Health Programmes (2013) Quality and Safety Programme Emergency Departments: Case for change.
- NHS Improving Quality (2013) NHS services open seven days a week: every day counts.**Error! Hyperlink reference not valid.**
- NHS England (2013) High quality care for all, now and for future generations: transforming urgent and emergency care services in England.
- NHS England (2013) Transforming urgent and emergency care services in England: urgent and emergency care review. End of phase 1 report.
- The Health Foundation and the Nuffield Trust (2013) Focus on emergency admissions. Quality Watch.
- The Health Foundation and the Nuffield Trust (2014) Focus on A&E attendances. Quality Watch.

3.3.2 Legislation, regulation and guidance

Best practice guidance is produced by the Medical Royal Colleges. Standards for emergency departments have been developed by the College of Emergency Medicine in collaboration with other professional bodies.

- Royal College of Physicians, College of Emergency Medicine, Society of Acute Medicine and NHS Confederation (2013) Urgent and emergency care: a prescription for the future.
- The College of Emergency Medicine (2013) The drive for quality: how to achieve safe, sustainable care in our emergency departments.
- UK Ambulance Services (2013) Clinical practice guidelines
- College of Emergency Medicine (2014) Acute and emergency care: prescribing the remedy.

3.3.3 Commissioning

Funding emergency care is a major preoccupation of health services worldwide. In England the move to commissioned healthcare places the onus on clinical commissioning groups to commission emergency care services from secondary care and other providers. Current fiscal constraints combined with increased emergency department attendances and admissions have created significant challenges for funders. The tariff system in operation at least until 2015 reimburses hospitals at 30% of tariff for admissions above contracted volumes. The development of the Better Care Fund is intended to improve the situation by diverting resources from secondary care to the community with the aim of reducing emergency department attendances.

- Fernandes A (2011) Guidance for commissioning integrated urgent and emergency care: a ‘whole system’ approach. RCGP Centre for Commissioning.
- Better Care Fund (2013) Support and resources pack for integrated care. NHS England.
- Royal College of Physicians, College of Emergency Medicine, Society of Acute Medicine and NHS Confederation (2013) Urgent and emergency care: a prescription for the future.
- Monitor and NHS England (2014) 2015/16 National Tariff Payment System: Tariff engagement documents overview.
- Foundation Trust Network (2014) Foundation Trust Network response to engagement on 2015/16 national tariff payment system.

4 The guideline

The guideline development process is described in detail on the NICE website (see section 6, 'Further information').

This scope defines what the guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

The areas that will be addressed by the guideline are described in the following sections.

4.1 Population

4.1.1 Groups that will be covered

a) Adults (18 years and over) and young people (16–17 years) who seek, or are referred for, emergency NHS care for a suspected or confirmed acute medical emergency. Specific consideration will be given to:

- frail elderly people and
- people with mental health comorbidity.

4.1.2 Groups that will not be covered

The groups listed below are those that may also access the services provided for the target population for this scope (as defined in 4.1.1). They may be indirectly affected by the recommendations of this guidance in some instances. However, it is not the intention of this guidance to review the evidence or formulate recommendations on the service needs for these groups:

a) Children.

b) People with acute obstetric emergencies.

c) People with acute mental health emergencies, once a diagnosis has been made.

d) People with acute surgical emergencies, once a diagnosis has been made.

e) People who have experienced major trauma, complex or non-complex fractures or spinal injury.

f) People in hospital who are not there for an acute medical emergency (i.e. elective admissions) and do not develop an acute medical emergency during their stay.

g) People already in hospital with acute deterioration.

h) People with chronic conditions who are being managed as outpatients but who require an elective admission for treatment from specialists who may be involved in the acute care pathway.

4.2 Setting

a) All settings in which NHS care is received for suspected or confirmed acute medical emergencies, including settings in which people present, are managed during acute admission and from which they are transferred or discharged. These settings include

- primary care and community services
- emergency departments
- acute medical units
- ambulance services
- telephone triage services.

4.3 Service delivery and organisation

4.3.1 Issues that will be covered

a) Timely access to services (including services available 24-hours a day, 7-days a week).

b) Timely access to staff with a given competency or skill.

c) Capacity of services.

d) Location of services.

e) Staffing, skills and competencies in pre-hospital and hospital settings.

f) Integration of services, including continuity of information, handover and discharge.

g) Alternatives to acute care in hospital.

h) Standardisation of services.

i) First point of contact with urgent care services, including initial triage.

4.3.2 Issues that will not be covered

a) Acute clinical management of specific medical conditions requiring urgent or emergency care.

b) Specific on-going management of a condition.

c) Non-emergency patient transport.

d) Resuscitation.

e) Nurse staffing in accident and emergency departments and on wards (which will be covered in other NICE guidance).

f) Emergency planning and resilience.

g) Readmissions to intensive care units within 48 hours.

4.4 Main outcomes

Given the breadth of the scope, the literature is likely to reveal a wide range of quantitative and qualitative outcome measures. These may include:

a) Mortality: case mix-adjusted.

b) Safety: reliability, error rates and adverse events.

c) Quality of life: functional outcomes.

d) Experience: patient and staff satisfaction; service demand.

e) Volume: admissions, discharges, transfers and readmissions.

f) Process: waits, delays, cancellations.

g) Resource use and costs: length of hospital stay, number of active consultant hours.

4.5 Review topics

Review topics guide a systematic review of the literature. They address only the issues covered in the scope, and usually relate to interventions, diagnosis, prognosis, service configuration, service delivery or patient experience. Please note that these review topics are preliminary versions and inclusion in the final guideline will be dependent on resources and subject to discussion with the GDG.

4.5.1 Timely access to services (including services available 24 hours a day, 7 days a week)

a) Provision of services throughout the patient pathway (including social, community and primary care) 7 days a week, and where appropriate, 24 hours a day.

b) 24-hour access to investigations, diagnostics and interventions in emergency departments and acute medical units.

c) 24-hour access to emergency departments compared with restricted hours access.

4.5.2 Timely access to staff with a given competency or skill

a) Timely access to specialists throughout the patient journey (including tele-healthcare).

b) Time interval between patient admission and specialist review.

c) Time interval between specialist reviews on the ward.

d) Paramedics' access to live clinical advice (for example, mobile telemedicine system).

e) Timely access to an outreach acute care team within hospitals.

4.5.3 Capacity of services

a) Escalation measures for surges in demand.

b) Impact of hospital capacity on patient outcomes.

4.5.4 Location of services

a) Co-location of emergency departments and acute medical units.

b) Co-location of general practice and emergency departments.

c) Hospital networks.

d) Role of minor injury units and walk-in centres.

4.5.5 Staffing, skills and competencies in pre-hospital and hospital settings

a) Ability and availability of paramedics to deliver higher-level acute care in the community.

b) The appropriate skill-mix in wards including pharmacist support.

c) Doctor-to-patient ratios throughout the emergency care pathway.

d) Competencies for healthcare staff in acute care risk assessment and risk management.

e) Impact of specialist-led, generalist-led and mixed model care on patient outcomes.

f) Role of physician extenders (for example, physician assistants, emergency nurse practitioners).

4.5.6 Integration of services, including continuity of information, handover and discharge

a) Managing information across the whole patient pathway.

b) Integration of social, community, mental health, primary and secondary care.

c) Patient follow-up by primary or secondary care after discharge.

d) Structured patient care handovers.

e) Timely planning of the patient pathway from admission to discharge and return to the community.

f) Ward round structures and processes.

g) Enhanced primary care access to diagnostics.

4.5.7 Alternatives to acute care in hospital

a) Provision of community-based healthcare services (for example, community-based rehabilitation services, palliative care, community hospitals, and intermediate facilities).

b) 'Hospital at home' services.

c) 'Virtual wards' between primary and secondary care.

d) Leadership of community-based services, including community matrons.

4.5.8 Standardisation of services

a) Means and value of standardisation, in particular criteria for:

- admission
- monitoring and alert (for example, National Early Warning Score, NEWS)
- discharge
- transfers of care between hospitals.

4.5.9 First point of contact with urgent care services, including initial triage

a) Single compared with multiple points of patient first contact with acute and emergency care (such as NHS 111 or 999 emergency telephone services, GP services and emergency departments).

b) A consistent and reproducible graded triage system following an emergency call.

c) Use of a graded response to emergency calls by call handlers for NHS 111 and/or 999.

4.6 Economic aspects

We will take into account opportunity costs and cost effectiveness when making recommendations involving a choice between alternative activities, interventions or services. Any analysis should typically use an NHS and personal social services perspective.

Further detail on the methods can be found in The guidelines manual and the Interim methods guide for developing service guidance.

4.7 Status

4.7.1 Scope

This is the final scope.

4.7.2 Timing

The development of the guideline recommendations will begin in February 2015.

5 Related NICE publications

5.1 Published guidance and commissioning products

- Support for commissioning for intravenous fluid therapy in adults in hospital (2014) NICE support for commissioning 66.
- Safe staffing for nursing in adult inpatient wards in acute hospitals (2014) NICE guideline SG1.
- Neutropenic sepsis: prevention and management of neutropenic sepsis in cancer patients (2012) NICE guideline CG151.
- Guide for commissioners on end of life care for adults (2011) NICE commissioning guide 42.
- Acutely ill patients in hospital (2007) NICE guideline CG50.
- Improving supportive and palliative care for adults with cancer (2004) NICE cancer service guideline.

Many other pieces of NICE guidance are relevant to ‘Service delivery and organisation of acute medical emergencies’, including clinical guidelines on specific acute conditions (see the NICE website for further details). Examples include:

- Head injury (2014) NICE guideline CG176.
- Acute kidney injury (2013) NICE guideline CG169.
- Myocardial infarction with ST-segment elevation (2013) NICE guideline CG167.

5.2 Guidance under development

NICE is currently developing the following related guidance (details available from the NICE website):

- Safe staffing for nursing in accident and emergency departments. NICE guideline. Publication expected May 2015.
- Home care. NICE guideline. Publication expected July 2015.
- Social care of older people with multiple long-term conditions. NICE guideline. Publication expected October 2015.
- Transition between inpatient hospital settings and community or care home settings for adults with social care needs. NICE guideline. Publication expected November 2015.
- Older People – independence and mental wellbeing. NICE guideline. Publication expected November 2015.
- Disability, dementia and frailty in later life - mid-life approaches to prevention. NICE guideline. Publication expected March 2015.
- Major trauma services: service delivery for major trauma. NICE guideline. Publication expected February 2016.
- Transition from children's to adult services. NICE guideline. Publication expected February 2016.
- Multimorbidity: clinical assessment and management. NICE guideline. Publication expected September 2016
- Care of the dying adult. NICE guideline. Publication date to be confirmed.
- Safe staffing for community nursing care settings. NICE guideline. Publication date to be confirmed.
- Safe staffing for mental health community settings. NICE guideline. Publication date to be confirmed.
- Safe staffing for mental health in-patient settings. NICE guideline. Publication date to be confirmed.

Many other pieces of NICE guidance are relevant to 'Service delivery and organisation for acute medical emergencies', including clinical guidelines on specific acute conditions (see the NICE website for further details), for example:

- Sepsis. NICE guideline. Publication expected July 2016.

6 Further information

Information on the guideline development process is provided in the following documents, available from the NICE website:

- How NICE clinical guidelines are developed: an overview for stakeholders the public and the NHS: 5th edition
- Interim methods guide for developing service guidance
- The guidelines manual.

Information on the progress of the guideline will also be available from the NICE website.

7 Appendix A

Other terms used to refer to an acute medical unit (the preferred term used in the document) include:

Acute Medical Assessment Unit (AMAU)

Acute Assessment Unit (AAU)

Medical Assessment and Planning Units (MAPU)

Acute Assessment Unit (AAU)

Acute Medical Wards (AMW)

Medical Assessment Ward (MAW)

Medical Assessment Unit (MAU)

Emergency Assessment Unit (UAU)

Acute Planning Units (APU)

Rapid Assessment Medical Units (RAMU)

Early Assessment Medical Units (EAMU)

Appendix B: Declarations of interest

Full members

Julian Bion (GDG Chair)

Date	Item declared	Classification	Action taken
Initial declaration (May 2014)	I am the Chief Investigator for the HiSLAC project – HS&DR-funded research to examine the impact of intensity of specialist-led acute care on outcomes of patients admitted to hospitals as emergencies at weekends. I am also an associate non-executive director for Worcestershire Acute Hospitals Trust and chair the Trust's Quality Governance Committee.	Personal non-pecuniary.	Declare and participate, but withdraw from chairing relevant questions.
GDG1 090215	No further declarations.	-	-
GDG2 260215	Did not attend.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	Did not attend.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	
GDG9 191115	Initial declaration: I am the Chief Investigator for the HiSLAC project – HS&DR-funded research to examine the impact of intensity of specialist-led acute care on outcomes of patients admitted to hospitals as emergencies at weekends.	Personal non-pecuniary.	Declare and participate but withdraw from protocol discussion on 7 day mortality.
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-

GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	Invited to join Bruce Keogh's quarterly national advisory group for 7-day services, first meeting taking place in December 2016.	Personal non-pecuniary.	Declare and participate.
GDG23 101116	Did not attend.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Philip Dyer (Deputy chair)

Date	Item declared	Classification	Action taken
Initial declaration (May 2014)	Fee for services as expert advisor for GSK (12/03/2014) on their new drug for type 2 diabetes	Personal pecuniary non-specific	Declare and participate
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-

GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	No further declarations.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217			

Nerys Conway

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	Trainee Representative, Society for Acute Medicine	Personal, non-pecuniary	None
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG4 260515	No further declarations.	-	-
GDG5 220615	Did not attend.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	Did not attend.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	Did not attend.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	Did not attend.	-	-
GDG21 111016	Did not attend.	-	-
GDG22 091116	Did not attend.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Christopher Dykes

Date	Item declared	Classification	Action taken

Date	Item declared	Classification	Action taken
Initial declaration (January 2015)	I am an employed GP working for the BrisDoc out of hours service	Personal pecuniary non-specific	None.
GDG1 090215	Shareholding in BrisDoc	Personal pecuniary specific	Declare and withdraw from making recommendations relating to question on out or hours GP. May be present in meeting to answer questions directed to him.
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	Withdraw from discussion on GP extended surgery hours
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.		
GDG9 191115	No further declarations.	-	-
GDG10 091215	Did not attend.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	Did not attend.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	Did not attend.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	Did not attend.	-	-
GDG 26 270217	Did not attend.	-	-

Timothy Edwards

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	Currently undertaking PhD investigating the influence of pre-hospital airway management strategies on mortality and morbidity in cardiac arrest patients who achieve return of spontaneous circulation and undergo direct transfer to regional heart attack centres. Results due for dissemination and potential publication in 2015/16.	Personal non-pecuniary non specific	None
GDG1 090215	Chief investigator for upgraded PhD study investigating out-of-hospital airway management Examiner for RCS (Ed) Diploma in Immediate Medical Care	Personal non-pecuniary non specific	Declare and participate
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	-

GDG9 191115	No further declarations.	-	-

GDG10 091215	No further declarations.	-	-
GDG11 210116	Did not attend.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	Did not attend.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	Did not attend.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	Did not attend.	-	-

Anna Edwards (patient member)

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	I currently work as a strategy manager for the Care Quality Commission	Personal pecuniary non-specific	None
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	Did not attend.	-	-
GDG9 191115	Did not attend.	-	-
GDG10 091215	Did not attend.	-	-
GDG11 210116	Did not attend.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	Did not attend.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	Did not attend.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016 (final meeting)	No further declarations.	-	-

Mandy Farrer

Date	Item declared	Classification	Action taken
Initial declaration (January 2015)	Owner of Residential care home providing personal care to clients over 65 and those with dementia.	Personal pecuniary non-specific	-
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG5 220615	Did not attend.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	Did not attend.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	Did not attend.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Cathy Finnis (patient member)

Date	Item declared	Classification	Action taken

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	None.	-	-
GDG1 090215	As PhD student, presentation/lectures given to British sociological Association and UK/USA universities re access to healthcare for younger adults. I am currently receiving a grant from University of Kent for PhD – investigating younger adults experience in healthcare including positive and negative experience (including emergency care).	Personal non pecuniary, specific	Declare and participate.
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	Did not attend.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	Did not attend.	-	-
GDG8 291015	Did not attend.	-	-
GDG9 191115	Did not attend.	-	-
GDG10 091215	Did not attend.	-	-
GDG11 210116	Did not attend.	-	-
GDG12 250216	Did not attend.	-	-
GDG13 240316	Did not attend.	-	-
GDG14 180416	Did not attend.	-	-
GDG15 250516	Did not attend.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	Did not attend.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	Did not attend.	-	-
GDG21 111016	Did not attend.	-	-
GDG22 091116	Did not attend.	-	-

Date	Item declared	Classification	Action taken
GDG23 101116	Did not attend.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	Did not attend.	-	-
GDG 26 270217	Did not attend.		

Michael Gill

Date	Item declared	Classification	Action taken
Initial declaration (January 2015)	Medical Director, Health 1000: The Wellness Practice, "Focused, coordinated care for patients living with multiple long term conditions"	All personal pecuniary non-specific	None
	Consultant Physician, Barts Health NHS Trust		None
	Council of Royal College of Physicians		None
	Member of London Clinical Senate Council		None
	North Central and East London Local Education Training Board		None
	Member London Clinical Strategic Network for Dementia		None
	Member of North London Regional ACCEA awards Committee		None
	I have been working with Mobius as a consultant to support their implementation of a new admin and clerical model which develops a new role of patient pathway coordinator as an alternative to the multiple other traditional roles like medical secretaries, booking clerks, etc. This follows on some work we did on initiating and implementing this at Newham (where I was working several years ago). My role has been just to describe what we did and how we did it at Newham as I believe it is a model with potential to improve care and quality. On average this has involved a		Declare and participate

	day every two months. I have been paid directly for this. Mobius as a company have been working with Trusts to support implementation of the model. I am not involved in that work. The work does not relate directly to service delivery for acute medical emergencies and I do not think it conflicts with the role I applied for.		
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	Did not attend.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	Did not attend.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	Did not attend.	-	-

GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Jeremy Henning

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	I have no financial interests outside my normal pay by the Army. I am researching Cardio-vascular effects of drugs in hypovolaemia. This is directly supported by the Army, with no grants.	Personal pecuniary non-specific Personal non-pecuniary non-specific.	None
GDG1 090215	No further declarations.	-	-
GDG2 260215	Did not attend.	-	-
GDG3 180315	Did not attend.	-	-
GDG4 260515	Did not attend.	-	-
GDG5 220615	1. UK HEMS Trustee – organisation that promotes uniform clinical governance structure in Air Ambulances, and provides a training course for paramedics and Air Ambulance doctors. Unpaid post. 2. North East Ambulance Service Clinical Advisory Group – Vice Chair.	-	None.
GDG6 230715	No further declarations	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	I am the Vice Chair of the North East England Ambulance Service (NEAS) Clinical Advisory Group (CAG).	Personal non-financial specific interest for the review question	Declare and participate

Date	Item declared	Classification	Action taken
	NEAS holds a contract to run a 111 service and the CAG has provided advice to NHS pathways. I have no financial interests in any of the organisations.	on call handlers	
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	Did not attend.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Marcus Hughes

Date	Item declared	Classification	Action taken
Initial declaration (February 2015)	I am a National Health Service employee. For the past five years or so I have been a co-opted member of the Executive Committee of the Faculty of Liaison Psychiatry at the Royal College of Psychiatrists. I have recently contributed to the authorship of a Royal College of Psychiatrists	 Personal non-pecuniary specific Personal non-pecuniary specific	None. Declare and participate. Declare and participate

Date	Item declared	Classification	Action taken
	College Report on 'Training Psychiatrists in Emergency and Out-of-Hours Care'.		
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.		
GDG5 220615	No further declarations.		
GDG6 230715	No further declarations	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	Did not attend.		
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	Did not attend.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	Did not attend.	-	-

Date	Item declared	Classification	Action taken
GDG 26 270217	No further declarations.	-	-

Mike Jones

Date	Item declared	Classification	Action taken
Initial declaration (January 2015)	Director of Standards Royal College of Physicians of Edinburgh Honorarium from Novartis for talk in October 2014 on acute heart failure.	Personal non-pecuniary Personal pecuniary, non-specific.	None. None
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	Did not attend.	-	-
GDG14 180416	Did not attend.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	No further declarations.	-	-
GDG20 101016	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG21 111016	No further declarations.	-	-
GDG22 091116	Did not attend.	-	-
GDG23 101116	Did not attend.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Jason Kendall

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	None		
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.		
GDG5 220615	Advisory Board meeting June 26th 2015 hosted by Boehringer Ingelheim (pharmaceutical company) related to the use of thrombolytics in acute myocardial infarction for which I will receive and honorarium and travel expenses. Advisory Board meeting on July 7th 2015 hosted by Boehringer Ingelheim (pharmaceutical company) related to the use of the new non-vitamin K oral anticoagulants for which I will receive an honorarium and travel expenses.		None.
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.		
GDG9 191115	Did not attend.	-	-
GDG10 091215	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	Did not attend.	-	-
GDG22 091116	Did not attend.	-	-
GDG23 101116	Did not attend.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	Did not attend.	-	-
GDG 26 270217	Did not attend.	-	-

Daniel Lasserson

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	I have undertaken one consultancy session via Oxford University Consulting Service, with payments made to my academic department by the company SHARP, over acute care pathways and potential for point of care diagnostics to improve patient outcomes. No specific devices or products were under discussion, and I presented an overview of the potential for point of care diagnostics to change acute care pathways.	Non-personal pecuniary	Declare and participate
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG4 260515	No further declarations.		
GDG5 220615	No further declarations.		
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.		
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	Did not attend.	-	-
GDG14 180416	Did not attend.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	No further declarations.	-	-
GDG20 101016	Did not attend.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	Did not attend.	-	-

Sara Morgan

Date	Item declared	Classification	Action taken
Initial declaration	None		

Date	Item declared	Classification	Action taken
(November 2014)			
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	Did not attend.		
GDG5 220615	No further declarations.		
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	Did not attend.		
GDG9 191115	No further declarations.	-	-
GDG10	From January 2016, I will be taking up a new post as the Chief Nurse at the Princess Grace Hospital in London. The PGH has a private Urgent Care Centre. I do not believe this will constitute a conflict of interest, but am happy to review with the group.	This was considered not to be a conflict of interest.	None.
GDG11 210116	Did not attend.	-	-
GDG12 250216	Did not attend.	-	-
GDG13 240316	Did not attend.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	Did not attend.	-	-
GDG21 111016	Did not attend.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	Did not attend.	-	-

Date	Item declared	Classification	Action taken
GDG24 071216	Did not attend.	-	-
GDG25 081216	Did not attend.	-	-
GDG26 270217	Did not attend.	-	-

Sue Palmer

Date	Item declared	Classification	Action taken
Initial declaration (February 2015)	None		None
GDG1 090215	No further declarations.	-	-
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	Did not attend.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	Did not attend.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	Did not attend.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	Did not attend.	-	-

Date	Item declared	Classification	Action taken
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	Did not attend.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Opinder Sahota

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	I have previously undertaken 2 speaker meetings on behalf of a pharmaceutical company in the past 6 months with respect to the management of osteoporosis and have been paid honoraria for these services.	Personal pecuniary – non specific	None
GDG1 090215	NIHR: HS&DR grant. Chief investigator for community in reach and care transition in elderly medical in-patients study.	Personal, non pecuniary specific	Declare and participate
GDG2 260215	Did not attend.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	No further declarations.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	Did not attend.	-	-
GDG9 191115	Did not attend.	-	-
GDG10 091215	Did not attend.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	Did not attend.	-	-

Date	Item declared	Classification	Action taken
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	Did not attend.	-	-
GDG22 091116	Did not attend.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	Did not attend.	-	-
GDG 26 270217	No further declarations.	-	-

Kathryn Staughton

Date	Item declared	Classification	Action taken
Initial declaration (February 2015) Joined at GDG2	None		None
GDG2 260215	No further declarations.	-	-
GDG3 180315	No further declarations.	-	-
GDG4 260515	Did not attend.	-	-
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	Did not attend.	-	-

Date	Item declared	Classification	Action taken
GDG10 091215	Did not attend.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	Did not attend.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	Did not attend.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	Did not attend.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	Did not attend.	-	-
GDG 26 270217	No further declarations.	-	-

Mihir Varia

Date	Item declared	Classification	Action taken
Initial declaration (February 2015) Joined at GDG5	Currently work for a clinical commissioning group that is interested in exploring avenues for greater integration of community pharmacy in primary care.	Personal non-pecuniary specific	None
	My wife is a community pharmacist who works for Lloyds Pharmacy.	Personal non-pecuniary specific	Declare and participate
		Personal pecuniary specific	None
	I have small share holdings with various drug companies	Personal pecuniary non-specific	Declare and participate

Date	Item declared	Classification	Action taken
	Merck Sharp and Dohme LTD (MSD LTD) Advisory committee meeting, 17th December 2014. Paid: Directly - evening after work meeting Drug therapy area: Understanding Biosimilar Anti-TNFs and any implications for Rheumatoid arthritis (RA) and Gastro-intestinal (GI) disorders.	Personal pecuniary non-specific	Declare and participate
GDG5 220615	No further declarations.	-	-
GDG6 230715	No further declarations.	-	-
GDG7 240915	No further declarations.	-	-
GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	Did not attend.	-	-
GDG19 070916	No further declarations.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG 26 270217	No further declarations.	-	-

Richard Day

Date	Item declared	Classification	Action taken
Initial declaration (October 2015) joined at GDG8	1. Consultant Physician (geriatrics), Poole Hospital NHSFT (part-time, remunerated) 2. Secondary care doctor, Southampton City CCG (remunerated) 3. Medical Director Care South Charity No. 1014697, providing residential care South of England (not remunerated)	-	None.
GDG8 291015	No further declarations.	-	-
GDG9 191115	No further declarations.	-	-
GDG10 091215	No further declarations.	-	-
GDG11 210116	No further declarations.	-	-
GDG12 250216	No further declarations.	-	-
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	Did not attend.	-	-
GDG17 270716	Did not attend.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	No further declarations.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	Did not attend.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	Did not attend.	-	-
GDG25 081216	No further declarations.	-	-

Date	Item declared	Classification	Action taken
GDG 26 270217	No further declarations.	-	-

Debra Quantrill

Date	Item declared	Classification	Action taken
Initial declaration (March 2016) joined at GDG13	Shares held in Futura Medical plc – pharmaceutical group that develops products for the consumer healthcare market. www.futuramedical.com	-	None.
GDG13 240316	No further declarations.	-	-
GDG14 180416	No further declarations.	-	-
GDG15 250516	No further declarations.	-	-
GDG16 290616	No further declarations.	-	-
GDG17 270716	No further declarations.	-	-
GDG18 060916	No further declarations.	-	-
GDG19 070916	No further declarations.	-	-
GDG20 101016	No further declarations.	-	-
GDG21 111016	No further declarations.	-	-
GDG22 091116	No further declarations.	-	-
GDG23 101116	No further declarations.	-	-
GDG24 071216	No further declarations.	-	-
GDG25 081216	No further declarations.	-	-
GDG 26 270217	No further declarations.	-	-

Topic specific experts

Jonathan Bennet

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	Respiratory Consultant UHL NHS Trust Member British Thoracic Society	Personal non-pecuniary non-specific	None

Ekaterini Boleti

Date	Item declared	Classification	Action taken
Initial declaration (February 2015)	Travel expenses to attend American society of Clinical Oncology (May 2014) Lecture honoraria related to my work as a specialist in lung and renal cancer (November 2014, January 2015). No conflicts of interest relating to my work in Acute Oncology	Personal pecuniary non-specific Personal pecuniary non-specific	Declare and participate Declare and participate

Rosalind Bracegirdle

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	None		None

Stephen D'Souza

Date	Item declared	Classification	Action taken
Initial declaration (January 2015)	None.		None

James Head

Date	Item declared	Classification	Action taken
Initial declaration	None		None

Date	Item declared	Classification	Action taken
(February 2015)			

Clare Kendall

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	None		None
GDG 2	No further declarations.		

Sarah Quinton

Date	Item declared	Classification	Action taken
Initial declaration (February 2015)	Current chair of National Outreach Forum	Personal non-pecuniary	None

Paul Schmidt

Date	Item declared	Classification	Action taken
Initial declaration (November 2014)	I have served as an unpaid clinical advisor to The Learning Clinic, developer of VitalPAC since 2005 to the present. I have a very small minority shareholding in the company. I have in the past had a few speaking engagements at conferences behalf of The Learning Clinic, but only received reimbursement of travel and subsistence expenses. Portsmouth Hospitals NHS Trust, my employer, had a collaborative agreement with The Learning Clinic until March 2014 to develop VitalPAC. I do not think there is any aspect of the envisaged work of the proposed NICE guideline development group that directly relates to the areas of patient safety work, namely patient deterioration in hospital and other clinical quality improvement initiatives, that was the focus of the collaboration with The Learning Clinic. http://www.thelearningclinic.co.uk/how-vitalpac-works.html	Personal pecuniary specific	To withdraw from relevant discussions if attending meetings.

Katie van der Tuijn

Date	Item declared	Classification	Action taken
Initial declaration	None		None

NCGC team

Date	Item declared	Classification	Action taken
Initial declaration (January 2015)	David Wonderling health economic modeling work considering early supportive discharge in patients with stroke.	Personal non-pecuniary specific	Declare and participate

Appendix C: Research recommendations

C.1 Clinical call handlers

Research question: What is the most clinically and cost-effective use of clinical call handlers in a telephone advisory service in terms of i) ratio of clinical to non-clinical call handlers and ii) point of access to clinical call handlers in a telephone advisory service pathway?

Why this is important:

Clinical call handlers already support the providers of telephone advice, albeit the ratio of clinical to non-clinical responders and the point at which clinical responders are accessed in the pathway varies. The current ratio for clinical to non-clinical call handlers within NHS 111 varies between aspirational targets of 1:4 in some regions and a much lower level in others due to varying standard operation procedures and challenges in recruitment. Research is important to determine what way clinical call handler input can be maximised. Therefore the research is focused on informing the configuration of a telephone service with respect to the proportion of clinical call handlers and at what point in the service they should be accessed.

Criteria for selecting high-priority research recommendations

PICO question	**Population**: Adults and young people (16 years and over) with a suspected or confirmed AME. **Intervention**: Service using clinical call handlers alongside non-clinical call handlers in a telephone advice service for non-immediately life-threatening conditions. **Comparison:** Compare services with different ratios of clinical and non-clinical call handlers and/or different standard operating procedures. **Outcomes**: • Mortality • Adverse events • Quality of life • Patient / carer satisfaction • Ambulance dispatches • Referrals (numbers and appropriateness) to ED, GP and walk in centres, minor injury units • Overall presentation (numbers and appropriateness) to ED, GP and walk in centres, minor injury units • NHS costs and cost effectiveness
Importance to patients or the population	The proportion of clinical call handlers in NHS 111 is lower than the preceding telephone service (NHS Direct). It was recognised that NHS 111 is a sign-posting service rather than a clinical advisory service. The sign posting service facilitates access to further NHS services. Early access to a clinical call handler may result in more appropriate alternative dispositions for some patients other than calling 999 ambulance and/or advising ED attendance. It may be reasonable to have a mixture of clinical and non-clinical call handlers from a patient perspective, and to have the possibility of speaking to a clinician if

	needs are particularly complex.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendation in the guidance
Relevance to the NHS	Early access to a clinical call handler may result in more appropriate alternative dispositions for some patients other than calling 999 ambulance and/or advising ED attendance. This could reduce pressure on emergency departments and promote safer patient flow through other NHS services.
National priorities	• 4 hour ED waiting time targets • High call transfer rate to ambulance service from NHS111 creating additional demand • NHS Urgent and Emergency Care Review
Current evidence base	The evidence found is described in Chapter 2. The quality of the evidence was graded from low to very low; this was mainly due to the study type (observational), risk of bias, imprecision and indirectness. The evidence was downgraded for indirectness as the studies did not focus on directly comparing clinical call handlers with non-clinical call handlers. Evidence for transferring non-urgent 911 calls to a telephone consulting nurse (clinical call handler) compared with a 911 call dispatcher (non-clinical call handler) in the USA was considered to have limited applicability to the UK, as the processes are potentially significantly different. Evidence comparing nurse or paramedic assessment with computer decision support (clinical call handlers) with usual ambulance response (non-clinical call handlers) has limited applicability, as there have been significant changes in ambulance and emergency care services since the study was conducted. The majority of the evidence evaluated the effectiveness of clinical call handlers for low acuity calls (i.e. calls for non-serious problems), and thus could not necessarily be generalised to all types of calls. No evidence was identified for the outcomes mortality, quality of life (both critical outcomes), adverse events and referrals to ED, GP and walk in centres, minor injury units.
Equality	Equality issues that should be considered: • Access to a phone • Visually and hearing impaired patients • Language barriers
Study design	The current variation in standard operating procedures and ratios of clinical to non-clinical call handlers between existing services could form the basis of such research using the methodology of a natural experiment. A cluster randomised trial could also be considered. This may be relevant for the Health Services and Delivery Research (HS&DR) work stream of NIHR.
Feasibility	111 services are businesses that contract their service to NHS – practicalities of doing research in this setting may be challenging.
Other comments	The type and seniority of the clinician should be considered as some specialities may be more risk averse than others (e.g. paramedics may be more risk averse than nurses). Further research may also need to take into account developments in web-based communication and artificial intelligence as alternatives to the current construct of human respondents using clinical algorithms.
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.2 Paramedic remote support

Research question: Are paramedic remote decision support technologies clinically and cost-effective?

Why this is important:

Paramedics and other ambulance clinicians are well trained but are expected to manage a broad range of conditions in the out-of-hospital environment. In the UK, paramedics operate as autonomous practitioners, whereas in some countries on-line support and advice is an established component of emergency medical systems. There are different types of remote support technologies that could be used by paramedics. Mobile communication technologies have now advanced to a stage where real-time access to clinical advice remotely from the scene of an incident is now a possibility for UK ambulance services.

The forms which remote decision-support might take include diagnostic expertise, authorisation for clinical interventions beyond the existing scope of practice, or priorities and organisational issues. Examples of this could include remote interpretation of an electrocardiograph to facilitate direct access to a specialist cardiology centre, administration of a particular therapy, and triage to an Emergency Department or continued care in the community. It is the combination of advanced communication and information technologies with remote expert advice that constitutes the intervention.

Given the uncertainty regarding this issue in UK ambulance services and lack of available evidence, the guideline committee recommended research to determine if immediate access to senior decision makers by ambulance staff could improve outcomes and utilisation of NHS resources.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) with a suspected AME **Intervention(s):** Remote clinical decision support for paramedics responding to patients with AMEs including: • Telephone consultations • Telemedicine systems e.g. remote or electronic transfer of images and data **Comparison(s):** Independent paramedic decision making: • Standard paramedics • Advanced paramedics with additional post registration training (e.g. paramedic practitioner, emergency care practitioner) **Outcomes:** • Number of patients seeking further contacts after initial assessment by paramedic (GP, 999, ED, 111) OR Re-contact rates within 72 hours • Health-related quality of life • Mortality • Conveyance (carriage) rates • Total avoidable adverse events as reported by the study • Patient satisfaction • Number of hospital admissions • Staff satisfaction • NHS costs and cost effectiveness • Consultation times • Time to disposition
Importance to patients	Directing patients to most appropriate location in the acute or emergency care

or the population	pathway will ensure that they receive timely and reliable treatment. It would also ensure efficient use of valuable resource. Remote clinical decision support for paramedics may facilitate this process. The committee noted that this may also reduce inappropriate ED attendances and provide additional assurance to patients that they were receiving best practice care. This is potentially a significant issue to both individual patients and the wider NHS given the large number of patients that are accessing emergency services and due to the changing demographics of the UK population this is certain to increase.
Relevance to NICE guidance	Medium: the research is relevant to the recommendations in the guidance, but the research recommendations are not essential to future updates.
Relevance to the NHS	The committee considered that this would have an impact on demand and capacity management issues both out-of-hospital, within the emergency department and the entire hospital by a 'knock-on effect'. Enhanced remote support for paramedics could reduce the number of patients arriving at the ED and subsequently improve hospital occupancy and the 4-hour ED transit times. However, the committee noted that any added time to get a consultation remotely could have a negative impact on ambulance response times. Also the requirement of providing immediately responsive expert remote support would have a cost implication to the NHS which may or may not be offset by the advantages of appropriate patient disposition. The value added benefit of this service which is not always directly observable (e.g. patient satisfaction) should be considered when assessing the cost effectiveness of the service.
National priorities	The following national priority areas were identified: • ED 4 hour waiting time • 8 minute ambulance response times standards • National urgent and emergency care review
Current evidence base	No evidence was identified which directly answered the question (i.e. the effectiveness of remote assistance for a range of clinical presentations for paramedics in the pre-hospital setting in order, for example, to avoid hospital admission). Evidence was identified in various settings which were not thought representative of the index population and/or for which clear pathways are already in existence (e.g. ST-elevation myocardial infarction, trauma, hyper acute stroke) In addition, no evidence was identified which was relevant to the UK clinical context. Emergency care systems in several developed countries employ doctors or private companies to provide pre-hospital care and are not directly comparable to the UK setting.
Equality	The committee noted that electronic communications may be less reliable in rural areas and these populations could be disadvantaged (for example poor mobile phone network coverage). There are potential cultural and language barriers which could be considered with this technology.
Study design	Given the variation in service provision, the evaluation of a new or an enhanced remote support service would need to characterise how the new service differed from the current comparator service, and should employ a research design which allowed the separation of potential intervention effects from secular trends. A cluster randomised controlled trial would be the most pragmatic approach. The randomisation could be based on individual paramedic stations within a single service with appropriate access to technologies.
Feasibility	The committee noted that pre hospital research is always difficult but using a cluster design is a pragmatic compromise compared with the gold standard

	which would be patient level randomisation. The research requirement for immediate and reliable access to senior advice will have cost, staffing, resource and legal implications for funders.
Other comments	There are already various systems in place to allow paramedics to access support. However, the way this is achieved varies across the country. This support varies internationally, for example in the USA paramedics function as an extension of the medical director's license and have online and off line medical control, where certain situations are dealt with without seeking advice while others require support. Guidance is typically for immediate treatment decisions at the scene and not long-term conveyance decisions, whereas in the UK paramedics have independent professional registration. The legal framework of practice would need to be considered in any research proposal. Remote support technology varies from simple systems (e.g. transmitting ECGs by fax) to using webcams and transmitting data or images directly to a remote centre with real-time access, interpretation and advice to those on the scene. Military expertise should be sought where appropriate. Some technologies involving image transmission may have confidentiality issues that need to be addressed. Ideas are currently being explored using technologies for transmission of video via mobile phone applications in the out-of-hospital clinical setting to support decision-making. The legal responsibility for clinical decision-making (remote supporter or on-site paramedic) would need to be clarified.
Importance	• Medium: the research is relevant to the recommendations in the guideline, but the research recommendations are not key to future updates.

C.3 GP extended hours

Research question: Is extended access to GP services, for example during early mornings, evenings and weekends, more clinically and cost effective than standard access?

Why this is important:

Continuity of care is important for patient experience and clinical decision-making. General Practitioners' knowledge of patients enhances trust and promotes patient-centred decisions especially when dealing with complex conditions. Currently, outside of core GP hours (Monday to Friday, 08:00 – 18:30), patients who require urgent primary care are triaged and treated by an 'Out of Hours' GP provider and will usually be seen by a primary care clinician who is not familiar with them or their history and will have variable access to their clinical notes. Extended weekday and weekend access to a patient's usual primary care team may reduce the unscheduled use of secondary care emergency services and increase opportunities for preventing chronic disease from deteriorating to the point of requiring emergency hospital admission. There is also likely to be less movement to secondary care if there is greater access to usual primary care as the location of the surgeries is often more convenient for patients than out of hours centres which are often further away from where patients live. Many 'extended access' schemes currently in operation for general practice are for pre-booked appointments only, rather than for emergencies and the focus of this research recommendation is on extending opening hours of practices for the full spectrum of their clinical work.

Criteria for selecting high-priority research recommendations

PICO question	Is extended access to appointments at the usual GP surgery more

	clinically and cost effective than standard access? **Population**: Adults and young people (16 years and over) with a suspected or confirmed AME or at risk of an AME **Intervention(s):** GP access • GP surgery extended access for consultations to include same day requests for care for acute problems (early mornings, evenings, 7-day) with an out of hours provider responsible for care when the practice is closed. **Comparison**: GP, other primary care • Standard hours as defined in the study with an out of hours provider responsible for care when the practice is closed **Outcome(s):** Mortality Quality of life Avoidable adverse events Patient/carer satisfaction ED attendance Attendance to other health services NHS costs and cost effectiveness
Importance to patients or the population	Extended access to appointments with the usual primary care team would be important to patients as they are likely to have more confidence in their usual clinical team who know them and their condition well and will have full access to their primary care record. This may be particularly important for complex patients in the planning of their care, as knowledge of a patient's social situation is important for arranging appropriate care. If patients are able to speak with a health care professional who is familiar to them, they are more likely to call for advice rather than calling for an ambulance. The working population would also benefit from improved access through more flexible hours.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendations in the guidance. If it is found to be clinically and cost effective it could reduce number of patients presenting at emergency departments.
Relevance to the NHS	Extending GP access would involve additional resource implementation in primary care. However, extended access to GP appointments may prevent presentation to the ED, reduce pressure on acute hospitals and improve outcomes.
National priorities	The committee noted that health policy was already evolving in this area in relation to 7day working.
Current evidence base	The evidence found is described in Chapter 5. Evidence for total ED visits from one non-randomised study was graded low due to risk of bias. No economic evidence was identified.
Equality	This research would address equality issues for the working population, who may find it more difficult to access their GP during working hours. Although this may not be a protected category, it could indirectly address equality issues around age.
Study design	A cluster randomised trial would be ideal but other comparative methods

	may be suitable.
Feasibility	This research could be expensive to carry out as GPs would have to be paid for extra work. There is a scale issue as it may not be feasible in a small practice, but it may be feasible on a bigger scale (for example, hubs). There would have to be enough patient calls during extended hours to make it cost effective.
Other comments	The committee noted that research should examine a model of extended access which includes same day, emergency access to appointments, rather than the provision of additional routine pre-booked appointments. The question has to be interpreted as extended access to usual GP rather than out-of-hours GP services.
Importance	High: the research is essential to inform future updates of key recommendations in the guideline.

C.4 Primary care led home visits

Research question: Which primary care-led models of assessment of people with a suspected medical emergency in the community, such as GP home visits, are most clinically and cost-effective?

Why this is important:

The committee felt that the provision of unplanned/emergency primary care led home visits was current practice and that anecdotally, this may reduce unplanned hospital admissions for a subgroup of suspected or confirmed acute medical emergencies, when provided with appropriate diagnostic back up.

There may be additional benefits in the patients own GP attending in that they may have access to patient records and history and they may know the patient well. Visiting the patient also allows for a discussion of options and shared decision making regarding next steps. This may be particularly useful with patients who have complex care needs. Although primary care led home visits are well established in current practice there are different models of providing this service which need to be evaluated.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) presenting with a suspected or confirmed AME **Interventions:** 1. GP visiting at home (stand-alone) 2. GP co-operative looking after a region 3. Primary-care led integrated service (multidisciplinary with specialist component, social care incorporated) **Comparison:** Usual local practice **Outcome(s):** • Mortality • Avoidable adverse events (e.g., incorrect diagnosis, delay in diagnosis, delay in treatment or investigations) • Quality of life • ED attendance (consider admissions as a proxy in absence of ED attendance) • Patient satisfaction • Carer satisfaction

	• Attendance at other health services • Costs and cost effectiveness • QALYs
Importance to patients or the population	The Committee felt that the provision of unplanned/emergency primary care led home visits was current practice and that anecdotally, this may reduce unplanned hospital admissions for a subgroup of suspected or confirmed acute medical emergencies, when provided with appropriate diagnostic back up. There may be additional benefits in the patients own GP attending in that they may have access to patient records and history and they may know the patient well. Visiting the patient also allows for a discussion of options and shared decision making regarding next steps. This may be particularly useful with patients who have complex care needs.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendations in the guidance.
Relevance to the NHS	The Committee felt that the role of primary care within the community was increasing and therefore, any further research should focus upon different models for providing home visits: primary care visits, hospital- led integrated service and a primary care integrated service. Currently, it is routine practice for home visits to be made by a clinician from the primary care team (which will most often be the GP but can include an extended nurse practitioner) for patients who are unable to get to the surgery (including immobile and frail patients). The committee noted that anecdotally, an out of hours visit would be undertaken by the Out of Hours GP provider, which would be either a nurse practitioner or out of hours GP, involving a driver (for safety). The committee felt that the extra staff, as well as other travel costs, would translate to GP home visits having a greater resource use. The committee also felt that primary care led home visits would save on some costs by preventing unnecessary ED visits. However, no published evidence was available to support this.
National priorities	As one of the models of care from the 'Five year forward review'[15] it would be important to evaluate.
Current evidence base	No evidence was identified which compared primary care led home visits for a suspected uncharacterised acute medical emergency with no primary care led home visits
Equality	The research recommendation addresses the equality gaps of people who are home bound and have limited access to health care services in the community.
Study design	The committee identified the following study designs: step-wedged randomised controlled trial, a well conducted prospective cohort study and cost-utility analysis.
Feasibility	No known feasibility issues.
Other comments	The intervention primary –care led integrated service was also included in the integrated care evidence review.
Importance	High: the research is essential to inform future updates of key recommendations in the guideline.

C.5 GP access to radiology

Research question: What is the clinical and cost effectiveness of providing GPs with access to plain-film radiology or ultrasound with same day results?

Why this is important:

Implementation of same day radiology results to a GP might reduce the burden on the emergency department by allowing a proportion of patients to be managed in the community. It could be particularly beneficial to patient groups requiring rule-out tests, such as those with a chronic disease or the frail elderly, for whom an admission to hospital might be the alternative if this service were not in place.

Criteria for selecting high-priority research recommendations

PICO question	Population: Adults and young people (16 years and over) with a suspected or confirmed AME or at risk of an AME Intervention(s): GP access to plain film radiological or ultrasound investigations with same day results during: • Standard services (9-5 on weekdays) • Weekdays (out of hours) • Weekends Comparison: GP access to plain film radiology or ultrasound without same day results Outcome(s): • Mortality • Avoidable adverse events (including delay in diagnosis and treatment, misdiagnosis) • Quality of life • Patient and/or carer satisfaction • Lab/ diagnostic turn around for result to GP • ED attendance • Admissions • NHS cost and cost effectiveness
Importance to patients or the population	The Committee noted that, although this would not be current practice across the country, there was the potential for improvement in patient care and outcomes from the availability of same day radiology for a specific subset of patients and further research would be needed to evaluate this. In particular this would include patients about whom the GP was concerned but who might be better managed without admission to hospital, such as those with a known chronic disease or the frail-elderly requiring a rule-out diagnostic test.
Relevance to NICE guidance	Medium: The research is relevant to the recommendations in the guidance, but the research recommendations are not essential to future updates. NICE Diagnostic Services guideline is currently in development.
Relevance to the NHS	The committee hypothesised that enhanced access to same-day and reporting of plain film radiology and ultrasound might lead to a decrease in ED admissions and therefore reduce overall costs to the service. It also may lead to earlier diagnosis which may be translated to earlier treatment and better outcomes, including patient satisfaction. However, the committee noted that this service might be relevant to only a small or specific group of patients. The committee also noted that there were likely to be logistical and manpower difficulties in the provision of same day radiology and ultrasound results, and that it is possible that there will be an impact on the utilisation of out-of-hours GP services from

	same-day results late in the day. It is also recognised that where same day results were not possible, reporting of images directly, particularly ultrasound may be outside the expertise of individual GPs. One option would be for GPs who wished to develop a surgery-based service to acquire the skills to do so; however, maintaining such skills might be difficult. A GP-based ultrasound service would probably focus primarily on ruling-out a limited number of conditions and would not replace the need for a secondary care-based ultrasound service, but could perhaps reduce or streamline their workload.
National priorities	The committee identified the following priorities: • 7 day services review. • NHS services - open seven days a week: every day counts • NHS Five Year Forward View October 2014 (including care close to the home)
Current evidence base	No evidence was identified which compared same-day GP access to diagnostic radiology or ultrasound results compared to not receiving results same-day.
Equality	The committee noted that the potential benefit of same day plain film radiology and same day reporting would likely be limited in people with mobility problems, including those with disabilities and frail elderly patients, as they may encounter difficulties in travelling unaided to a radiology department at short notice. This difficulty may be further exacerbated for people living in rural areas, where further travel to a radiology department is required compared to urban areas. The ability to use ultrasound could overcome some of these inequalities in a limited number of instances. Ultrasound has been used to diagnose an increasing proportion of acute medical conditions such as pneumonia, pleural effusions and pulmonary oedema and newer machines are becoming more portable without losing image quality.
Study design	The ideal study design would be a cluster randomised controlled trial. However this is unlikely to be possible and the committee accepts that pragmatic study designs such as step-wedge design or prospective and retrospective cohort studies may be more feasible.
Feasibility	Evaluation of the research recommendation may require additional staff, in order to mitigate the possible staffing and logistical challenges in conducting same day plain film radiology with same day results. In addition, research in this area is likely to be more feasible in an urban area where radiology departments and GPs are more numerous and closer geographically.
Other comments	The committee noted that the utility of ultrasonographic diagnosis in primary care might be limited to a relative narrow range of indications, for example pleural effusion or pneumonia. However, the rapid increase in the use of clinical ultrasonography by non-radiologists suggests that it could have potential in primary care settings. Studies looking at open access to neuroimaging by GPs have demonstrated good diagnostic yield and influences the management of most patients in a similar way to hospital specialists.[5,19] Two studies investigating the impact of open access to CT for patients with headache reported significant abnormalities in the order of 1.4% and 2.4% which is in line with recommended risk levels for investigating headache in primary care.[2,18] Studies which have reported on the impact on secondary care referrals when GPs have access to investigations have shown a reduction in secondary care referrals.[1,7]
Importance	• Medium: the research is relevant to the recommendations in the guideline, but the research recommendations are not key to future updates. Also there are many pressing issues with regards to primary care which may take precedence over this subject.

C.6 Community nursing access

Research question: What is the clinical and cost effectiveness of providing extended access to community nursing, for example during evenings and weekends?

Why this is important:

Standard access to community nursing/district nursing is available Monday to Friday, with extended access during weekends, for greater/more urgent needs. In the event of an urgent care requirement during the evenings and weekends, there is an out of hours telephone number to call.

The Committee considered how providing extended access to community nursing/district nursing would change current practice. Standard access to community nursing/district nursing is variable across the UK; therefore, the impact of implementation would differ according to region.

Criteria for selecting high-priority research recommendations

PICO question	**Population**: Adults and young people (16 years and over) with a suspected or confirmed AME **Intervention(s):** Extended access to community nursing (evenings and weekends) – equal level of staffing as weekdays from 8-6.30pm 7 days a week **Comparison**: Standard access (weekdays 9-5pm) to community nursing **Outcome(s):** Mortality Avoidable adverse events Quality of life Patient and carer satisfaction Presentation to ED Length of stay Unplanned hospital admission Delayed discharge Staff satisfaction NHS cost and cost effectiveness
Importance to patients or the population	Standard access to community nursing/district nursing is available Monday to Friday, with extended access during weekends, for greater/more urgent needs. In the event of an urgent care requirement during the evenings and weekends, there is an out of hours telephone number to call. AMEs do not occur at 9-5pm, they can occur at any time throughout the whole 24 hours of a day. Limited or reduced access to community nursing may result in increased hospital admissions and also reduced number of discharges due to the lack of the community nursing support. This will have a detrimental impact to the healthcare service but more importantly it could have a negative impact on the patients' well-being. Enhanced access would mean that patients could be seen by their regular district nurse in response to their clinical needs as opposed to the skeleton service which operates at weekends for only the highest priority patients. This may lead to: • Earlier detection and initiation of treatment of infection/sepsis from surgical wound infection, cellulitis from leg ulcer, UTI from catheter, infection from ulcers and complications from PEG feeding • better access to palliative care symptom control • the potential for earlier discharge following AME, as in reality patients

	can wait for Monday for the district nurse to take over care.
Relevance to NICE guidance	Medium: the research is relevant to the recommendations in the guidance, both the research recommendations are not essential to future updates
Relevance to the NHS	The Committee noted that the provision of extended access to community nursing/district nursing may prevent presentation to the ED in certain populations (for example, palliative care), who are likely to have urgent care needs which can be appropriately managed by a community/district nurse. Extended access may facilitate earlier discharge from hospital. It was also considered that the provision of extended access to community nursing/district nursing would be unlikely to prevent presentation to the ED among other populations (for example, those with chest pain). However, the economic implications may be significant as community nurses are a large workforce and weekend enhancements are expensive. The committee considered the complex range of care delivered by community nurses to chronically ill patients, who are at risk of an AME, and whether enhanced access could prevent ED presentation and admission. Moreover, the GDG noted the potential cost saving this could provide for the service.
National priorities	The NHS Five Year Forward View[15] – see Chapter 3, box 3.1, bullet point 4 that states: Expand as fast as possible the number of GPs in training while training more community nurses and other primary care staff. Increase investment in new roles, and in returner and retention schemes and ensure that current rules are not inflexibly putting off potential returners.
Current evidence base	No evidence was identified for this question.
Equality	Frail elderly, immigrants, those with less of a social network to support them are more likely to need extended working as they may not have access to other support.
Study design	Observational studies; possibly step-wedge studies.
Feasibility	There is variability across UK currently, which could affect the feasibility of the trial.
Other comments	None.
Importance	• Medium: the research is relevant to the recommendations in the guideline, but the research recommendations are not key to future updates.

C.7 Social care extended access

Research question: What is the clinical and cost effectiveness of providing extended access to social care services, for example during early mornings and evenings, and 7 days a week?

Why this is important:

Access to social care is widely accepted as essential for maintaining independence and quality of life in the community for dependent people who might otherwise require hospital admission, and for promoting timely discharge of hospitalised but dependent patients back to the community.

At weekends it is usually difficult to access and coordinate multi-disciplinary planning between hospitals and community health services; the lack of access to social care results in potentially avoidable hospital admissions and readmissions. Some areas have access to a range of community care services, others very little. These

local and regional variations may lend themselves to research evaluation provided the care processes and the populations being served can be adequately characterised. The gap between weekday and weekend provision requires particular attention, including the impact on hospital services and the 'weekend effect'.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) with a suspected or confirmed AME **Intervention(s**): social care access: • Extended access to social care/social worker (early mornings, eventing, 7-day) • Urgent /emergency access (duty social worker, same day working) **Comparison:** Standard hours of social care access **Outcome(s):** Mortality Avoidable adverse events Quality of life Patient and/or carer satisfaction Length of hospital stay Admission avoidance Readmission NHS cost and cost effectiveness
Importance to patients or the population	The committee were of the opinion that extended access to the whole package of social care was an important component in maintaining patients in the community, avoiding hospital admission and facilitating timely discharge of dependent patients from hospital. This should consequently promote flow of patients through the hospital system. It is important to consider extended access to social care in terms of its direct and indirect potential to promote patient centred care.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendation in the guidance
Relevance to the NHS	Currently the NHS experiences problems with patient flow through hospitals. It can take a long time to discharge some patients with social care needs. Extended access to social care may help speed up the discharge of some of these patients and improve patient flow.
National priorities	With the direction towards 7 day health care provision, it was felt that a corresponding move towards good accessibility to Social care assessments and discharge planning would help the health care system to operate more efficiently. Momentum to deliver integrated, person-centred care is building. Initiatives such as the new care models vanguards, the Better Care Fund and the development of Sustainability and Transformation Plans (STPs) are all factors set out in the Five Year Forward View to take the health and social care sector forward. The Five Year Forward View sets out plans to develop new care models to improve patient care in a way which is more integrated across the NHS. The vanguards are one of the first steps towards delivering the vision through improvement and integration of services.
Current evidence base	No evidence was identified.
Equality	Special consideration should be given to: • Populations that are excluded from health services i.e. recently immigrated • Language

	• Mental health issues • Homelessness • Blind/hearing difficulties
Study design	The committee considered that this could be primary or secondary research; including before and after studies or cluster randomised trials. Research evaluation will need to take into account the diverse range of interventions which constitute 'social care', the processes and behaviours involved in delivering each intervention, and the interplay between interventions in terms of outcomes. Contextual factors include the current disposition of health services, seasonal effects, and population affluence, health and dependency. Quantitative measures taken from existing NHS data sources will need to be supplemented by qualitative analysis of patients and staff experience.
Feasibility	This research should be feasible especially as practice varies round the country and there is potential to compare models or perform a before and after study on introduction of a new service.
Other comments	None
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.8 ED opening hours

Research question: What is the clinical and cost effectiveness of limiting emergency department opening hours, and what effect does this have on local healthcare provision and outcomes for people with medical emergencies?

Why this is important:

Emergency Departments in the NHS are experiencing increasing difficulties in ensuring adequate staffing to respond to an increasing workload but also an increased intensity of work. At the same time there are often concerns expressed by local communities if there is a perception that the local Emergency Department will not be sustained either because of reduced access hours or by complete closure of the department. One of the major anxieties expressed is that the community that loses a local ED will suffer poorer outcomes when they are suffering an acute medical illness. The balance of clinical and cost effectiveness has to be adequately determined so that communities can be reassured that clinical outcomes will be appropriately sustained.

Criteria for selecting high-priority research recommendations

PICO question	**Population**: Unselected populations of adults and young people (16 years and over) presenting to the ED **Intervention(s):** • Restricted access with or without pre-planned diversion to other services • Closure of an ED **Comparison:** 24 hour access to local ED **Outcome(s):** • Mortality • Avoidable adverse events • Quality of life

	• Patient and/or carer satisfaction • Ambulance transfer times • Number of ED presentations • Impact on other services (number of admissions to other hospitals) • NHS costs and cost effectiveness
Importance to patients or the population	This is a very important and emotive issue for patients which could lead to worry and anxiety if they are not close to an ED. People could perceive themselves as being disadvantaged if there is no ED close by, which could be amplified in rural areas. Although some isolated areas will already have these issues. In addition, patients are aware that the ED is a portal to specialised care. The time taken to get to an ED is significant and it is recognised that there is a 'golden hour' when in certain acute conditions having intervention in the first hour is likely to be most effective (e.g. MI, stroke, severe sepsis). Evidence would need to demonstrate that if there was restricted access to ED then patient outcomes would not worsen and that health care utilisation would be reduced in order for a policy of ED to be adopted.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendation in the guidance
Relevance to the NHS	Rising demand for emergency care comes at a time when EDs are facing a staffing shortage. It has been reported that EDs are understaffed, whilst this is in part caused by rising demand, there are also problems in recruiting staff to departments due to increased pressure of workload, and work intensity. Significant staffing shortages coupled with rising demand may have implications for the safety of patients. One solution to this may be to close some of the EDs, concentrating care in larger EDs. In recent years a small number of EDs in England have closed for all or part of the day, usually for reasons of safety, sustainability of affordability. To have a fully functioning ED that receives all types of patients it is important that there is comprehensive support from specialties such paediatrics, medicine, surgery and critical care. Many hospital services are being reconfigured such that they do not all provide this level of specialty care as there has been a drive to concentrate care, such that high volume improves performance. As a result of these reconfigurations there are concerns about whether some EDs are no longer viable. It is reported that there are more than 20 further EDs that are being considered for closure. Currently, there is no robust evidence to support this decision making.[9]
National priorities	Relevant national priorities: • 4 hour ED transit time • Transforming urgent and emergency care services in England. Urgent and emergency Care Review: http://www.nhs.uk/NHSEngland/keogh-review/Documents/UECR.Ph1Report.FV.pdf
Current evidence base	**[What are the problems with the current evidence base? (that is, why is further research required?) Reference should be made to the section of the full guideline that describes the current evidence base, including details of trials and systematic reviews.]** The evidence found is described in Chapter 16. Evidence evaluating the impact of reducing ED hours in one hospital did not take into account any overall impact on services. Evidence from the USA may have limited applicability to the UK. The evidence was graded at very low quality due to study design, the majority was downgraded for risk of bias and indirectness as the evidence was combined for ED restriction, ED closure, and full hospital closure. No evidence was identified on avoidable adverse events, quality of life, patient/carer satisfaction, and ambulance transfer times.

	The committee considered the evidence mixed and were unclear about its applicability to the UK system. In addition, they were aware of a protocol for a study that was currently being conducted within the UK. It is a large NIHR funded controlled interrupted time series study which aims to analyse both ED closure and restriction in ED hours. Furthermore, this study includes both healthcare utilisation outcome and patient safety outcomes and would be directly applicable to the UK population.
Equality	Low socioeconomic groups and those with physical disabilities have a greater usage of EDs. Moving EDs further away from these populations due to closure could adversely affect their health (for example care ownership and access to transport). Also patients with mental health issues often used EDs as a first port of call when there is an acute deterioration in their condition due to a lack of community infrastructure. Therefore, ED closures may adversely affect them. Other relevant equality considerations are mobility issues, age related issues, availability of ambulance services and the geographical rural/urban divide (see above).
Study design	The study design would need to be opportunistic but with clearly defined metrics associated. A controlled interrupted time series study design has been selected for the NIHR study that is currently investigating this research question.
Feasibility	Currently the reconfiguration of EDs will include closures therefore the study can proceed in the form of a natural experiment.
Other comments	There is a NIHR study titled: Impact of closing Emergency Departments in England (closED) that is on-going and due to publish April 2017 (protocol: http://www.nets.nihr.ac.uk/__data/assets/pdf_file/0013/133033/PRO-13-10-42.pdf)
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.9 GP-ED

Research question: What is the clinical and cost effectiveness of having GPs within or adjoining emergency departments?

Why this is important:

One of the recommendations from a joint report from the Royal College of Emergency Medicine, Royal College of Paediatrics and Child Health, Royal College of Physicians, and Royal College of Surgeons, is that every emergency department should have a co-located primary care out-of-hours facility. It is the specific contribution of GPs to secondary care and the contribution to the wider urgent and emergency systems that are of interest. Around 11% of people who attend ED are discharged without requiring treatment, and a further 38% receive guidance or advice only.[16]

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) presenting to an emergency department with a suspected or confirmed acute medical emergency. **Intervention(s):** • GP service located alongside or next to the emergency department; • GPs working at the front of the department screening attendees and

	either treating or diverting to other places – effectively acting as a filter; • GP services fully integrated into a joint operation covering the whole range of primary care and emergency services **Comparison:** Patients seen by ED staff (including Consultants, Foundation, (Acute care Common Stem) ACCS or Middle grade trainee **Outcome(s):** Mortality Quality-of-life Patient satisfaction Time to admission/discharge (number meeting 4-hour target) (process measure) Avoidable adverse events (including misdiagnosis) Diagnostic investigations Readmission a Hospital admissions ED demand (reduction in number presenting to ED) Staff satisfaction NHS cost and cost effectiveness
Importance to patients or the population	People with primary care problems which they perceive to require emergency attention will often attend the ED, so diverting these patients to GP-delivered care is consistent with community practice. Two methods of streaming primary care patients to the on-site GP were identified. One was for patients to enter the ED and decide for themselves whether to see a GP or a member of ED staff. The other was for all patients to be triaged, although it was noted that there are some occasions where patients are triaged to primary care but on further investigation, turn out to have a more severe and urgent problem that is more appropriately managed by ED staff.
Relevance to NICE guidance	High: the research is essential to inform future updates of key recommendations in the guidance. High importance but shortage of GPs should be considered.
Relevance to the NHS	GPs may add value to EDs in a number of ways: through their knowledge of community-based services, their expertise in evaluating early-stage disease and managing uncertainty. Around 11% of people who attend ED are discharged without requiring treatment, and a further 38% receive guidance or advice only. GP-led units contiguous with EDs could help meet the ambition of 7-day services for extended-hours access to GPs. The committee noted that the presence of GPs in EDs could be economically and organisationally more efficient. However, the exact location of GP services needs to be considered. The drive to increase access to GP services (practices trialling Saturday and Sunday working) may negate the need for a presence in the ED. The predicted shortfall in GP numbers by the Royal College of General Practitioners (RCGP) by 2020 may also make it difficult to provide the manpower for both services, thus the appropriate use of resources is paramount. Therefore, there is a lack of evidence on the most appropriate target group of patients for these services, model of service organisation within the wider urgent and emergency care systems, and the budget cost to providers and to commissioners of placing GPs within or associated with EDs. There is also a body of opinion that this is not an effective use of GPs' time and skill, and that they are used more effectively in their communities.
National priorities	7-day NHS services 7-day access to GP Five year forward review' NHS England
Current evidence base	No evidence was found for co-located GP-led units.

	Evidence for GPs working within the ED was based on comparison was with ED junior doctors and thus may not be true of comparison with ED consultants. The committee noted a shift in standard practice since 1995/1996, when the studies were published. A greater proportion of care is now directed and delivered by consultants rather than trainees, so comparisons may differ. The evidence was considered to be of very low quality due to the study design (observational), risk of bias and indirectness of the study population and study outcome. There was no evidence available for mortality, quality of life, time to admission/discharge, avoidable adverse events, readmission and representation, hospital admissions, staff satisfaction, or ED demand. The evidence presented was based on patients who were defined by the studies as 'primary care' and so were not considered to have acute medical emergencies. Future research should focus on the impact on ED congestion and the indirect impact on care of patients in the ED who are not triaged to GP management, i.e. those with acute medical emergencies. The relevant comparison is not GP-treated patients versus ED-treated patients, but the impact of the presence of GPs on the care of non-GP-triaged patients, i.e.: those triaged to receive ED care following initial triage bifurcation. If GP-treated patients are compared to ED-treated patients, the comparison is confounded by the former group being those patients who should have been seen by general practice anyway (thus, different non-comparable patient populations), and the latter group by the removal of low-risk low-cost patients. Studies should also estimate whether GPs located in or adjoining EDs satisfy existing demand and reduce workload for EDs by selecting out those patients who should have sought GP care at the start, or whether they create new additional demand and also cause duplication of workload. The committee also emphasised the importance of the content of the intervention. GPs may be present in or next to the ED specifically for the management of primary care patients, or they may be present within the ED, contributing the benefits of GP expertise to all AME patients. As there is a finite number of GPs appropriate allocation of these resources (i.e. GP practices with extended and weekend opening or located in or co-located in the ED) to deliver best value is essential The committee were aware of other non-UK research. But agreed that more research within the UK health system is required. No economic evidence was identified from the economic evidence review for this question.
Equality	The committee noted that the potential benefit of the presence of GPs in ED would likely be limited in people with mobility problems, including those with disabilities and frail elderly patients, as they may encounter difficulties in travelling to an ED. This difficulty may be further exacerbated for people living in rural areas, where further travel to an ED is required compared to urban areas.
Study design	Preferably studies will be based on comparative evidence such as a cluster randomised controlled trial; however, challenging experimental design should also be considered such as evaluation during uncontrolled roll out of such services.
Feasibility	The Committee noted that conducting this evaluation could be expensive and difficult due to manpower and logistical challenges such as difficulty in releasing senior GPs to do the work, weekend working, out of hours working, and the need for GPs with a special interest in urgent care. In addition research in this area is likely to be more feasible in an urban area where EDs are closer

	geographically.
Other comments	[Any other important issues should be mentioned, such as potential funders or outcomes of previous attempts to address this issue or methodological problems. However, this is not a research protocol.] The committee was aware that the NIHR are funding studies in this area and hoped that these will inform an update to the guideline.
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline. This is in particular so because we only have a finite resource in term of number of GPs, therefore it is important to use this resource wisely for the whole healthcare economy.

C.10 MIU, UCC, WiC

Research question: Is a minor injury unit, urgent care or walk-in-centre clinically and cost effective i) as a standalone unit and ii) when located on the same site as a emergency department?

Why this is important: Minor Injuries Units, Walk-in centres and Urgent Care centres are all services that are not designed to treat patients with an acute medical emergency (AME). The important common features of these services for this guideline are that they provide walk-in access without the need for pre-registration, but they are not Emergency Departments with "Majors" or "Resuscitation" areas receiving acute medical emergencies. Their potential significance in the treatment of patients with an AME arises from reducing ED demand by treating patients who do not have an AME. It is also an important question to address whether AMEs are presenting to these units when they should have urgently gone to an ED and the causes and consequences of this.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) or unselected population presenting with a suspected or confirmed AME **Intervention(s):** Presence of minor injury units, urgent care centres or walk in centres as standalone units Presence of minor injury units, urgent care centres or walk in centres co-located within a full emergency department Absence of minor injury units, urgent care centres or walk in centres **Comparison:** All interventions compared to each other **Outcome(s):** • Avoidable adverse events (including redirection of care) • Quality of life • Patient/carer satisfaction • Waiting time in ED including 4 hour target breach • Mortality • ED avoidance • Impact on primary care • NHS costs and cost effectiveness
Importance to patients or the population	The committee noted that it was important for patients to understand what different centres offer and what is available. The committee agreed that there appears to be no specific definition for any of these units or centres. An NHS "walk in centre" is defined by Monitor as a site that provides routine and urgent primary care for minor ailments and injuries with no requirement for patients to pre-book an appointment or to be registered at the centre or with any GP

	practice. The Dudley Group NHS Foundation Trust defines an "urgent care centre" as a unit that offers non-emergency care for walk-in patients who have minor illnesses and injuries that need urgent attention. North Devon Healthcare Trust defines a "minor injuries unit" as a department largely staffed by emergency nurse practitioners (ENPs) working autonomously who look after minor injuries such as lacerations and fractures, and have access to X-ray facilities. NHS choices does not appear to differentiate between the 3 types of units or centres. The committee agreed that there was a need for better communication with patients regarding the different types of access to urgent care. Minor Injuries Units, Walk-in centres and Urgent Care centres are all services that are not designed to treat patients with an acute medical emergency (AME). Their potential significance in the treatment of patients with an AME arises from reducing ED demand by treating patients who do not have an AME. It is also an important question to address whether AMEs are presenting to these units when they should have urgently gone to an ED and the causes and consequences of this.
Relevance to NICE guidance	High - The research is essential to inform future updates of key recommendations in the guidance.
Relevance to the NHS	There has been expansion in the provision of these services due to demand but no analysis has been done on the cost effectiveness of the service. For example, increased access to walk-in centres may increase utilisation in x-rays for patients who would not have gone to ED. It is important to evaluate the real financial impact as these services are being set up. Walk-in centres are likely to be more risk averse compared to an ED. This would be likely to increase utilisation of diagnostic services. The committee noted that co-location of these units within an ED should allow for economies of scale in terms of sharing resources with the ED (i.e. flexing of staff to demand). However, co-location may not always be practical especially in rural areas. Additionally, a concern was expressed that the presence of these units might result in a supplier-induced demand i.e. more presentations by people who could have managed without professional intervention, or who could have attended their GP. The committee noted that there is variability in these services around the country. ED demand is increasing from both minor injuries and an increasingly elderly population (the elderly are more resource intensive, minor injuries are high volume). It is therefore important to evaluate a service which could avoid inappropriate ED presentation.
National priorities	• Vanguard sites • Access to ambulance services • 4 hour waiting time target • The NHS Urgent and emergency care Review (2013)
Current evidence base	**Clinical evidence** The evidence found is described in Chapter 18. No evidence was found for stand-alone minor injury units, stand-alone urgent care centres or co-located urgent care centres. Evidence evaluating stand-alone walk-in centres, co-located walk-in centres and co-located minor injury units came from studies with relatively short follow up periods, which the committee considered to be a significant limitation as it may not reflect long term effects. Future studies evaluating effects over longer time frames would offer the opportunity to account for secular trends and detect population effects.

	No evidence was identified for the critical outcomes of avoidable adverse events, quality of life, patient/carer satisfaction and mortality and there was heterogeneous evidence for ED avoidance. There is no clear definition of what staffing arrangement comprises a walk-in centre, a minor injuries unit or an urgent care centre. There is variability across different units and areas in terms of opening hours, staffing, resources and location (co-located or stand-alone). All of these factors have a significant impact on case mix. Based on the heterogeneity of the models used in the studies and the lack of consistent evidence, the committee agreed that more evidence is required to inform a recommendation. **Economic evidence** One comparative cost analysis was included which compared emergency departments before and after the introduction of co-located walk-in centres with matched control emergency departments. The study showed a modest cost saving in the mean cost per patient in the base-case analysis (£3), and therefore it might be cost-effective if outcomes are at least similar. However, the study did not give a clear description of the staffing models used in these walk-in centres. The follow-up in the study was short, with the cost analysis conducted for a period of 3 months; hence it may not have captured differences in down-stream costs. Together with the lack of a clear benefit for walk-in centres from the clinical evidence review, the GDG considered the evidence to support recommending wider implementation of co-located walk-in-centres to be weak. There was no economic evidence for either MIUs or UCCs, so the unit costs of visits to these centres from the NHS reference costs were also presented to the GDG. It was noted that in the NHS reference costs the weighted average unit cost of a MIU/UCC visit or walk-in-centre visit (£67 or £46) is less costly than an ED visit (£141). The GDG also discussed the current practice in the NHS and reflected that there is variation in how MIUs, UCCs and WiCs are run across the country, which makes it difficult to recommend a specific service configuration and staffing model. The GDG noted that co-location of these units within an ED should allow for economies of scale in terms of sharing resources with the ED (i.e. flexing of staff to demand), however, co-location may not always be practical especially in rural areas. Additionally, a concern was expressed that the presence of these units might result in a supplier-induced demand i.e. more presentations by people who could have managed without professional intervention, or who could have attended their GP. Overall, the GDG felt that the evidence available was insufficient to support a recommendation for wider implementation within the NHS, preferring instead to make a research recommendation to assess the clinical and cost-effectiveness of these models of care.
Equality	The committee agreed that geographical location, poverty, disability (difficulty in travel), religious issues, language, access (availability rather than physical service) to co-located services (e.g. consultant / tertiary expertise) and access for patients who can't go to primary care services (working people) were important equality issues to be considered. The committee noted that patients may be more likely to be exposed to wider breadth of staff in larger departments and smaller centres may not be able to offer full range of services.
Study design	Mixed method research would be ideal, with a qualitative component to address issues related to patient education, public expectations, and community context

	and support. A controlled interrupted time series (natural experiment) would be an appropriate study design for this research recommendation. Randomised controlled studies within the UK are likely to be unfeasible because these units are already established throughout the NHS. A prospective cohort study is possible but must take into account several contextual factors including location (inner-city, urban, and rural), opening times (24 hr versus restricted times), staffing composition and expertise, available resources, processes and overall service configuration in their analyses. Proximity to these units could be used as an instrumental variable to evaluate outcomes given the impossibility of randomising populations. Furthermore studies should include measurement of case mix as potential changes in case mix as a result of service reconfiguration could have significant economic implications. The shift of patients with minor conditions from EDs to these units, although reducing the pressure on the EDs could be associated with an artefactual increase in time in ED or admission rate due to the higher acuity of the residual ED case-mix. The committee thought that five years would be ideal time frame for a study and would offer the opportunity to account for secular trends and detect population effects. As well as ED demand, other outcomes should be patient-focussed and rooted in health economics evaluation. The potential impact on other services such as the ambulance service (particularly within rural areas) should be evaluated. Staff exposure to specific health problems within the ED may be reduced as a result of streaming particular groups of patients to specialist centres. Therefore, it would also be useful to assess the impact on staff training and potential staff de-skilling.
Feasibility	[Can the proposed research be carried out in a realistic timescale and at an acceptable cost? Are there any ethical or technical issues?] This is feasible but using data collected from centres already in existence or where a new centre is being established.
Other comments	Patients with long term conditions may prefer to be seen by healthcare professionals who are familiar with their health condition such as a nurse specialist or GP rather than be seen by a doctor in an urgent care centre. Patient groups have repeatedly confirmed that they want to access healthcare close to where they live.
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.11 7 day diagnostic radiology

Research question: What is the optimal configuration in terms of clinical and cost effectiveness of hospital diagnostic radiology services to support 7-day care of patients presenting with medical emergencies?

Why this is important:

While it would seem inconceivable that access to basic radiology (e.g. Chest X-ray) could be anything other than universal in a hospital setting, it remains unclear whether such access to all diagnostic radiological services is clinically or cost effective.

There is currently variable access to diagnostic radiology both in terms of time of the day, day of the week and geographical location, with larger centres tending to provide better access. Whilst plain radiology (e.g. Chest X-ray) is universally available in all EDs at all times of the day and days of the week, access to more sophisticated radiology (e.g. CT, MRI, US) varies enormously by time of day, day of week and even geographical location. Specifically, for example, some EDs will have access to CT scanning during the day but not at night, or to US scanning during the week but not at weekend; geographical networks may be in place to allow access to certain investigations in certain places which are not available at others.

Another aspect to consider is the strategic drive in the United Kingdom NHS to provide a seven day service with the aspiration of equality of access to high quality medical care throughout the week.

Given the current lack of evidence and variation in practice, research is important to investigate the optimal configuration of hospital diagnostic radiology services to support 7-day care of patients presenting with an AME.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) with a suspected or confirmed AME in any part of hospital **Intervention(s**): 24-hr access to diagnostic radiology (CT, MRI, ultrasound, and nuclear medicine) **Comparison**: 7-day extended services, 7-day services (9am-5pm), 6-day services, and 5-day services. Outcome(s): • Mortality • Avoidable adverse events • Quality of life • Patient satisfaction • Length of stay • ED 4 hour transit target time • Time to definitive diagnosis • Diagnostic turn around for result to healthcare professional (how long before they get the results) • Staff satisfaction • Representation • NHS cost and cost effectiveness
Importance to patients or the population	The committee thought that the benefits of access to diagnostic radiology 7 days a week are critical for many acute medical emergencies to ensure that patients get rapid diagnosis and treatment for their condition. For example, rapid access to CT scans is essential for the investigation of suspected pulmonary embolism, intracranial bleeds and thoracic dissection. However, not all hospitals have 24/7 access to CT. It is also unclear whether such access to other imaging modalities (e.g. MRI, nuclear medicine) is clinically and cost effective in the context of a broad range of acute medical emergencies. It may be that early investigations increase "upfront" costs but reduce mortality and costs related to morbidity and length of stay.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendation in the guidance
Relevance to the NHS	There is a potential trade-off between the costs of providing earlier upfront investigations, diagnosis and treatment versus potentially increased morbidity and length of stay. These are clearly issues of great relevance to the NHS. There will also be staff availability to consider as more radiographers, and

	radiologists will be necessary. This will result in upfront costs including training. There is the potential for remote image interpretation.
National priorities	The committee noted that the provision of a 7-day diagnostic service has been identified by NHS England[14] as being crucial to all elements of patient care and that the Royal College of Radiologists has produced standards for providing a 7-day service.[17] Furthermore there is existing NICE guidance on acute medical emergencies within specific medical conditions that would require a 7-day diagnostic service to be present. This includes guidance on: • The diagnosis of stroke, which recommends the use of brain imaging within the next available 'slot' and definitely within 1 hour, whichever is sooner.[12] • The diagnosis of head injury in adults, which recommends a CT head scan within 1 hour of a high risk factor being identified.[11] • The diagnosis of deep vein thrombosis, which recommends a proximal leg vein ultrasound within 1 hour in patients with a likely two-level DVT Wells score, or within 24 hours coupled with interim 24-hour dose of a parenteral anticoagulant if ultrasound is unavailable.[10] Immediate access to CT is also needed for thoracic dissection and pulmonary embolus.
Current evidence base	No evidence was identified.
Equality	Geographical location in relation to access was considered to be an important equality issue to consider (eg. rural vs urban).
Study design	The committee were aware that the provision of a 7-day radiological service may have a substantial cost implication. Therefore they considered it to be important that any research into the components listed above be conducted with a cost-effectiveness analysis. When investigating the optimal configuration for a 7-day service the committee noted there were several components that could be investigated, for example: • The location of radiologist: in-hospital versus remote • Level of expertise in interpreting the result: Radiologist versus attending clinician versus radiographer • Which radiological examinations are effective and cost-effective to be provided 7-days (eg. CT vs MRI vs US, etc.) • Networks where smaller centres refer to larger centres during "out-of-hours" periods
Feasibility	No feasibility issues identified.
Other comments	No further comments.
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.12 ECAU

Research question: What is the most clinically and cost-effective way to configure services to assess frail older people who present to hospital with a medical emergency?

Why this is important:

Older people are more likely to be admitted as an AME, and to stay longer in hospital. This is due to a higher proportion of multi-morbidity, frailty, and polypharmacy than in younger adults. Hospital services have adapted to the growing pressure from older patients, by introducing liaison services, such as Frail Older Persons' Assessment and Liaison (FOPAL) services. These are now widespread, and share characteristics such as medication review and the use of Comprehensive Geriatric Assessment.

However, it is not clear whether there are additional benefits from admitting patients to a specialised elderly care assessment unit (ECAU) / acute frailty unit (AFU). Theoretical advantages could include better planning of investigation and diagnosis, multiprofessional working, and dedicated discharge teams. The question is important because of the potential for large reductions in length of stay, reducing re-admissions and improved quality of care.

New units are emerging throughout the NHS with varying design but there is currently no strong evidence to support these emerging centres which are being implemented.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Older people (65 years and over) with suspected or confirmed AMEs **Intervention(s):** Assessment and management during admission (by GP referral, or via ED or community): • through an elderly care assessment/frailty unit • through an elderly care assessment area (defined area within the AMU) • by a visiting elderly care team (geriatrician team) in AMU **Comparison:** Direct admission to a general medical ward care from the community or via ED from the community; direct admission to AMU without geriatrician team involvement **Outcome(s):** • Quality of life • Length of stay • Mortality • Readmissions within 30 days • Avoidable adverse events • Delayed transfers of care • ED 4 hour emergency access target • Patient satisfaction • NHS costs and cost effectiveness
Importance to patients or the population	ECAU/AFU could be important to patients in avoiding admission and reducing potential hospital complications. There may also be a reduced length of stay and readmission.
Relevance to NICE guidance	High
Relevance to the NHS	It is not clear whether there are benefits from admitting patients to a specialised

	elderly care assessment unit (ECAU) / acute frailty unit (AFU). Theoretical advantages could include better planning of investigation and diagnosis, multiprofessional working, and dedicated discharge teams. There is potential for large reductions in length of stay, reducing re-admissions and improving quality of care.
National priorities	
Current evidence base	The evidence found is described in Chapter 25. The evidence was very low quality due to risk of bias and imprecision. These studies were heterogeneous in their models of care and their study design meant that case mix was not taken into consideration. The committee also noted the limitation of before and after study designs in this context, as the NHS evolves rapidly and outcomes were likely to be affected by a whole-system change rather than just the interventions themselves. One study was limited by a small population of included patients (less than 500 cases).
Equality	Location of services (Most ECAU/AFUs are based in larger city hospitals, not as available in smaller rural areas)
Study design	RCT (individual or cluster) or large observational studies
Feasibility	RCT in DGH Deliver research in highly service focussed environment Priorities around patient flow Difficult to be specific about where the units are located (EDs, AMUs etc)
Other comments	None.
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.13 Physician extenders

Research question: What is the clinical and cost effectiveness of providing 'physician extenders' such as advanced nurse practitioners, 'physician associates' and advanced clinical practitioners in secondary care?

Why this is important:

The NHS is dealing with increasing pressure from an aging population and lack of front-line health care professionals to balance this demand. The new role of physician extenders could help alleviate some of this pressure. However, as it is a new profession it will need to be evaluated to ensure that it is clinically and cost effective for the NHS. The committee discussed the current contradictory evidence between the economic and clinical evidence, and it's applicability to the UK setting. They noted that there may be logistical reasons why a physician extender would be more cost-saving than indicated by the economic evidence identified within this review; for example, they may cover staff shortages, so fewer locums are required, or permit consultant staff to be deployed more effectively on ward rounds or in clinics. The committee did not interpret the clinical evidence as showing physician extenders had worse clinical outcomes.

Criteria for selecting high-priority research recommendations

PICO question	**Population**: Adults and young people (16 years and over) at risk of an AME, or with a suspected or confirmed AME **Intervention(s):** Physician extender in a generalist role in addition to usual care:

	• Advanced Nurse Practitioners (ANP) • Physician Assistants/Physician Associates **Comparison**: Usual care (junior doctors/nurses) **Outcome(s):** • Mortality • Quality of life • Avoidable adverse events • Patient and/or carer satisfaction • Length of stay • Readmission • Discharges • Missed or delayed treatments • Staff satisfaction. • NHS costs and cost-effectiveness **Follow-up:** 12 months **Study design**: Randomised controlled trial It was noted that randomised controlled trials are the current gold standard for producing medical research and that whilst using other methodologies might be pragmatic, a randomised controlled trial in this area of research would be the ideal evidence available for the committee to make a recommendation.
Importance to patients or the population	Promotion of physician extenders within the NHS could potentially provide patients with more timely access to a decision making healthcare professional. This in turn would provide support and reduce the pressure on GPs.
Relevance to NICE guidance	High: the research is essential to inform further updates of key recommendation in the guidance. This research would verify the applicability of this role in the UK setting. It will evaluate a new service (physician associates) which has different training requirements to their US counterparts. Therefore, it would be recommended in future guidelines and widely used in practice.
Relevance to the NHS	The committee discussed the contradictory evidence between the economic and clinical evidence, and it's applicability to the UK setting. They noted that there may be logistical reasons why a physician extender would be more cost-saving than indicated by the economic evidence identified within this review; for example, they may cover staff shortages, so fewer locums are required, or permit consultant staff to be deployed more effectively on ward round or in clinics. The committee did not interpret the clinical evidence as showing physician extenders had worse clinical outcomes. The research could lead to an increase in demand for training in this role.
National priorities	The committee noted that, as a relatively new and diverse group of healthcare professionals the UK, the role of the physician associate/assistants would be expected to be evaluated in line with the Health Education England Strategic Framework 15-year strategy, supporting the need for a research recommendation.
Current evidence base	Although there are several types of physician extender, randomised control trials have only evaluated diabetes specialist nurse's, nurse care co-ordinators, and nurse practitioners focused on pathway management and improving compliance with best practice. The committee noted the difficulty in making a recommendation without having a broad spectrum of evidence available, as the evidence's applicability to the UK system is unclear. The committee noted in particular that there were no RCTs of physician associates/assistants, which is a new profession within the UK and the area in which a recommendation would have the greatest impact. The review also found no economic evidence and

	therefore the resource implications and overall cost-effectiveness of physician extenders could not be assessed. Therefore, the committee considered a research recommendation would be the most appropriate.
Equality	None.
Study design	The committee discussed the need for an evaluation of these professions using randomised controlled trial methodologies to generate more secure evidence, using either parallel cluster or stepped wedge designs. Researchers would need to clarify whether the practitioners were deployed as adjuncts to, or substitutes for, doctors. Given the impossibility of allocation concealment, and the differences between specialities and services in which these practitioners could be deployed (ranging from out-patient clinics to acute medical and intensive care units and cardiac arrest teams), researchers should describe the content of the intervention, current practice in control groups or periods, and approaches to minimising bias.
Feasibility	This study is feasible although there may be some issues around recruitment as it is a new role with only small numbers of the profession (270 physician extenders across all specialities and only 10 working in acute medicine across the UK). It will be important to take into account that as it is a new role the recruited physician extenders will include new graduates and inexperienced practitioners.
Other comments	Across different centres physician extenders are doing different roles as this is currently not a 'protected title'. The committee noted that, in the USA, nurse practitioners and physician associates are both post-graduate level, but the training requirements are different. In the UK currently the Royal College of Nursing position is that any nurse who has been educationally prepared, whether at BSc or MSc level, against the Royal College of Nursing competences, is entitled to be referred to as an Advanced Nurse Practitioner. The training requirement to become a registered physician associate is a post-graduate diploma. Physician extenders with a technical background (non-nursing) cannot at present acquire prescribing rights.

C.14 Integrated patient information systems

Research question: What is the clinical and cost effectiveness of different methods for integrating patient information throughout the emergency medical care pathway?

Why this is important:

With properly designed IT systems, the committee believed that information sharing between primary, secondary care and social care would be effective and should be beneficial for patients, particularly regarding prescription of medications and documenting allergies. However, the trials available did not demonstrate these effects.

Systems are likely to change in the future as technology advances, offering greater functionalities and rapid access to the results of investigations, combined with clinical decision support. Current examples of integrated patient information systems are NHS Spine and Enhanced Summary Care Records. The committee was aware that in several locations around the country, web- based integrated patient information systems between primary and secondary care are currently being set up. This research recommendation is intended to encourage parallel evaluation of local innovation.

Criteria for selecting high-priority research recommendations

PICO question	**Population:** Adults and young people (16 years and over) with a suspected or confirmed AME **Intervention(s):** Integrated patient information systems throughout AME pathway (including primary care, community care, secondary care and social care) including: • Patient information database (e.g. Summary Care Records) accessible to all professionals directly involved in the care of their patients • Shared IT systems between primary and secondary care, community/Pre-hospital/ambulance care, social care **Comparison:** No integrated patient information systems throughout AME pathway (including primary care, secondary care and social care) Lack of accessibility to patient information databases for all HCPs involved in care of patients **Outcome(s):** • Mortality • Avoidable adverse events (including missed or delayed treatments and missed or delayed investigations, prescribing errors (errors of omission or commission, medicines reconciliation) • Quality of life • Patient satisfaction • Length of stay • ED admissions • Unnecessary duplication of tests • Staff satisfaction • NHS costs and cost effectiveness
Importance to patients or the population	The committee agreed that information sharing between primary, secondary care, community and social care would be effective and should be beneficial for patients. This was thought to be particularly important in terms of sharing information regarding prescription of medications and the noting of allergies, although this has not been demonstrated by the data. Personal experience of shared information systems from the committee found them to be helpful in caring for patients, particularly those patients with multiple medical conditions and limited information from family/carers.
Relevance to NICE guidance	High: the research is essential to inform future updates of key recommendations in the guideline.
Relevance to the NHS	The duty to share information can be as important as the duty to protect patient confidentiality. Health and social care professionals should have the confidence to share information in the best interests of their patients within the framework set out by these principles. They should be supported by the policies of their employers, regulators and professional bodies.
National priorities	The effective sharing of information has been recognised to be fundamental in the care of patients and is in line with the additional Caldicott Principle published by the Department of Health in April 2013 which states “The duty to share information can be as important as the duty to protect patient confidentiality”. There is a duty to share information for safeguarding older or vulnerable people. Although this is not the same as having integrated systems, it is closely related. (https://www.england.nhs.uk/wp-content/uploads/2014/08/info-shar.pdf)
Current evidence base	The evidence found is described in Chapter 33. The quality of the evidence, which was based on one study, was graded from moderate to very low; this was

	mainly due to risk of bias, indirectness and imprecision. No evidence was available for the outcomes mortality, avoidable adverse events (including missed or delayed treatments and missed or delayed investigations, prescribing errors (errors of omission or commission, medicines reconciliation), quality of life, patient satisfaction, length of stay and staff satisfaction. The committee noted that there was a lack of evidence identified on patient safety outcomes in this review. One economic evaluation was identified which was partially applicable with potentially serious limitations.
Equality	No issues identified.
Study design	The committee agreed that a randomised controlled trial should be considered. However, a before-and-after study design could be used to examine when a new information system was implemented. It should include evaluation of physician/health care professional satisfaction with the information received.
Feasibility	Evaluation of the impact of a newly introduced system should be feasible with a before-and-after study design. Each area (primary care, secondary care, social care) has different priorities, which may be a challenge for developing new integrated information systems.
Other comments	None identified.
Importance	• High: the research is essential to inform future updates of key recommendations in the guideline.

C.15 Discharge criteria

Research question: Are standardised criteria for hospital discharge clinically and cost effective in specific medical emergencies?

Why this is important:

The question addressed in this research recommendation is whether standardised generic criteria can be developed which distinguish patients who can safely be discharged from hospital without risk of subsequent deterioration, from those who need to remain in hospital for continued care or investigation. The potential advantages of timely discharge from hospital include a lower risk of hospital-acquired infection; a reduced risk of over-investigation or unnecessary treatment, and associated complications; reduced rates of delirium and loss of function in the elderly; improved patient satisfaction; and more efficient use of hospital resources. It could also facilitate nurse-led or other practitioner-led (e.g. physician assistant) discharge and enable junior medical staff to be more proactive when it comes to discharging patients. This is particularly important when considering discharge earlier in the day to provide timely bed capacity for patients being admitted. However, inappropriate discharge can result in unrecognised deterioration, increased morbidity and re-admission.

Research in this area has focused primarily on developing predictors of (unplanned) hospital readmission, reported to occur in up to 20% of hospital discharges in the USA[8], and 7% in the UK.[4] Predictive systems have mostly used static variables such as age, diagnosis, acuity of admission, comorbid disease and deprivation indices.[3,20] While these variables are clearly important, if case mix adjustment at the time of the index admission does not capture clinical variables at the time of proposed discharge, it is difficult to interpret variations in readmission rates between hospitals, which might be attributable to unmeasured patient factors such as functional capacity.

Interpretation of the relationship between patient factors and post-discharge events also requires prospective evaluation of quality of care in the community following discharge.[6] Risk stratification tools are often used to determine further investigation and/or admission to hospital. These tools with modification could be used to determine the point of discharge by tracking the parameters involved in the tool until the patient reaches a point where discharge could occur safely. The development and validation of such tools is required.

As there is limited and conflicting evidence evaluating discharge criteria at the time of hospital discharge, the committee chose to formulate a research recommendation.

Criteria for selecting high-priority research recommendations

PICO question	Population: Adults and young people (16 years and over) with a suspected or confirmed AME. Intervention(s): Standardised criteria (for example, a checklist incorporating physiological stability, functional capacity, therapeutic dependency, disease severity) for discharge from hospital to community. Comparison: No standardised criteria for discharge from hospital to community Outcome(s): • Mortality • Avoidance of adverse events • Quality of life • Patient and family satisfaction • Readmission • Length of stay • Length of treatment /care post discharge • NHS costs and cost effectiveness
Importance to patients or the population	The advantages of timely discharge from hospital include a lower risk of hospital-acquired infection; a reduced risk of over-investigation or unnecessary treatment, and the complications that can arise from that; reduced rates of delirium and loss of function in the elderly; improved patient satisfaction; and an improved patient flow through the hospital to allow more efficient use of hospital resources. Safe discharge with reduced length of stay is also beneficial to hospital processes including improved patient flow, increased bed capacity, reduced exit block, and a reduction in ED wait times.
Relevance to NICE guidance	High: the research is essential to inform future updates of key recommendations in the guidance.
Relevance to the NHS	Currently the use of standardised discharge criteria is variable between centres and across different clinical conditions. If discharge criteria were proved to be effective, they should be easy to implement, with minimal cost or work-load implications, so that they could be used by non-physician clinical staff to plan and implement timely and safe discharge. There would be a need for training for staff and regular ongoing evaluation of such tools. Standardised criteria which facilitated timely discharge could optimise hospital capacity, bed availability and reduce any hospital contribution to delayed transfers of care. It would also highlight circumstances when it would be inappropriate to discharge patients and prevent unsafe discharge. This research recommendation could have a significant impact on the 4-hour emergency department transit time target. The effectiveness of implemented standardised discharged criteria could also be easily audited and reviewed.

National priorities	This research is relevant to the ED 4 hour transit time.
Current evidence base	The evidence found is described in chapter 36. The evidence evaluated the use of physiological variables and pathological results as criteria for discharge in two distinct populations: patients with post-chemotherapy febrile neutropenia and patients with community acquired pneumonia (CAP). The majority of evidence was graded at very low quality due to a very high risk of bias, with the majority also downgraded for imprecision. Evidence for adverse events was further downgraded for inconsistency. No evidence was identified for quality of life or staff satisfaction. The evidence suggested that discharge criteria may be associated with, or cause harm in, these specific conditions. However, the evidence was not considered strong enough for the committee to make a negative recommendation and therefore they decided to make a recommendation for further research. It was also felt that a wider range of acute medical clinical conditions should be subject to research evaluating the efficacy of standardised discharge criteria.
Equality	Equality issues were considered for frail elderly patients who may require different or additional criteria related to their frailty. The committee highlighted that disabled patients may have additional different requirements e.g. transport home and carers.
Study design	A two-step approach would be needed, first to develop generic discharge criteria and second to evaluate their utility, preferably using a cluster randomised trial. Proposed discharge criteria would need to be derived and evaluated in an index population and subsequently validated in a separate population. Existing indices might lend themselves to refinement by incorporating clinical variables present around the time of proposed discharge, retaining conventional outcome measures such as readmission rates and mortality, but also including the other outcome measures listed above. However, to interpret outcomes the research design would need to capture data on the post-hospital social and environmental context: for example, is this to a nursing home, home alone, or home with a partner? Discharge criteria would need to take into account different diseases, with the aim of identifying those variables with generic applicability across disease states. This might take the form of a generic set of physiological / social / functional / frailty criteria with additional disease-specific criteria; examples of the latter might include haemoglobin level for gastrointestinal bleeding, white cell count normalisation for pneumonia, or functional measures. Functional, physical or physiological criteria may correlate with disease specific criteria and this should be assessed during the study if possible. Prospective evaluation using a cluster randomised trial design should determine whether standardised discharge criteria promote timelier or earlier hospital discharge, whether they can be used for decision-making by non-physicians, and whether their adoption is associated with lower post-hospital complications.
Feasibility	The committee noted the difficulties in designing and implementing generic discharge criteria that could be used across a wide range of conditions. They concluded that this was not possible in one study. Therefore, they suggested that there should be separate studies looking at specific diseases with some generic but also some disease-specific criteria.
Other comments	It is important to distinguish between admission avoidance and discharge facilitation, the former applying to out-patient (and ED) environments, the latter to in-patient environments (medical wards) with some potential overlap in the setting of an AMU where both processes could be said to occur simultaneously. Specifically, there are many validated tools and scores used in the ED to determine safe discharge from the ED (i.e. admission avoidance into hospital);

	examples of these are the San Francisco Score for syncope, CURB65 score for pneumonia, sPESI score for pulmonary embolism, and various chest pain scores for acute coronary syndromes. Each of these scores has an associated evidence base but are essentially admission avoidance tools rather than criteria for discharge for use in in-patients.
Importance	• High: the research is essential to inform future updates of key recommendation in the guidance.

C.16 Post discharge early follow up clinics

Research question: What is the clinical and cost effectiveness of post-discharge early follow up clinics for people who have had a medical emergency and are at risk of unscheduled hospital readmission?

Why this is important:

The risk of readmission to hospital is highest in the immediate post discharge period. Early follow up after hospital admission of patients with acute heart failure has already been recommended by NICE but there is uncertainty as to whether this is cost effective when applied to the broader population of patients with AMEs.

Criteria for selecting high-priority research recommendations

PICO question	Population: Adults and young people (16 years and over) with a suspected or confirmed AME Intervention(s): Attendance at a post discharge follow up clinic within 30 days (attending a post critical care/critical illness clinic, post discharge clinic, early follow up clinic) Comparison: Usual care (no follow up or follow-up at a time point representing standard care) Outcome(s): • Mortality • Avoidable adverse events • Quality of life • Patient satisfaction • ED attendance • Readmission • Return to work • Care satisfaction/burden • NHS costs and cost effectiveness
Importance to patients or the population	Patients generally prefer to return to their place of residence as soon as possible and there is a push to facilitate early discharge from hospital to improve patient flow in hospital. However it is important to prevent hospital readmission once discharged. Provision of early post-discharge clinics may enable early discharge into the community by providing on-going care as required.
Relevance to NICE guidance	Medium: readmission is a critical issue involving potentially poorer clinical outcomes with greater costs.
Relevance to the NHS	Early post-discharge follow-up clinics may reduce readmission and allow more patients to be discharged earlier. Earlier discharge would reduce pressure on hospitals as long as it did not increase the burden with increased readmission and poorer patient outcomes.

National priorities	If post-discharge early follow clinics are successful in enabling patients to be discharged early and safely this may improve flow of patients through hospital, which may have an impact on metrics such as the 4 hour ED waiting time.
Current evidence base	The evidence found is described in Chapter 37. The majority of the evidence (8 out of 9 studies) was based on the heart failure population. The committee did not think that the evidence of heart failure patients were generalisable to the general AME population and therefore proposed research on the AME population in general.
Equality	The committee agreed that the following groups needed special consideration: • Older patients • People living in rural areas due to access to clinics depending on intervention and delivery model.
Study design	The study should be a randomised controlled trial.
Feasibility	The research should be feasible but there could be resource issues depending on the model.
Other comments	None
Importance	• Medium: the research is relevant to the recommendations in the guideline, but the research recommendations are not key to future updates.

C.17 Escalation measures

Research question: Which components of a hospital escalation policy to deal with surges in demand are the most clinically and cost effective?

Why this is important:

Hospitals have variations in patient flow and therefore variations in capacity which will inevitably lead to times when escalation plans are required. There are higher levels of risk when escalation measures are required compared to normal hospital functioning. Therefore, it is important to plan for these events and ensure that risk to patients are minimised. When an unpredictable surge in demand occurs for whatever reason, hospitals must have mechanisms in place to deal with this to prevent harm to patients and also staff.

Criteria for selecting high-priority research recommendations

PICO question	Population: Adults and young people (16 years and over) at risk of an AME, or with a suspected or confirmed AME Intervention(s): • Structure (beds, equipment): greater capacity (more community beds available; more hospital beds, using private wards/hospitals) • Staff: Planning of staff capacity for seasonal variations/ extended holiday periods/for the change of house i.e. new FY1 starting in August. More changes or flexible use of staff/skill mix (all staff, in and out of hospital) (e.g., increasing proportion of healthcare assistants, moving staff in response to demand, having staff in reserve, senior medical support on site, additional support in the community, use of locum and agency staff) • Processes o Triage/streaming (Hear and treat, telephone response) o Community triage (point of first contact)

	○ Declaring a hospital internal major incident ○ Moving patients/diverting ○ Early discharge to community services ○ Patient education (e.g., communications advising patients to stay at home) ○ Reducing/Closing down certain services (e.g., elective surgery) ○ Diversion of ambulances (to another hospital) ○ Communication between services ○ Social media Comparison: No escalation measures or in combination with one another Outcome(s): Long-term outcomes of 12 months plus would be preferable • Mortality • Avoidable adverse events • Quality of life • Length of stay • Readmission • ED length of stay • Outliers/boarders • Staff satisfaction • Referral to treat • Visits to hospital • Bed occupancy • NHS costs and cost effectiveness
Importance to patients or the population	Patients may not necessarily recognise the importance of escalation measures and are more focused on a smooth patient journey within the hospital. If there is not an effective escalation policy in place this will put patients at risk, particularly as a result of delays and inefficiencies. This could lead to increased patient morbidity and mortality. Informing the public of issues that the hospital or service is encountering may lead to a change in behaviour i.e. people deferring a hospital ED visit or attending Blood Transfusion services to donate blood.
Relevance to NICE guidance	Medium: the research is relevant to the recommendations in the guidance, but the research recommendations are not essential to future updates
Relevance to the NHS	Current practice is for hospitals to have locally derived escalation procedures in place. They use a stepped approach so additional measures are used as the situation worsens. The effectiveness of such measures is unclear. As a result some of the measures used may be a waste of resources or time which could be utilised elsewhere. There is also a possibility for centres to learn from each other so as not to duplicate the same mistakes.
National priorities	None
Current evidence base	There was a lack of high quality evidence in combination with a lack of applicability to the general UK setting. Five observational studies and one modelling paper were included in the review. The majority of identified evidence evaluated the effectiveness of specific interventions in response to specific difficulties and thus could not necessarily be generalised to other settings.
Equality	Elderly patients are likely to be affected most as they are at greater risk and may have reduced mobility. Frequent moves from one location to another in elderly frail patients can have a detrimental impact on their health. The older population may have less access to social media so may not be aware of local issues. Lower socioeconomic groups may be affected greater than other groups

	especially if it means patients would have to undertake longer journeys to receive care due to diversions being in place.
Study design	This is likely to be a natural experiment. Measures would be determined in advance and when there is a need for escalation the outcomes would be observed and monitored. Mock or practice escalation policies could be used to test and develop the relevant measures. An alternative approach would be a before-and-after study which would be utilised when a new policy is implemented.
Feasibility	None identified.
Other comments	[Any other important issues should be mentioned, such as potential funders or outcomes of previous attempts to address this issue or methodological problems. However, this is not a research protocol.] The committee noted that the working group for critical care is currently working on influenza escalation measures.
Importance	• Medium: the research is relevant to the recommendations in the guideline, but the research recommendations are not key to future updates.

Appendix D: Literature search strategies

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Search strategies used for the acute medical emergencies guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual.[13] All searches were run up to **1 or 2 December 2016** unless otherwise stated. Exact date limits for each search are reported with each search strategy. Any studies added to the databases after this date (even those published prior to this date) were not included unless specifically stated in the text. Where possible searches were limited to retrieve material published in English.

Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane Library (Wiley). Additional searches were run in CINAHL (EBSCO), PsycINFO (ProQuest), HMIC, Health Management Information Consortium (OVID) and Social Policy and Practice (OVID), see Table 2.

Searches for the **health economic** reviews were run in Medline, Embase, the NHS Economic Evaluations Database (NHS EED), the Health Technology Assessment (HTA) database and the Health Economic Evaluation Database (HEED). NHS EED and HTA databases were hosted by the Centre for Research and Dissemination (CRD). The Health Economic Evaluation Database (HEED) ceased production in 2014 with access ceasing in January 2015. For the final dates of HEED searches, please see individual economic questions.

For Medline and Embase an economic filter (instead of a study type filter) was added to the same clinical search strategy.

Table 2: Databases searched

Question	Question number	Databases
7 day radiology	D.4.23	Medline, Embase, the Cochrane Library, CRD
Advanced care planning	D.4.16	Medline, Embase, the Cochrane Library, CRD
Alternatives to hospital care	D.4.13	Medline, Embase, the Cochrane Library, CRD, HEED
AMU admission	D.4.25	Medline, Embase, the Cochrane Library, CINAHL, CRD
Bed capacity	D.4.40	Medline, Embase, the Cochrane Library, HMIC, CRD
Clinical call handlers	D.4.2	Medline, Embase, the Cochrane Library, CRD
Community nursing access	D.4.9	Medline, Embase, the Cochrane Library, CINAHL, CRD
Community pharmacists	D.4.11	Medline, Embase, the Cochrane Library, CRD
Community rehabilitation	D.4.14	Medline, Embase, the Cochrane Library, CRD, HEED
Consultant frequenc y	D.4.27	Medline, Embase, the Cochrane Library, CRD
Critical care outreach	D.4.28	Medline, Embase, the Cochrane Library, CRD
Discharge criteria	D.4.37	Medline, Embase, the Cochrane Library, CRD
Discharge planning	D.4.36	Medline, Embase, the Cochrane Library, CINAHL, CRD
Early vs late consultant review	D.4.20	Medline, Embase, the Cochrane Library, CRD
Elderly care assessment units	D.4.26	Medline, Embase, the Cochrane Library, CRD
ED opening hours	D.4.17	Medline, Embase, the Cochrane Library, CRD
Enhanced therapy access	D.4.32	Medline, Embase, the Cochrane Library, CINAHL, CRD
Escalation measures	D.4.41	Medline, Embase, the Cochrane Library, HMIC, CRD
GP access to lab tests	D.4.7	Medline, Embase, the Cochrane Library, CRD
GP access to radiology	D.4.8	Medline, Embase, the Cochrane Library, CRD
GP extended hours	D.4.5	Medline, Embase, the Cochrane Library, CRD
GP led home visits	D.4.6	Medline, Embase, the Cochrane Library, CRD
GP-ED	D.4.18	Medline, Embase, the Cochrane Library, CRD
Hospital transfers	D.4.35	Medline, Embase, the Cochrane

Question	Question number	Databases
		Library, CRD
Integrated care	D.4.39	Medline, Embase, the Cochrane Library, CRD
Integrated patient information systems	D.4.34	Medline, Embase, the Cochrane Library, CRD
Liaison psychiatry	D.4.24	Medline, Embase, the Cochrane Library, PsycINFO, CRD
Matron-nurse led care	D.4.10	Medline, Embase, the Cochrane Library, CINAHL, CRD
MDTs	D.4.30	Medline, Embase, the Cochrane Library, CRD
Minor injury unit, urgent care centre or walk-in centre	D.4.19	Medline, Embase, the Cochrane Library, CRD
Non-emergency phone access	D.4.1	Medline, Embase, the Cochrane Library, CRD
Palliative care	D.4.15	Medline, Embase, the Cochrane Library, CINAHL, CRD
Paramedic enhanced competencies	D.4.3	Medline, Embase, the Cochrane Library, CRD
Paramedic remote support	D.4.4	Medline, Embase, the Cochrane Library, CRD
Pharmacist support	D.4.31	Medline, Embase, the Cochrane Library, CRD
Physician extenders	D.4.21	Medline, Embase, the Cochrane Library, CRD
Post discharge early follow up clinics	D.4.38	Medline, Embase, the Cochrane Library, CRD
Social care	D.4.12	Medline, Embase, the Cochrane Library, Social Policy & Practice, CRD
Standardised criteria for admission	D.4.22	Medline, Embase, the Cochrane Library, CRD
Structured patient handovers	D.4.33	Medline, Embase, the Cochrane Library, CRD
Structured ward rounds	D.4.29	Medline, Embase, the Cochrane Library, CRD

D.2 Population search strategies

No standard population search strategy was used for this guideline due to the nature of the gudieline topic. The question searches covered all populations.

D.3 Study filter search terms

D.3.1 Excluded study designs and publication types

The following study designs and publication types were removed from retrieved results using the NOT operator.

Medline search terms

1.	letter/
2.	editorial/
3.	news/
4.	exp historical article/
5.	anecdotes as topic/
6.	comment/
7.	case report/
8.	(letter or comment*).ti.
9.	or/1-8
10.	randomized controlled trial/ or random*.ti,ab.
11.	9 not 10
12.	animals/ not humans/
13.	exp animals, laboratory/
14.	exp animal experimentation/
15.	exp models, animal/
16.	exp rodentia/
17.	(rat or rats or mouse or mice).ti.
18.	or/11-17

Embase search terms

1.	letter.pt. or letter/
2.	note.pt.
3.	editorial.pt.
4.	case report/ or case study/
5.	(letter or comment*).ti.
6.	or/1-5
7.	randomized controlled trial/ or random*.ti,ab.
8.	6 not 7
9.	animal/ not human/
10.	nonhuman/
11.	exp animal experiment/
12.	exp experimental animal/
13.	animal model/
14.	exp rodent/
15.	(rat or rats or mouse or mice).ti.
16.	or/8-15

CINAHL search terms

S1.	pt anecdote or pt audiovisual or pt bibliography or pt biography or pt book or pt book review or pt brief item or pt cartoon or pt commentary or pt computer program or pt editorial or pt games or pt glossary or pt historical material or pt interview or pt letter or pt listservs or pt masters thesis or pt obituary or pt pamphlet or pt pamphlet chapter or pt pictorial or pt poetry or pt proceedings or pt “questions and answers” or pt response or pt software or pt teaching materials or pt website

D.3.2 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.ti
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.	double blind procedure/
8.	single blind procedure/
9.	randomized controlled trial/
10.	or/1-9

D.3.3 Systematic review (SR) search terms

Medline search terms

1.	meta-analysis/
2.	meta-analysis as topic/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic* or evidence*) adj3 (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.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11.	or/1-10

Embase search terms

1.	systematic review/
2.	meta-analysis/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic or evidence) adj3 (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.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11.	or/1-10

D.3.4 Health economics (HE) 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.	economics, nursing/
7.	economics, pharmaceutical/
8.	exp "fees and charges"/
9.	exp budgets/
10.	budget*.ti,ab.
11.	cost*.ti.
12.	(economic* or pharmaco?economic*).ti.
13.	(price* or pricing*).ti,ab.
14.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
15.	(financ* or fee or fees).ti,ab.
16.	(value adj2 (money or monetary)).ti,ab.
17.	or/1-16

Embase search terms

1.	health economics/
2.	exp economic evaluation/
3.	exp health care cost/
4.	exp fee/
5.	budget/
6.	funding/
7.	budget*.ti,ab.
8.	cost*.ti.
9.	(economic* or pharmaco?economic*).ti.
10.	(price* or pricing*).ti,ab.
11.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
12.	(financ* or fee or fees).ti,ab.
13.	(value adj2 (money or monetary)).ti,ab.
14.	or/1-13

D.3.5 Extended health economic modelling (EXT MOD) search terms

Medline search terms

1.	exp models, economic/
2.	*models, theoretical/
3.	markov chains/
4.	monte carlo method/
5.	exp decision theory/
6.	(markov* or monte carlo).ti,ab.
7.	econom* model*.ti,ab.
8.	(decision* adj2 (tree* or analy* or model*)).ti,ab.
9.	models, organizational/
10.	*models, statistical/
11.	*logistic models/
12.	models, nursing/
13.	((organi?ation* or operation* or service* or concept*) adj3 (model* or map* or program* or simulation* or system* or analys*)).ti,ab.
14.	(econom* adj2 (theor* or system* or map* or evaluat*)).ti,ab.
15.	(ssm or soda).ti,ab.
16.	(strateg* adj3 (option* or choice*) adj3 (analys* or decision*)).ti,ab.
17.	soft systems method*.ti,ab.
18.	(meta-heuristic* or metaheuristic*).ti,ab.
19.	(dynamic* adj2 (model* or system*)).ti,ab.
20.	(simulation adj3 (model* or discrete event* or agent)).ti,ab.
21.	(microsimulation* or "micro* simulation*").ti,ab.
22.	((flow or core) adj2 model*).ti,ab.
23.	(data adj2 envelopment*).ti,ab.
24.	system* model*.ti,ab.
25.	or/1-24

Embase search terms

1.	statistical model/
2.	*theoretical model/
3.	nonbiological model/
4.	stochastic model/
5.	decision theory/
6.	decision tree/
7.	exp nursing theory/
8.	monte carlo method/
9.	(markov* or monte carlo).ti,ab.
10.	econom* model*.ti,ab.
11.	(decision* adj2 (tree* or analy* or model*)).ti,ab.
12.	((organi?ation* or operation* or service* or concept*) adj3 (model* or map* or program* or simulation* or system* or analys*)).ti,ab.
13.	(econom* adj2 (theor* or system* or map* or evaluat*)).ti,ab.
14.	(ssm or soda).ti,ab.

15.	(strateg* adj3 (option* or choice*) adj3 (analys* or decision*)).ti,ab.
16.	soft systems method*.ti,ab.
17.	(meta-heuristic* or metaheuristic*).ti,ab.
18.	(dynamic* adj2 (model* or system*)).ti,ab.
19.	(simulation adj3 (model* or discrete event* or agent)).ti,ab.
20.	(microsimulation* or "micro* simulation*").ti,ab.
21.	((flow or core) adj2 model*).ti,ab.
22.	(data adj2 envelopment*).ti,ab.
23.	system* model*.ti,ab.
24.	or/1-23

D.3.6 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

D.3.7 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/1-19

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

D.4 Searches for specific questions (clinical [C] and health economics [HE])

D.4.1 Non-emergency phone access

- Does the addition of non-emergency telephone access to urgent or unscheduled care, to an emergency (e.g. 999/112) service, improve patient outcomes and reduce demand on health care services?

Medline search terms

1.	hotlines/
2.	telephone/
3.	((telephone* or phone or helpline* or hotline* or call centre*) adj1 (access or service* or system*)).ti,ab.
4.	(phoning or phones or phone-line or call or calls or calling or ring or ringing or dial or dials or dialling).ti,ab.
5.	or/1-4
6.	emergencies/ or triage/ or emergency medical services/ or emergency medical service communication systems/
7.	(emergency medical services or emergenc* care or urgent care or unscheduled care).ti,ab.
8.	or/6-7
9.	5 and 8
10.	("999" or "911" or "112" or "222").ti,ab.
11.	france/
12.	(france or french).ti,ab.
13.	(emergency medical care or emergency medical service* or emergency healthcare or emergency health care or urgent medical care).ti,ab.
14.	(or/11-12) and 13
15.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct).ti,ab.
16.	10 and 15
17.	9 and (10 or 14 or 15 or 16)
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language; Date parameters: Database start date – 01/12/2016 [C]
21.	Study filter ECON (D.3.4)
22.	19 and 21
23.	Limit 22 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	telephone/
2.	((telephone* or phone or hotline* or helpline* or call centre*) adj1 (access or service* or system*)).ti,ab.
3.	(phoning or phones or phone-line or call or calls or calling or ring or ringing or dial or dials or dialling).ti,ab.

4.	or/1-3
5.	emergency/ or emergency medical services/
6.	(emergency medical service* or emergenc* care or urgent care or unscheduled care).ti,ab.
7.	or/5-6
8.	4 and 7
9.	("999" or "911" or "112" or "222").ti,ab.
10.	france/
11.	(france or french).ti,ab.
12.	(emergency medical care or emergency medical service* or emergency healthcare or urgent healthcare or medical health care or urgent medical care).ti,ab.
13.	(or/10-11) and 12
14.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct).ti,ab.
15.	8 and (9 or 13 or 14)
16.	Excluded study designs and publication types [D.3.1]
17.	15 not 16
18.	Limit 17 to English language; Date parameters: Database start date – 01/12/2016 [C]
19.	Study filter ECON (D.3.4)
20.	17 and 19
21.	Limit 20 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	MeSH descriptor: [hotlines] this term only
#2.	(hotline* or helpline*):ti,ab
#3.	MeSH descriptor: [telephone] this term only
#4.	((telephone* or phone or hotline* or helpline* or call centre*) near/1 (access or service* or system*)):ti,ab
#5.	(phoning or phones or phone-line or call or calls or calling or ring or ringing or dial or dials or dialling):ti,ab
#6.	{or #1-#5}
#7.	MeSH descriptor: [emergencies] this term only
#8.	MeSH descriptor: [triage] this term only
#9.	MeSH descriptor: [emergency medical services] this term only
#10.	MeSH descriptor: [emergency medical service communication systems] this term only
#11.	(emergency medical service* or emergenc* care or urgent care or unscheduled care):ti,ab
#12.	{or #7-#11}
#13.	#6 and #12
#14.	("999" or "911" or "112" or "222"):ti,ab
#15.	MeSH descriptor: [france] this term only
#16.	(france or french):ti,ab
#17.	(emergency medical care or emergency medical service* or emergency healthcare or emergency health care or urgent medical care):ti,ab
#18.	{or #15-#16}
#19.	#17 and #18
#20.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct):ti,ab
#21.	{or #14, #19-#20}

#22.	#13 and #21 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor hotlines
#2.	MeSH descriptor telephone
#3.	((telephone* or phone or helpline* or hotline* or call centre*) adj1 (access or service* or system*))
#4.	(phoning or phones or phone-line or call or calls or calling or ring or ringing or dial or dials or dialling)
#5.	#1 or #2 or #3 or #4
#6.	MeSH descriptor emergencies
#7.	MeSH descriptor triage
#8.	MeSH descriptor emergency medical services
#9.	MeSH descriptor emergency medical service communication systems
#10.	(emergency medical services or emergenc* care or urgent care or unscheduled care)
#11.	#6 or #7 or #8 or #9 or #10
#12.	#5 and #11
#13.	("999" or "911" or "112" or "222")
#14.	MeSH descriptor france
#15.	(france or french)
#16.	#14 or #15
#17.	(emergency medical care or emergency medical service* or emergency healthcare or emergency health care or urgent medical care)
#18.	#16 and #17
#19.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct)
#20.	#13 or #18 or #19
#21.	#12 and #20
	Date parameters: 2005 – 01/12/2016 in HTA or NHSEED [HE]

D.4.2 Clinical call handlers

- Do non-clinical call handlers perform as effectively as clinical call handlers?

Medline search terms

1.	((clinical or non-clinical or non clinical or nonclinical or clinician* or non-clinician* or non clinician* or doctor* or physician* or nurs* or emergenc* or medic* or paramedic* or trained or untrained or un-trained) adj3 (dispatch* or call handler* or telecommunicator* or agent* or technician* or decision maker* or teleconsult* or operator*)).ti,ab.
2.	emergency medical service communication systems/
3.	emergency medical services/
4.	emergency responders/
5.	emergencies/
6.	(emergency adj2 (medical care or service* or responder* or communication* system*)).ti,ab.
7.	("999" or "911" or "112" or "111").ti,ab.
8.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct).ti,ab.
9.	triage/

10.	triage.ti,ab.
11.	or/2-10
12.	communication/
13.	telephone/
14.	hotlines/
15.	(telephone* or phone or hotline* or helpline* or call centre*).ti,ab.
16.	or/12-15
17.	1 and (11 or 16)
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language; Date parameters: Database start date – 01/12/2016 [C]
21.	Study filter ECON (D.3.4)
22.	19 and 21
23.	Limit 22 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	((clinical or non-clinical or non clinical or nonclinical or clinician* or non-clinician* or non clinician* or doctor* or physician* or nurs* or emergenc* or medic* or paramedic* or trained or untrained or un-trained) adj3 (dispatch* or call handler* or telecommunicator* or agent* or technician* or decision maker* or teleconsult* or operator*)).ti,ab.
2.	emergency health service/
3.	rescue personnel/
4.	emergency/
5.	(emergency adj2 (medical care or service* or responder* or communication* system*)).ti,ab.
6.	("999" or "911" or "112" or "111").ti,ab.
7.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct).ti,ab.
8.	triage.ti,ab.
9.	or/2-8
10.	telephone/
11.	(telephone* or phone or hotline* or helpline* or call centre*).ti,ab.
12.	or/10-11
13.	1 and (9 or 12)
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language; Date parameters: Database start date – 01/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	15 and 17
19.	Limit 18 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((clinical or non-clinical or non clinical or nonclinical or clinician* or non-clinician* or non clinician* or doctor* or physician* or nurs* or emergenc* or medic* or paramedic* or trained or untrained or un-trained) near/3 (dispatch* or call handler* or telecommunicator* or agent* or technician* or decision maker* or teleconsult* or operator*)):ti,ab
#2.	MeSH descriptor: [emergency medical service communication systems] this term only
#3.	MeSH descriptor: [emergency medical services] this term only

#4.	MeSH descriptor: [emergency responders] this term only
#5.	MeSH descriptor: [emergencies] this term only
#6.	(emergency near/2 (medical care or service* or responder* or communication* system*)):ti,ab
#7.	("999" or "911" or "112" or "111"):ti,ab
#8.	(nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct):ti,ab
#9.	MeSH descriptor: [triage] this term only
#10.	triage:ti,ab
#11.	{or #2-#10}
#12.	MeSH descriptor: [communication] this term only
#13.	MeSH descriptor: [telephone] this term only
#14.	MeSH descriptor: [hotlines] this term only
#15.	(telephone* or phone or hotline* or helpline* or call centre*):ti,ab
#16.	{or #12-#15}
#17.	#11 or #16
#18.	#1 and #17 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	((clinical or non-clinical or non clinical or nonclinical or clinician* or non-clinician* or non clinician* or doctor* or physician* or nurs* or emergenc* or medic* or paramedic* or trained or untrained or un-trained) adj3 (dispatch* or call handler* or telecommunicator* or agent* or technician* or decision maker* or teleconsult* or operator*))
#2.	MeSH descriptor emergency medical service communication systems
#3.	MeSH descriptor emergency medical services
#4.	MeSH descriptor emergency responders
#5.	MeSH descriptor emergencies
#6.	((emergency adj2 (medical care or service* or responder* or communication* system*)))
#7.	(("999" or "911" or "112" or "111"))
#8.	((nhs 111 or nhs111 or nhs24 or nhs 24 or nhs direct))
#9.	MeSH descriptor triage
#10.	(triage)
#11.	#2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
#12.	MeSH descriptor communication
#13.	MeSH descriptor telephone
#14.	MeSH descriptor hotlines
#15.	((telephone* or phone or hotline* or helpline* or call centre*))
#16.	#12 or #13 or #14 or #15
#17.	#11 or #16
#18.	#1 and #17 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.3 Paramedic enhanced competencies

- Does enhancing the competencies of paramedics reduce ED demand, hospital admissions and improve patient outcomes?

Medline search terms

1.	emergency medical technicians/
2.	exp ambulances/
3.	ambulance*.ti,ab.
4.	paramedic*.ti,ab.
5.	first respon*.ti,ab.
6.	(emergenc* adj2 technician*).ti,ab.
7.	((emergency or ambulance or urgent) adj (care assistan* or support worker*)).ti,ab.
8.	or/1-7
9.	(emergency care adj2 practitioner*).ti,ab.
10.	((specialist* or senior* or expert* or critical care or urgent care or practitioner* or advanced or enhanced or community or consultant*) adj2 paramedic*).ti,ab.
11.	9 or 10
12.	exp professional role/
13.	((expand* or increas* or enhanc* or advanc*) adj2 (competen* or skill* or train* or educat* or experien*)).ti,ab.
14.	or/12-13
15.	8 and 14
16.	((ambulance* or paramedic* or first respon* or (emergenc* adj2 technician*) or ((emergency or ambulance or urgent) adj (care assistan* or support worker*))) adj3 role*1).ti,ab.
17.	11 or 15 or 16
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language; Date parameters: Database start date – 01/12/2016 [C]
21.	Study filter ECON (D.3.4)
22.	19 and 21
23.	Limit 22 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	rescue personnel/
2.	exp ambulance/
3.	ambulance*.ti,ab.
4.	paramedic*.ti,ab.
5.	first respon*.ti,ab.
6.	(emergenc* adj2 technician*).ti,ab.
7.	((emergency or ambulance or urgent) adj (care assistan* or support worker*)).ti,ab.
8.	or/1-7
9.	(emergency care adj2 practitioner*).ti,ab.
10.	((specialist* or senior* or expert* or critical care or urgent care or practitioner* or advanced or enhanced or community or consultant*) adj2 paramedic*).ti,ab.
11.	or/9-10
12.	exp *professional standard/
13.	((expand* or increas* or enhanc* or advanc*) adj2 (competen* or skill* or train* or educat* or experien*)).ti,ab.
14.	or/12-13
15.	8 and 14
16.	((ambulance* or paramedic* or first respon* or (emergenc* adj2 technician*) or ((emergency

	or ambulance or urgent) adj (care assistan* or support worker*))) adj3 role*1).ti,ab.
17.	11 or 15 or 16
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language; Date parameters: Database start date – 01/12/2016 [C]
21.	Study filter ECON (D.3.4)
22.	19 and 21
23.	Limit 22 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh "emergency medical technicians"]
#2.	[mh ambulances]
#3.	ambulance*:ti,ab
#4.	paramedic*:ti,ab
#5.	first respon*:ti,ab
#6.	(emergenc* near/2 technician*):ti,ab
#7.	((emergency or ambulance or urgent) near/2 (care assistan* or support worker*)):ti,ab
#8.	{or #1-#7}
#9.	(emergency care near/2 practitioner*):ti,ab
#10.	((specialist* or senior* or expert* or critical care or urgent care or practitioner* or advanced or enhanced or community or consultant*) near/2 paramedic*):ti,ab
#11.	#9 or #10
#12.	[mh "professional role"]
#13.	((expand* or increas* or enhanc* or advanc*) near/2 (competen* or skill* or train* or educat* or experien*)):ti,ab
#14.	#12 or #13
#15.	#8 and #14
#16.	((ambulance* or paramedic* or first respon* or (emergenc* near/2 technician*) or ((emergency or ambulance or urgent) near/2 (care assistan* or support worker*))) near/3 role*):ti,ab
#17.	#11 or #15 or #16 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor emergency medical technicians explode all trees
#2.	MeSH descriptor ambulances explode all trees
#3.	(ambulance* or paramedic*or first respon*)
#4.	((emergenc* adj2 technician*))
#5.	(((emergency or ambulance or urgent) adj (care assistan* or support worker*)))
#6.	#1 or #2 or #3 or #4 or #5
#7.	((emergency care adj2 practitioner*))
#8.	(((specialist* or senior* or expert* or critical care or urgent care or practitioner* or advanced or enhanced or community or consultant*) adj2 paramedic*))
#9.	#7 or #8
#10.	MeSH descriptor professional role explode all trees
#11.	(((expand* or increas* or enhanc* or advanc*) adj2 (competen* or skill* or train* or educat* or experien*)))

#12.	#10 or #11
#13.	#6 and #12
#14.	(((ambulance* or paramedic* or first respon* or (emergenc* adj2 technician*) or ((emergency or ambulance or urgent) adj (care assistan* or support worker*))) adj3 role*))
#15.	#9 or #13 or #14 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.4 Paramedic remote support

- Does the provision of immediate access by ambulance staff to clinical advice, using remote decision support reduce NHS resource usage and improve outcomes?

Medline search terms

1.	emergency medical technicians/
2.	exp ambulances/
3.	ambulance*.ti,ab.
4.	paramedic*.ti,ab.
5.	first respon*.ti,ab.
6.	(emergenc* adj2 technician*).ti,ab.
7.	((emergency or ambulance or urgent) adj (care assistan* or support worker*)).ti,ab.
8.	or/1-7
9.	exp telemedicine/
10.	telenursing/
11.	(computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health* or mobile technolog* or phone* or remote care or remote consult* or remote medic* or remote technolog* or telecare* or tele-care* or telecommunication* or teleconference* or tele-conference* or teleconsult* or tele-consult* or telehealth* or tele-health* or telehomecare or tele-homecare or telemanagement or tele-management or telematic* or tele-matic* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telenurs* or tele-nurs* or telepharmacy or tele-pharmacy or telephone* or telerehab* or tele-rehab* or telesupport or tele-support or teletrauma* or tele-trauma* or videoconference* or video-conference*).ti,ab.
12.	or/9-11
13.	8 and 12
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language; Date parameters: Database start date – 01/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	15 and 17
19.	Limit 18 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	rescue personnel/
2.	exp ambulance/
3.	ambulance*.ti,ab.
4.	paramedic*.ti,ab.
5.	first respon*.ti,ab.
6.	(emergenc* adj2 technician*).ti,ab.

7.	((emergency or ambulance or urgent) adj (care assistan* or support worker*)).ti,ab.
8.	or/1-7
9.	exp telehealth/
10.	(computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health* or mobile technolog* or phone* or remote care or remote consult* or remote medic* or remote technolog* or telecare* or tele-care* or telecommunication* or teleconference* or tele-conference* or teleconsult* or tele-consult* or telehealth* or tele-health* or telehomecare or tele-homecare or telemanagement or tele-management or telematic* or tele-matic* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telenurs* or tele-nurs* or telepharmacy or tele-pharmacy or telephone* or telerehab* or tele-rehab* or telesupport or tele-support or teletrauma* or tele-trauma* or videoconference* or video-conference*).ti,ab.
11.	or/9-10
12.	8 and 11
13.	Excluded study designs and publication types [D.3.1]
14.	12 not 13
15.	Limit 14 to English language; Date parameters: Database start date – 01/12/2016 [C]
16.	Study filter ECON (D.3.4)
17.	14 and 16
18.	Limit 17 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh "emergency medical technicians"]
#2.	[mh ambulances]
#3.	ambulance*:ti,ab
#4.	paramedic*:ti,ab
#5.	first respon*:ti,ab
#6.	(emergenc* near/2 technician*):ti,ab
#7.	((emergency or ambulance or urgent) near/1 (care assistan* or support worker*)):ti,ab
#8.	{or #1-#7}
#9.	[mh telemedicine]
#10.	[mh telenursing]
#11.	(computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health* or mobile technolog* or phone* or remote care or remote consult* or remote medic* or remote technolog* or telecare* or tele-care* or telecommunication* or teleconference* or tele-conference* or teleconsult* or tele-consult* or telehealth* or tele-health* or telehomecare or tele-homecare or telemanagement or tele-management or telematic* or tele-matic* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telenurs* or tele-nurs* or telepharmacy or tele-pharmacy or telephone* or telerehab* or tele-rehab* or telesupport or tele-support or teletrauma* or tele-trauma* or videoconference* or video-conference*):ti,ab
#12.	{or #9-#11}
#13.	#8 and #12 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor emergency medical technicians
#2.	MeSH descriptor ambulances explode all trees
#3.	(ambulance* or paramedic* or first respon*)

#4.	(emergenc* adj2 technician*)
#5.	((emergency or ambulance or urgent) adj1 (care assistan* or support worker*))
#6.	#1 or #2 or #3 or #4 or #5
#7.	MeSH descriptor telemedicine explode all trees
#8.	MeSH descriptor telenursing
#9.	((computer mediated therap* or ehealth* or e-health* or mhealth* or m-health* or mobile health* or mobile technolog* or phone* or remote care or remote consult* or remote medic* or remote technolog* or telecare* or tele-care* or telecommunication* or teleconference* or tele-conference* or teleconsult* or tele-consult* or telehealth* or tele-health* or telehomecare or tele-homecare or telemanagement or tele-management or telematic* or tele-matic* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telenurs* or tele-nurs* or telepharmacy or tele-pharmacy or telephone* or telerehab* or tele-rehab* or telesupport or tele-support or teletrauma* or tele-trauma* or videoconference* or video-conference*))
#10.	#7 or #8 or #9
#11.	#6 and #10 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.5 GP extended hours

- Is urgent and/or routine extended access to usual GPs (e.g., evenings, 7 day) associated with improved outcomes?

Medline search terms

1.	exp general practitioners/
2.	exp physicians, primary care/
3.	exp physicians, family/
4.	exp family practice/
5.	exp general practice/
6.	primary health care/
7.	health services accessibility/
8.	exp "appointments and schedules"/
9.	(family practi* or family doctor* or family physician* or gp* or general practi* or gp* surger* or primary care centre*).ti,ab.
10.	((primary or social or primary health) adj1 care).ti,ab.
11.	or/1-10
12.	after-hours care/
13.	((extend* or routine or standard) adj3 (open* hour* or access* or open* time* or availab*)).ti,ab.
14.	((early morning* or evening* or weekend* or 7 day* or seven day* or 8 am-8 pm or same day) adj3 (appointment* or access or care)).ti,ab.
15.	((routine or non-urgent or urgent or emergency) adj2 appointment*).ti,ab.
16.	or/12-15
17.	11 and 16
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language; Date parameters: Database start date – 02/12/2016 [C]
21.	Study filter ECON (D.3.4)

22.	19 and 21
23.	Limit 22 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	exp general practitioners/
2.	exp general practice/
3.	primary health care/
4.	health care delivery/
5.	(family practi* or family doctor* or family physician* or gp* or general practi* or gp surger* or primary care centre*).ti,ab.
6.	((primary or social or primary health) adj1 care).ti,ab.
7.	or/1-6
8.	((extend* or routine or standard) adj3 (open* hour* or access* or open* time* or availab*)).ti,ab.
9.	((early morning or evening* or weekend* or 7 day* or seven day* or 8 am-8 pm or same day) adj3 (appointment* or access or care)).ti,ab.
10.	((routine or non-urgent or urgent or emergency) adj2 appointment*).ti,ab.
11.	or/8-10
12.	7 and 11
13.	Excluded study designs and publication types [D.3.1]
14.	12 not 13
15.	Limit 14 to English language; Date parameters: Database start date – 02/12/2016 [C]
16.	Study filter ECON (D.3.4)
17.	14 and 16
18.	Limit 17 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	MeSH descriptor: [general practitioners] explode all trees
#2.	MeSH descriptor: [physicians, primary care] explode all trees
#3.	MeSH descriptor: [physicians, family] explode all trees
#4.	MeSH descriptor: [family practice] explode all trees
#5.	MeSH descriptor: [general practice] explode all trees
#6.	MeSH descriptor: [primary health care] this term only
#7.	MeSH descriptor: [health services accessibility] this term only
#8.	MeSH descriptor: [appointments and schedules] explode all trees
#9.	(family practi* or family doctor* or family physician* or gp* or general practi* or gp surger*):ti,ab
#10.	((primary or social or primary health) next/1 care):ti,ab
#11.	{or #1-#10}
#12.	MeSH descriptor: [after-hours care] this term only
#13.	((extend* or routine or standard) near/3 (open* hour* or access* or open* time* or availab*)):ti,ab
#14.	((early morning* or evening* or weekend* or 7 day* or seven day* or 8 am-8 pm or same day) near/3 (appointment* or access or care)):ti,ab
#15.	((routine or non-urgent or urgent or emergency) near/2 appointment*):ti,ab
#16.	{or #12-#15}

#17.	#11 and #16 [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	MeSH descriptor general practitioners explode all trees
#2.	MeSH descriptor physicians, primary care
#3.	MeSH descriptor physicians, family
#4.	MeSH descriptor family practice
#5.	MeSH descriptor general practice explode all trees
#6.	MeSH descriptor primary health care
#7.	MeSH descriptor health services accessibility
#8.	MeSH descriptor appointments and schedules explode all trees
#9.	((family practi* or family doctor* or family physician* or gp* or general practi* or gp* surger* or primary care centre*))
#10.	(((primary or social or primary health) adj1 care))
#11.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
#12.	MeSH descriptor after-hours care
#13.	(((extend* or routine or standard) adj3 (open* hour* or access* or open* time* or availab*)))
#14.	(((early morning* or evening* or weekend* or 7 day* or seven day* or 8 am-8 pm or same day) adj3 (appointment* or access or care)))
#15.	(((routine or non-urgent or urgent or emergency) adj2 appointment*))
#16.	#12 or #13 or #14 or #15
#17.	#11 and #16 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.6 GP led home visits

- Do primary care led home visits reduce unplanned hospital admissions?

Medline search terms

1.	exp general practitioners/
2.	physicians, primary care/
3.	physicians, family/
4.	family practice/
5.	exp general practice/
6.	primary health care/
7.	health services accessibility/
8.	nurse practitioners/
9.	nurses, community health/
10.	physician's practice patterns/
11.	after-hours care/
12.	(family practi* or family doctor* or family physician* or gp* or general practi* or gp surger*).ti,ab.
13.	((primary or social or primary health or after-hours) adj1 care).ti,ab.
14.	(anp or nurse practioner* or community nurse*).ti,ab.
15.	or/1-14
16.	house calls/

17.	((home or house) adj2 (visit* or call* or appointment*)).ti,ab.
18.	16 or 17
19.	15 and 18
20.	Excluded study designs and publication types [D.3.1]
21.	19 not 20
22.	Limit 21 to English language
23.	Study filter ECON (D.3.4)
24.	22 [C]
25.	22 and 23 [HE]
	Date parameters: 2005 – 02/12/2016

Embase search terms

1.	exp general practitioners/
2.	exp general practice/
3.	primary health care/
4.	*health care delivery/
5.	advanced practice nurse/
6.	nurse practitioner/
7.	*professional practice/
8.	*clinical practice/
9.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
10.	((primary or social or after-hour*) adj1 care).ti,ab.
11.	or/1-10
12.	((home or house) adj1 (visit* or call* or appointment*)).ti,ab.
13.	11 and 12
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language
17.	Study filter ECON (D.3.4)
18.	16 [C]
19.	16 and 17 [HE]
	Date parameters: 2005 – 02/12/2016

Cochrane search terms

#1.	MeSH descriptor: [general practitioners] explode all trees
#2.	MeSH descriptor: [physicians, primary care] explode all trees
#3.	MeSH descriptor: [physicians, family] explode all trees
#4.	MeSH descriptor: [family practice] explode all trees
#5.	MeSH descriptor: [general practice] explode all trees
#6.	MeSH descriptor: [primary health care] this term only
#7.	MeSH descriptor: [health services accessibility] this term only
#8.	MeSH descriptor: [nurse practitioners] this term only
#9.	MeSH descriptor: [nurses, community health] this term only
#10.	MeSH descriptor: [physician's practice patterns] this term only
#11.	MeSH descriptor: [after-hours care] this term only

#12.	(family practi* or family doctor* or family physician* or gp* or general practi* or gp surger*):ti,ab
#13.	((primary or social or primary health or after-hours) next/1 care):ti,ab
#14.	(anp or nurse practioner* or community nurse*):ti,ab
#15.	{or #1-#14}
#16.	MeSH descriptor: [house calls] this term only
#17.	((home or house) near/2 (visit* or call* or appointment*)):ti,ab
#18.	#16 or #17
#19.	#15 and #18 [C]
	Date parameters: 2005 – 02/12/2016

CRD search terms

#1.	MeSH descriptor general practitioners explode all trees
#2.	MeSH descriptor physicians, primary care
#3.	MeSH descriptor physicians, family
#4.	MeSH descriptor family practice
#5.	MeSH descriptor general practice explode all trees
#6.	MeSH descriptor primary health care
#7.	MeSH descriptor health services accessibility
#8.	MeSH descriptor nurse practitioners
#9.	MeSH descriptor nurses, community health
#10.	MeSH descriptor after-hours care
#11.	(MeSH descriptor physician's practice patterns)
#12.	(family practi* or family doctor* or family physician* or gp* or general practi* or gp surger*)
#13.	(((primary or social or primary health or after-hours) adj1 care))
#14.	(anp or nurse practioner* or community nurse*)
#15.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14
#16.	MeSH descriptor house calls
#17.	(((home or house) adj2 (visit* or call* or appointment*)))
#18.	#16 or #17
#19.	#15 and #18 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.7 GP access to lab tests

- Does primary care access to laboratory investigations with same day results improve outcomes?

Medline search terms

1.	phlebotomy/
2.	hematologic tests/
3.	exp blood cell count/
4.	exp kidney function tests/
5.	liver function tests/
6.	c-reactive protein/
7.	exp *natriuretic peptides/
8.	(natriuretic adj2 (peptide* or factor*)).ti,ab.

9.	(bnp or anp or pro-bnp or pro-anp or pro bnp or pro anp).ti,ab.
10.	(c-reactive protein* or crp).ti,ab.
11.	(blood adj2 (count* or test* or number*)).ti,ab.
12.	phlebotomy.ti,ab.
13.	((liver or kidney* or renal) adj3 test*).ti,ab.
14.	or/1-13
15.	exp primary health care/
16.	exp physician's practice patterns/
17.	exp family practice/
18.	exp physicians, primary care/
19.	exp general practice/
20.	exp physicians, family/
21.	exp general practitioners/
22.	exp "referral and consultation"/
23.	((primary or communit*) adj5 care).ti,ab.
24.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
25.	exp outpatient clinics, hospital/
26.	exp ambulatory care/
27.	exp community health services/ or exp community health centers/
28.	or/15-27
29.	((prompt* or hour* or rapid* or early or earlier or time* or timing or late or later or delay* or day or within) adj2 (result or results)).ti,ab.
30.	point of care.ti,ab.
31.	near patient test*.ti,ab.
32.	bedside test*.ti,ab.
33.	(rapid adj2 (test* or diagnos*)).ti,ab.
34.	point-of-care systems/
35.	clinical laboratory techniques/
36.	(laborator* adj2 (diagnos* or test*)).ti,ab.
37.	or/29-36
38.	14 and 28 and 37
39.	Excluded study designs and publication types [D.3.1]
40.	38 not 39
41.	Limit 40 to English language; Date parameters: Database start date – 01/12/2016 [C]
42.	Study filter ECON (D.3.4)
43.	40 and 42
44.	Limit 43 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*phlebotomy/
2.	exp *blood examination/
3.	exp *blood cell count/
4.	*kidney function test/
5.	*liver function test/
6.	*c reactive protein/

7.	exp *natriuretic factor/
8.	(natriuretic adj2 (peptide* or factor*)).ti,ab.
9.	(bnp or anp or pro-bnp or pro-anp or pro bnp or pro anp).ti,ab.
10.	(c-reactive protein* or crp).ti,ab.
11.	(blood adj2 (count* or test* or number*)).ti,ab.
12.	phlebotomy.ti,ab.
13.	((liver or kidney* or renal) adj3 test*).ti,ab.
14.	or/1-13
15.	exp primary health care/
16.	exp professional practice/
17.	exp clinical practice/
18.	exp general practice/
19.	general practitioner/
20.	patient referral/
21.	((primary or communit*) adj5 care).ti,ab.
22.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
23.	exp outpatient department/
24.	exp ambulatory care/
25.	exp community care/
26.	health center/
27.	or/15-26
28.	14 and 27
29.	((prompt* or hour* or rapid* or early or earlier or time* or timing or late or later or delay* or day or within) adj2 (result or results)).ti,ab.
30.	point of care.ti,ab.
31.	near patient test*.ti,ab.
32.	bedside test*.ti,ab.
33.	(rapid adj2 (test* or diagnos*)).ti,ab.
34.	*hospital information system/
35.	*diagnostic procedure/
36.	(laborator* adj2 (diagnos* or test*)).ti,ab.
37.	or/29-36
38.	28 and 37
39.	Excluded study designs and publication types [D.3.1]
40.	38 not 39
41.	Limit 40 to English language; Date parameters: Database start date – 01/12/2016 [C]
42.	Study filter ECON (D.3.4)
43.	40 and 42
44.	Limit 43 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh phlebotomy]
#2.	[mh ^"hematologic tests"]
#3.	[mh "blood cell count"]
#4.	[mh "kidney function tests"]

#5.	[mh "liver function tests"]
#6.	[mh "c-reactive protein"]
#7.	[mh "natriuretic peptides"]
#8.	(natriuretic near/2 (peptide* or factor*)):ti,ab
#9.	(bnp or anp or pro-bnp or pro-anp or pro bnp or pro anp):ti,ab
#10.	(c-reactive protein* or crp):ti,ab
#11.	(blood near/2 (count* or test* or number*)):ti,ab
#12.	phlebotomy:ti,ab
#13.	((liver or kidney* or renal) near/3 test*):ti,ab
#14.	{or #1-#13}
#15.	[mh "primary health care"]
#16.	[mh "physician's practice patterns"]
#17.	[mh "family practice"]
#18.	[mh "physicians, primary care"]
#19.	[mh "general practice"]
#20.	[mh "physicians, family"]
#21.	[mh "general practitioners"]
#22.	[mh "referral and consultation"]
#23.	((primary or communit*) near/5 care):ti,ab
#24.	(family practi* or family doctor* or family physician* or gp* or general practi*):ti,ab
#25.	[mh "outpatient clinics, hospital"]
#26.	[mh "ambulatory care"]
#27.	[mh "community health services"]
#28.	[mh "community health centers"]
#29.	{or #14-#28}
#30.	((prompt* or hour* or rapid* or early or earlier or time* or timing or late or later or delay* or day or within) near/2 (result or results)):ti,ab
#31.	point of care:ti,ab
#32.	near patient test*:ti,ab
#33.	bedside test*:ti,ab
#34.	(rapid near/2 (test* or diagnos*)):ti,ab
#35.	[mh "point-of-care systems"]
#36.	[mh ^"clinical laboratory techniques"]
#37.	(laborator* near/2 (diagnos* or test*)):ti,ab
#38.	{or #30-#37}
#39.	#14 and #29 and #38 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor phlebotomy explode all trees
#2.	MeSH descriptor hematologic tests explode all trees
#3.	MeSH descriptor blood cell count explode all trees
#4.	MeSH descriptor kidney function tests explode all trees
#5.	MeSH descriptor liver function tests explode all trees
#6.	MeSH descriptor c-reactive protein explode all trees

#7.	MeSH descriptor natriuretic peptides explode all trees
#8.	((natriuretic adj2 (peptide* or factor*)))
#9.	((bnp or anp or pro-bnp or pro-anp or pro bnp or pro anp))
#10.	((c-reactive protein* or crp))
#11.	((blood adj2 (count* or test* or number*)))
#12.	(phlebotomy)
#13.	(((liver or kidney* or renal) adj3 test*))
#14.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13
#15.	MeSH descriptor primary health care explode all trees
#16.	MeSH descriptor physician's practice patterns explode all trees
#17.	MeSH descriptor family practice explode all trees
#18.	MeSH descriptor physicians, primary care explode all trees
#19.	MeSH descriptor general practice explode all trees
#20.	MeSH descriptor general practitioners explode all trees
#21.	MeSH descriptor physicians, family explode all trees
#22.	MeSH descriptor referral and consultation explode all trees
#23.	(((primary or communit*) adj5 care))
#24.	((family practi* or family doctor* or family physician* or gp* or general practi*))
#25.	MeSH descriptor outpatient clinics, hospital explode all trees
#26.	MeSH descriptor ambulatory care explode all trees
#27.	MeSH descriptor community health services explode all trees
#28.	MeSH descriptor community health centers explode all trees
#29.	#15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28
#30.	(((prompt* or hour* or rapid* or early or earlier or time* or timing or late or later or delay* or day or within) adj2 (result or results)))
#31.	("point of care")
#32.	(patient test*)
#33.	(bedside test*)
#34.	((rapid adj2 (test* or diagnos*)))
#35.	MeSH descriptor point-of-care systems explode all trees
#36.	MeSH descriptor clinical laboratory techniques explode all trees
#37.	((laborator* adj2 (diagnos* or test*)))
#38.	#30 or #31 or #32 or #33 or #34 or #35 or #36 or #37
#39.	#14 and #29 and #38 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.8 GP access to radiology

- Does GP access to radiology with same day results improve outcomes?

Medline search terms

1.	((family practi* or family doctor* or family physician* or GP or GPs or general practi* or ((primary or communit*) adj2 care)) adj5 (imag* or radiogra* or radiolog* or X-ray* or Xray* or MRI or magnetic resonance or NMR or tomogra* or echogra* or echotomogra* or sonograph* or ultrasound or ultrasonogra* or scintigra* or scintiscan* or radioscintigra* or scintiphotogra* or CT or CAT or CXR*)).ti,ab.
2.	Excluded study designs and publication types [D.3.1]

3.	1 not 2
4.	Limit 3 to English language; Date parameters: Database start date – 01/12/2016 [C]
5.	Study filter ECON (D.3.4)
6.	3 and 5
7.	Limit 6 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	((family practi* or family doctor* or family physician* or GP or GPs or general practi* or ((primary or communit*) adj2 care)) adj5 (imag* or radiogra* or radiolog* or X-ray* or Xray* or MRI or magnetic resonance or NMR or tomogra* or echogra* or echotomogra* or sonograph* or ultrasound or ultrasonogra* or scintigra* or scintiscan* or radioscintigra* or scintiphotogra* or CT or CAT or CXR*)).ti,ab.
2.	Excluded study designs and publication types [D.3.1]
3.	1 not 2
4.	Limit 3 to English language; Date parameters: Database start date – 01/12/2016 [C]
5.	Study filter ECON (D.3.4)
6.	3 and 5
7.	Limit 6 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((family practi* or family doctor* or family physician* or GP or GPs or general practi* or ((primary or communit*) near/2 care)) near/5 (imag* or radiogra* or radiolog* or X-ray* or Xray* or MRI or magnetic resonance or NMR or tomogra* or echogra* or echotomogra* or sonograph* or ultrasound or ultrasonogra* or scintigra* or scintiscan* or radioscintigra* or scintiphotogra* or CT or CAT or CXR*)):ti,ab [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((family practi* or family doctor* or family physician* or GP or GPs or general practi* or ((primary or communit*) adj2 care)) ADJ5 (imag* or radiogra* or radiolog* or X-ray* or Xray* or MRI or magnetic resonance or NMR or tomogra* or echogra* or echotomogra* or sonograph* or ultrasound or ultrasonogra* or scintigra* or scintiscan* or radioscintigra* or scintiphotogra* or CT or CAT or CXR*))) in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.9 Community nursing access

- Is extended access to community nursing/district nursing more clinically and cost effective than standard access?

Medline search terms

1.	((district or community) adj3 nurs*).ti,ab.
2.	practice nurs*.ti,ab.
3.	community health nursing/
4.	nurses, community health/
5.	or/1-4
6.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
7.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday

	or saturday or sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
8.	after-hours care/
9.	workload/
10.	or/6-9
11.	5 and 10
12.	Excluded study designs and publication types [A.3.1]
13.	11 not 12
14.	Limit 13 to English language
15.	Study filter ECON (D.3.4)
16.	14 [C]
17.	14 and 15 [HE]
	Date parameters: 2005 – 02/12/2016

Embase search terms

1.	community health nursing/
2.	((district or community) adj3 nurs*).ti,ab.
3.	practice nurs*.ti,ab.
4.	or/1-3
5.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
6.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or Monday-Friday or Saturday or Sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
7.	workload/
8.	or/5-7
9.	4 and 8
10.	or/11-13
11.	Excluded study designs and publication types [D.3.1]
12.	10 not 11
13.	Limit 12 to English language
14.	Study filter ECON (D.3.4)
15.	13 [C]
16.	13 and 14 [HE]
	Date parameters: 2005 – 02/12/2016

CINAHL search terms

S1.	((district or community) n3 nurs*)
S2.	practice nurs*
S3.	(MH "community health nursing")
S4.	S1 or S2 or S3
S5.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) n3 (service* or access* or availab* or hour* or appointment*))
S6.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) n3 (service* or access* or availab* or hour* or appointment*))

S7.	(MH "workload")
S8.	S5 or S6 or S7
S9.	S4 and S8
S10.	Limit S9 to English language [C]
	Date parameters: 2005 – 02/12/2016

Cochrane search terms

#1.	((district or community) near/3 nurs*):ti,ab
#2.	practice nurs*:ti,ab
#3.	MeSH descriptor: [community health nursing] this term only
#4.	MeSH descriptor: [nurses, community health] this term only
#5.	{or #1-#4}
#6.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#7.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#8.	MeSH descriptor: [after-hours care] this term only
#9.	MeSH descriptor: [workload] this term only
#10.	{or #6-#9}
#11.	#5 and #10 [C]
	Date parameters: 2005 – 02/12/2016

CRD search terms

#1.	((district or community) adj3 (nurs* or matron*))
#2.	(practice nurs*)
#3.	MeSH descriptor community health nursing
#4.	MeSH descriptor nurses, community health
#5.	#1 or #2 or #3 or #4
#6.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*))
#7.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) adj3 (service* or access* or availab* or hour* or appointment*))
#8.	MeSH descriptor after-hours care
#9.	MeSH descriptor workload
#10.	#6 or #7 or #8 or #9
#11.	#5 and #10 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.10 Matron-Nurse led care

- Does community matron or nurse-led care improve outcomes compared to usual care?

Medline search terms

1.	((district or community or public health) adj3 (nurs* or matron*)).ti,ab.

2.	((practice or registered or home) adj nurs*).ti,ab.
3.	(nurs* adj4 (home-visit* or home visit* or home-based or home based)).ti,ab.
4.	(visit* adj2 home adj3 nurs*).ti,ab.
5.	community health nursing/
6.	nurses, community health/
7.	or/1-6
8.	patient admission/
9.	patient readmission/
10.	case management/
11.	(case manag* or patient* manag* or caseload* or workload* or case load or work load).ti,ab.
12.	((nurs* or matron*) adj (led or lead*)).ti,ab.
13.	((admission* or readmission* or admit*) adj3 (reduc* or avoid* or increase* or risk* or prevent*)).ti,ab.
14.	(hospitali#ation* adj3 (reduc* or avoid* or prevent*)).ti,ab.
15.	individual* care plan*.ti,ab.
16.	or/8-15
17.	7 and 16
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language
21.	Study filters RCT (D.3.2) or SR (D.3.3)
22.	Study filter ECON (D.3.4)
23.	20 and 21; Date parameters: Database start date – 02/12/2016 [C]
24.	20 and 22; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	*community health nursing/
2.	((district or community or public health) adj3 (nurs* or matron*)).ti,ab.
3.	((practice or registered or home) adj nurs*).ti,ab.
4.	(nurs* adj4 (home-visit* or home visit* or home-based or home based)).ti,ab.
5.	(visit* adj2 home adj3 nurs*).ti,ab.
6.	or/1-5
7.	hospital admission/
8.	hospital readmission/
9.	case management/
10.	(case manag* or patient* manag* caseload* or workload* or case load or work load).ti,ab.
11.	((nurs* or matron*) adj (led or lead*)).ti,ab.
12.	((admission* or readmission* or admit*) adj3 (reduc* or avoid* or increase* or risk* or prevent*)).ti,ab.
13.	(hospitali#ation* adj3 (reduc* or avoid* or prevent*)).ti,ab.
14.	individual* care plan*.ti,ab.
15.	or/7-14
16.	6 and 15
17.	Excluded study designs and publication types [D.3.1]
18.	16 not 17

19.	Limit 18 to English language
20.	Study filters RCT (D.3.2) or SR (D.3.3)
21.	Study filter ECON (D.3.4)
22.	19 and 20; Date parameters: Database start date – 02/12/2016 [C]
23.	19 and 21; Date parameters: 2005 – 02/12/2016 [HE]

CINAHL search terms

S1.	((district or community or public health) n3 (nurs* or matron*))
S2.	(practice or registered or home) n1 nurs*)
S3.	(nurs* n4 (home-visit* or home visit* or home-based or home based))
S4.	(visit* n2 home n3 nurs*)
S5.	(mh "community health nursing")
S6.	(mh "office nursing")
S7.	S1 or S2 or S3 or S4 or S5 or S6
S8.	(mh "patient admission")
S9.	(mh "readmission")
S10.	(mh "case management")
S11.	(nurs* or matron*) n1 (led or lead*)
S12.	(case manag* or patient* manag* or caseload* or workload* or case load or work load)
S13.	(admission* or readmission* or admit*) n3 (reduc* or avoid* or increase* or risk* or prevent*)
S14.	(hospitali#ation* n3 (reduc* or avoid* or prevent*)
S15.	individual* care plan*
S16.	S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15
S17.	S7 and S16
S18.	Excluded study designs and publication types [D.3.1]
S19.	S17 not S18
S20.	Limit S19 to English language
S21.	pt meta analysis or pt meta synthesis or pt nursing interventions or pt randomized controlled trial or pt review or pt systematic review
S22.	S20 and S21 [C]
	Date parameters: Database start date – 02/12/2016

Cochrane search terms

#1.	((district or community or public health) near/3 (nurs* or matron*)):ti,ab
#2.	((practice or registered or home) next nurs*):ti,ab
#3.	(nurs* near/4 (home-visit* or home visit* or home-based or home based)):ti,ab
#4.	(visit* near/2 home near/3 nurs*):ti,ab
#5.	[mh "community health nursing"]
#6.	[mh "nurses, community health"]
#7.	{or #1-#6}
#8.	[mh "patient admission"]
#9.	[mh "patient readmission"]
#10.	[mh "case management"]
#11.	(case manag* or patient* manag* or caseload* or workload* or case load or work load):ti,ab
#12.	((nurs* or matron*) next (led or lead*)):ti,ab

#13.	((admission* or readmission* or admit*) near/3 (reduc* or avoid* or increase* or risk* or prevent*)):ti,ab
#14.	(hospitali* near/3 (reduc* or avoid* or prevent*)):ti,ab
#15.	(individual* care plan*):ti,ab
#16.	{or #8-#15}
#17.	#7 and #16 [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	(((district or community or public health) adj3 (nurs* or matron*)))
#2.	(((practice or registered or home) adj nurs*))
#3.	((nurs* adj4 (home-visit* or home visit* or home-based or home based)))
#4.	((visit* adj2 home adj3 nurs*))
#5.	MeSH descriptor community health nursing
#6.	MeSH descriptor nurses, community health
#7.	#1 or #2 or #3 or #4 or #5 or #6
#8.	MeSH descriptor patient admission
#9.	MeSH descriptor patient readmission
#10.	MeSH descriptor case management
#11.	((case manag* or patient* manag* or caseload* or workload* or case load or work load))
#12.	(((nurs* or matron*) adj (led or lead*)))
#13.	(((admission* or readmission* or admit*) adj3 (reduc* or avoid* or increase* or risk* or prevent*)))
#14.	((hospitali#ation* adj3 (reduc* or avoid* or prevent*)))
#15.	(individual* care plan*)
#16.	#8 or #9 or #10 or #11 or #12 or #13 or #14 or #15
#17.	#7 and #16 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.11 Community pharmacists

- Do enhanced roles of pharmacists in the community have clinical and cost-effectiveness benefits?

Medline search terms

1.	((medicine* or medication*) adj "use" adj (review* or service*)).ti,ab.
2.	prescription intervention*.ti,ab.
3.	(new adj (medicine* or medication*) adj service*).ti,ab.
4.	("appliance use" adj (review* or service*)).ti,ab.
5.	((pharmac* adj2 special* interest*) or phwsi).ti,ab.
6.	*community pharmacy services/
7.	(community adj pharmacist*).ti,ab.
8.	or/1-7
9.	community pharmacy services/
10.	pharmacy/
11.	pharmacists/
12.	(pharmacy or pharmacies or pharmacist*).ti,ab.
13.	pharmaceutical services/ or medication therapy management/

14.	(pharmaceutical adj2 (service* or care)).ti,ab.
15.	or/10-14
16.	outpatients/
17.	exp ambulatory care facilities/
18.	ambulatory care/
19.	primary health care/
20.	exp general practice/
21.	exp community health services/ or exp community health centers/
22.	(outpatient* or out-patient* or clinic or clinics or ambulatory or communit* or primary care or general practice).ti,ab.
23.	or/16-22
24.	9 or (15 and 23)
25.	((independent* or supplement*) adj2 prescri*).ti,ab.
26.	minor ailment*.ti,ab.
27.	((drug or medicine* or medication*) adj2 (review* or manage*)).ti,ab.
28.	(consultant* adj2 pharmacist*).ti,ab.
29.	(advance* adj2 practitioner*).ti,ab.
30.	((chronic or long-term) adj2 (disease* or condition*)).ti,ab.
31.	(advance* adj2 (service* or pharmac* practice*)).ti,ab.
32.	chronic disease/
33.	(asthma or coagulation or diabetes or cardio* or hypertens* or copd or respiratory*).ti,ab.
34.	(prescri* adj1 advi*).ti,ab.
35.	(disease* adj2 manage*).ti,ab.
36.	prescriptions/
37.	pincer.ti,ab.
38.	pharmacist-led.ti,ab.
39.	or/25-38
40.	24 and 39
41.	8 or 40
42.	Excluded study designs and publication types [D.3.1]
43.	41 not 42
44.	Limit 43 to English language
45.	Study filters RCT (D.3.2) or SR (D.3.3)
46.	Study filter ECON (D.3.4)
47.	44 and 45; Date parameters: Database start date – 01/12/2016 [C]
48.	44 and 46; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	((medicine* or medication*) adj "use" adj (review* or service*)).ti,ab.
2.	prescription intervention*.ti,ab.
3.	(new adj (medicine* or medication*) adj service*).ti,ab.
4.	("appliance use" adj (review* or service*)).ti,ab.
5.	((pharmac* adj2 special* interest*) or phwsi).ti,ab.
6.	(community adj pharmacist*).ti,ab.
7.	or/1-6

8.	*pharmacist/
9.	*clinical pharmacy/
10.	*pharmacy/
11.	*pharmaceutical care/
12.	*medication therapy management/
13.	(pharmacy or pharmacies or pharmacist*).ti,ab.
14.	(pharmaceutical adj2 (service* or care)).ti,ab.
15.	or/8-14
16.	exp outpatient department/
17.	exp ambulatory care/
18.	exp community care/
19.	outpatient/
20.	exp primary health care/
21.	general practice/
22.	(outpatient* or out-patient* or clinic or clinics or ambulatory or communit* or primary care or general practice).ti,ab.
23.	or/16-22
24.	15 and 23
25.	((independent* or supplement*) adj2 prescri*).ti,ab.
26.	minor ailment*.ti,ab.
27.	((drug or medicine* or medication*) adj2 (review* or manage*)).ti,ab.
28.	(consultant* adj2 pharmacist*).ti,ab.
29.	(advance* adj2 practitioner*).ti,ab.
30.	((chronic or long-term) adj2 (disease* or condition*)).ti,ab.
31.	(advance* adj2 (service* or pharmac* practice*)).ti,ab.
32.	*chronic disease/
33.	(asthma or coagulation or diabetes or cardio* or hypertens* or copd or respiratory*).ti,ab.
34.	(prescri* adj1 advi*).ti,ab.
35.	(disease* adj2 manage*).ti,ab.
36.	*disease management/
37.	*prescription/
38.	pincer.ti,ab.
39.	pharmacist-led.ti,ab.
40.	or/25-39
41.	24 and 40
42.	7 or 41
43.	Excluded study designs and publication types [D.3.1]
44.	42 not 43
45.	Limit 44 to English language
46.	Study filters RCT (D.3.2) or SR (D.3.3)
47.	Study filter ECON (D.3.4)
48.	45 and 46; Date parameters: Database start date – 01/12/2016 [C]
49.	45 and 47; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((medicine* or medication*) next use next (review* or service*)):ti,ab
#2.	prescription next intervention*:ti,ab
#3.	(new next (medicine* or medication*) next service*):ti,ab
#4.	("appliance use" next (review* or service*)):ti,ab
#5.	((pharmac* near/2 special* next interest*) or phwsi):ti,ab
#6.	[mh ^"community pharmacy services"]
#7.	(community next pharmacist*):ti,ab
#8.	{or #1-#7}
#9.	[mh ^pharmacy]
#10.	[mh ^pharmacists]
#11.	(pharmacy or pharmacies or pharmacist*):ti,ab
#12.	[mh ^"pharmaceutical services"]
#13.	[mh ^"medication therapy management"]
#14.	(pharmaceutical near/2 (service* or care)):ti,ab
#15.	{or #9-#14}
#16.	[mh ^outpatients]
#17.	[mh ^"ambulatory care"]
#18.	[mh "ambulatory care facilities"]
#19.	[mh ^"primary health care"]
#20.	[mh "general practice"]
#21.	[mh "community health services"]
#22.	[mh "community health centers"]
#23.	(outpatient* or out-patient* or clinic or clinics or ambulatory or communit* or "primary care" or "general practice"):ti,ab
#24.	{or #16-#23}
#25.	#15 and #24
#26.	((independent* or supplement*) near/2 prescri*):ti,ab
#27.	(minor next ailment*):ti,ab
#28.	((drug or medicine* or medication*) near/2 (review* or manage*)):ti,ab
#29.	(consultant* near/2 pharmacist*):ti,ab
#30.	(advance* near/2 practitioner*):ti,ab
#31.	((chronic or long-term or "long term") next/2 (disease* or condition*)):ti,ab
#32.	(advance* near/2 (service* or pharmac* next practice*)):ti,ab
#33.	[mh ^"chronic disease"]
#34.	((asthma or coagulation or diabetes or cardio* or hypertens* or copd or respiratory*) near/3 clinic*):ti,ab
#35.	(prescri* near/1 advi*):ti,ab
#36.	(disease* near/2 manage*):ti,ab
#37.	[mh ^prescriptions]
#38.	pincer:ti,ab
#39.	(pharmacist-led or "pharmacist led"):ti,ab
#40.	{or #26-#39}
#41.	#25 and #40
#42.	#8 or #41 [C]

	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((medicine* or medication*) adj "use" adj (review* or service*)))
#2.	(prescription intervention*)
#3.	((new adj (medicine* or medication*) adj service*))
#4.	(("appliance use" adj (review* or service*)))
#5.	(((pharmac* adj2 special* interest*) or phwsi))
#6.	MeSH descriptor community pharmacy services
#7.	(((independent* or supplement*) adj2 prescri*))
#8.	((consultant* adj2 pharmacist*))
#9.	((advance* adj2 practitioner*))
#10.	((prescri* adj1 advi*))
#11.	(pharmacist-led or pharmacist led)
#12.	(community adj pharmacist*)
#13.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12
#14.	MeSH descriptor pharmacy
#15.	MeSH descriptor pharmacists
#16.	(pharmacy or pharmacies or pharmacist*)
#17.	MeSH descriptor pharmaceutical services
#18.	MeSH descriptor medication therapy management
#19.	((pharmaceutical adj2 (service* or care)))
#20.	#14 or #15 or #16 or #17 or #18 or #19
#21.	MeSH descriptor outpatients
#22.	MeSH descriptor ambulatory care facilities explode all trees
#23.	MeSH descriptor ambulatory care
#24.	MeSH descriptor primary health care
#25.	MeSH descriptor general practice explode all trees
#26.	MeSH descriptor community health services explode all trees
#27.	MeSH descriptor community health centers explode all trees
#28.	(outpatient* or out-patient* or clinic or clinics or ambulatory or communit* or primary care or general practice)
#29.	#21 or #22 or #23 or #24 or #25 or #26 or #27 or #28
#30.	#20 and #29
#31.	(minor ailment*)
#32.	(((drug or medicine* or medication*) adj2 (review* or manage*)))
#33.	(((chronic or long-term) adj2 (disease* or condition*)))
#34.	((advance* adj2 (service* or pharmac* practice*)))
#35.	MeSH descriptor chronic disease
#36.	((disease* adj2 manage*))
#37.	MeSH descriptor prescriptions
#38.	(pincer)
#39.	(asthma or coagulation or diabetes or cardio* or hypertens* or copd or respiratory*)
#40.	#31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39
#41.	#30 and #40

#42.	#13 or #41 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.12 Social care

- Is urgent and/or routine extended access to social care services (e.g., evenings, 7 day) more clinically and cost effective compared with standard access?

Medline search terms

1.	social work/
2.	(social adj1 (care* or service* or work*)).ti,ab.
3.	(caseworker* or case-worker* or case worker*).ti,ab.
4.	or/1-3
5.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
6.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
7.	after-hours care/
8.	workload/
9.	or/5-8
10.	4 and 9
11.	Excluded study designs and publication types [D.3.1]
12.	10 not 11
13.	Limit 12 to English language
14.	Study filter ECON (D.3.4)
15.	13 [C]
16.	13 and 14 [HE]
	Date parameters: 2005 – 01/12/2016

Embase search terms

1.	*social care/
2.	*social work/
3.	social worker/
4.	(social adj1 (care* or service* or work*)).ti,ab.
5.	(caseworker* or case-worker* or case worker*).ti,ab.
6.	or/1-5
7.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
8.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or Monday-Friday or Saturday or Sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
9.	workload/
10.	or/7-9
11.	6 and 10
12.	Excluded study designs and publication types [D.3.1]

13.	11 not 12
14.	Limit 13 to English language
15.	Study filter ECON (D.3.4)
16.	14 [C]
17.	14 and 15[HE]
	Date parameters: 2005 – 01/12/2016

Cochrane search terms

#1.	MeSH descriptor: [social work] this term only
#2.	(social near/1 (care* or service* or work*)):ti,ab
#3.	(caseworker* or case-worker* or case worker*):ti,ab
#4.	{or #1-#3}
#5.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#6.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or after hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or out of hour* or 9-5 or Monday-Friday or Saturday or Sunday) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#7.	MeSH descriptor: [after-hours care] this term only
#8.	MeSH descriptor: [workload] this term only
#9.	{or #5-#8}
#10.	#4 and #9 [C]
	Date parameters: 2005 – 01/12/2016

Social Policy and Practice search terms

1.	(social adj1 (care* or service* or work*)).ti,ab.
2.	(caseworker* or case-worker* or case worker*).ti,ab.
3.	or/1-2
4.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
5.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or after hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or out of hour* or 9-5 or Monday-Friday or Saturday or Sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
6.	or/4-5
7.	3 and 6 [C]
	Date parameters: 2005 – 29/03/2016

CRD search terms

#1.	MeSH descriptor social work
#2.	((caseworker* or case-worker* or case worker*))
#3.	((social adj1 (care* or service* or work*)))
#4.	#1 or #2 or #3
#5.	(((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)))

#6.	(((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or Monday-Friday or Saturday or Sunday) adj3 (service* or access* or availab* or hour* or appointment*)))
#7.	MeSH descriptor after-hours care
#8.	MeSH descriptor workload
#9.	#5 or #6 or #7 or #8
#10.	#4 and #9
#11.	#10 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.13 Alternatives to hospital care

Searches for the following two questions were run as one search:

- Does community-based intermediate care improve outcomes compared with hospital care?
- Does the use of virtual ward improve compared with hospital care?

Medline search terms

1.	home care services, hospital-based/
2.	("hom*1 hospital*" or "hospital* hom*1" or "hospital at home" or "hospital in the home").ti,ab.
3.	1 or 2
4.	(hospital adj2 (care or caring or cared or treat* or manag* or follow-up*)).ti,ab.
5.	((home*1 or domiciliary or home visit* or home based or home-based or in-home) adj2 (care or caring or cared or treat* or manag* or follow-up* or program* or scheme* or strateg* or framework* or gp* or physician* or nurse* or anp or matron*)).ti,ab.
6.	4 and 5
7.	(support* adj1 discharg*).ti,ab.
8.	((discharge or post-discharge or self-care or self care) adj3 (home visit* or home based or home-based)).ti,ab.
9.	(discharge follow-up adj3 patient* home*).ti,ab.
10.	or/7-9
11.	3 or 6 or 10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	(virtual* adj2 ward*).ti,ab.
15.	(virtual* adj2 hospital*).ti,ab.
16.	14 or 15
17.	13 or 16
18.	Limit 17 to English language; Date parameters: Database start date – 02/12/2016 [C]
19.	Study filter ECON (D.3.4)
20.	Study filter EXT MOD (D.3.5)
21.	13 and 19
22.	16 and (19 or 20)
23.	21 or 22
24.	Limit 23 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	("hom*1 hospital*" or "hospital* hom*1" or "hospital at home" or "hospital in the home").ti,ab.
2.	(hospital adj2 (care or caring or cared or treat* or manag* or follow-up*)).ti,ab.
3.	((home*1 or domiciliary or home visit* or home based or home-based or in-home) adj2 (care or caring or cared or treat* or manag* or follow-up* or program* or scheme* or strateg* or framework* or gp* or physician* or nurse* or anp or matron*)).ti,ab.
4.	2 and 3
5.	((discharge or post-discharge or self-care or self care) adj3 (home visit* or home based or home-based)).ti,ab.
6.	(support* adj1 discharg*).ti,ab.
7.	(discharge follow-up adj3 patient* home*).ti,ab.
8.	or/5-7
9.	1 or 4 or 8
10.	Excluded study designs and publication types [D.3.1]
11.	9 not 10
12.	(virtual* adj2 ward*).ti,ab.
13.	(virtual* adj2 hospital*).ti,ab.
14.	12 or 13
15.	11 or 14
16.	Limit 15 to English language; Date parameters: Database start date – 02/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	Study filter EXT MOD (D.3.5)
19.	11 and 17
20.	14 and (17 or 18)
21.	19 or 20
22.	Limit 21 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	[mh "home care services, hospital-based"]
#2.	("hom*1 hospital*" or "hospital* hom*1" or "hospital at home" or "hospital in the home"):ti,ab
#3.	{or #1-#2}
#4.	(hospital near/2 (care or caring or cared or treat* or manag* or follow-up)):ti,ab
#5.	((home*1 or domiciliary or home visit* or home based or home-based or in-home) near/2 (care or caring or cared or treat* or manag* or follow-up* or program* or scheme* or strateg* or framework* or gp* or physician* or nurse* or anp or matron*)):ti,ab
#6.	#4 and #5
#7.	((discharge or post-discharge or self-care or self care) near/3 (home visit* or home based or home-based)):ti,ab
#8.	(support* near/1 discharg*):ti,ab
#9.	(discharge follow-up near/3 patient* home*):ti,ab
#10.	{or #7-#9}
#11.	#3 or #6 or #10
#12.	(virtual* near/2 ward*):ti,ab
#13.	(virtual* near/2 hospital*):ti,ab
#14.	#12 or #13

#15.	#11 or #14 [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	MeSH descriptor home care services, hospital-based
#2.	(("hom*1 hospital*" or "hospital* hom*1" or "hospital at home" or "hospital in the home"))
#3.	#1 or #2
#4.	((hospital adj2 (care or caring or cared or treat* or manag* or follow-up*)))
#5.	(((home*1 or domiciliary or home visit* or home based or home-based or in-home) adj2 (care or caring or cared or treat* or manag* or follow-up* or program* or scheme* or strateg* or framework* or gp* or physician* or nurse* or anp or matron*)))
#6.	#4 and #5
#7.	((support* adj1 discharg*))
#8.	(((discharge or post-discharge or self-care or self care) adj3 (home visit* or home based or home-based)))
#9.	((discharge follow-up adj3 patient* home*))
#10.	#7 or #8 or #9
#11.	#3 or #6 or #10
#12.	((virtual* adj2 ward*))
#13.	((virtual* adj2 hospital*))
#14.	#12 or #13
#15.	#11 or #14
#16.	(#15) in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

HEED search terms

1.	ax=home hospitalisation
2.	ax=home hospitalization
3.	ax=hospital at home
4.	ax=hospital in the home
5.	ax=supported discharge
6.	cs=1 or 2 or 3 or 4 or 5 or 6
7.	ax=hospital care or hospital treatment or hospital management
8.	ax=home care or domiciliary care or home treatment or home management
9.	cs=7 and 8
10.	cs=6 or 9
11.	ax=virtual and ward
12.	ax=virtual and wards
13.	ax=virtual and hospital
14.	ax=virtual and hospitals
15.	cs=11 or 12 or 13 or 14 [HE]
16.	Cs=10 or 15 [HE]
	Date parameters: 2005 – 01/12/2014

D.4.14 Community rehabilitation

- Does the provision of community-based rehabilitation services following acute medical illness improve patient outcomes?

Medline search terms

1.	*patient admission/
2.	*patient readmission/
3.	(early adj2 discharge*).ti,ab.
4.	((readmission or admission or admit* or hospitalisation or hospitalization) adj2 (reduc* or avoid* or increase* or risk* or prevent*)).ti,ab.
5.	or/1-4
6.	*community health services/
7.	*community health nursing/
8.	*home care services/
9.	((community or visit* or follow-up or rehab*) adj3 (nurs* or advanced practice nurs*)).ti,ab.
10.	(mobile team* or community health team*).ti,ab.
11.	or/6-10
12.	5 and 11
13.	intermediate care facilities/
14.	((step up or step down) adj2 (scheme* or facilit* or care)).ti,ab.
15.	(reablement or re-ablement).ti,ab.
16.	(rehab* adj2 (home* or home-based or community or domiciliary or residential)).ti,ab.
17.	(intermediate adj (care or facilit*)).ti,ab.
18.	(follow up adj2 home*).ti,ab.
19.	(restorat* adj1 (care or approach* or intervention* or program*)).ti,ab.
20.	or/12-19
21.	Excluded study designs and publication types [D.3.1]
22.	20 not 21
23.	Limit 22 to English language; Date parameters: Database start date – 02/12/2016 [C]
24.	Study filter ECON (D.3.4)
25.	22 and 24
26.	Limit 25 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	*hospital admission/
2.	*hospital readmission/
3.	(early adj2 discharge*).ti,ab.
4.	((readmission or admission or admit* or hospitalisation or hospitalization) adj2 (reduc* or avoid* or increase* or risk* or prevent*)).ti,ab.
5.	or/1-4
6.	*community health nursing/
7.	*community care/
8.	*home care/
9.	((community or visit* or follow-up or rehab*) adj3 (nurs* or advanced practice nurs*)).ti,ab.
10.	(mobile team* or community health team*).ti,ab.
11.	or/6-10

12.	5 and 11
13.	community based rehabilitation/
14.	home rehabilitation/
15.	((step up or step down) adj2 (scheme* or facilit* or care)).ti,ab.
16.	(reablement or re-ablement).ti,ab.
17.	(rehab* adj2 (home* or community or domiciliary or residential)).ti,ab.
18.	(intermediate adj (care or facilit*)).ti,ab.
19.	(follow up adj2 home*).ti,ab.
20.	(restorat* adj1 (care or approach* or intervention* or program*)).ti,ab.
21.	or/12-20
22.	Excluded study designs and publication types [D.3.1]
23.	21 not 22
24.	Limit 23 to English language; Date parameters: Database start date – 02/12/2016 [C]
25.	Study filter ECON (D.3.4)
26.	23 and 25
27.	Limit 26 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	[mh ^"patient admission"]
#2.	[mh ^"patient readmission"]
#3.	(early near/2 discharge*):ti,ab
#4.	((readmission or admission or admit* or hospitalisation or hospitalization) near/2 (reduc* or avoid* or increase* or risk* or prevent*)):ti,ab
#5.	#1 or #2 or #3 or #4
#6.	[mh ^"community health services"]
#7.	[mh ^"community health nursing"]
#8.	[mh ^"home care services"]
#9.	((community or visit* or follow-up or rehab*) near/3 (nurs* or advanced practice nurs*)):ti,ab
#10.	(mobile team* or community health team*):ti,ab
#11.	{or #6-#10}
#12.	#5 and #11
#13.	[mh "intermediate care facilities"]
#14.	((step up or step down) near/2 (scheme* or facilit* or care)):ti,ab
#15.	(reablement or re-ablement):ti,ab
#16.	(rehab* near/2 (home* or community or domiciliary or residential)):ti,ab
#17.	(intermediate next (care or facilit*)):ti,ab
#18.	(follow up near/2 home*):ti,ab
#19.	(restorat* near/1 (care or approach* or intervention* or program*)):ti,ab
#20.	{or #12-#19} [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	MeSH descriptor patient admission
#2.	MeSH descriptor patient readmission
#3.	((early adj2 discharge*))

#4.	(((readmission or admission or admit* or hospitalisation or hospitalization) adj2 (reduc* or avoid* or increase* or risk* or prevent*)))
#5.	#1 or #2 or #3 or #4
#6.	MeSH descriptor community health services
#7.	(community health nursing)
#8.	MeSH descriptor home care services
#9.	(((community or visit* or follow-up or rehab*) adj3 (nurs* or advanced practice nurs*)))
#10.	((mobile team* or community health team*))
#11.	#6 or #7 or #8 or #9 or #10
#12.	#5 and #11
#13.	MeSH descriptor intermediate care facilities
#14.	(((step up or step down) adj2 (scheme* or facilit* or care)))
#15.	((reablement or re-ablement))
#16.	((rehab* adj2 (home* or home-based or community or domiciliary or residential)))
#17.	((intermediate adj (care or facilit*)))
#18.	((follow up adj2 home*))
#19.	((restorat* adj1 (care or approach* or intervention* or program*)))
#20.	#12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

HEED search terms

1.	ax=intermediate care
2.	ax=step up or step down or reablement or re-ablement
3.	ax=rehab*
4.	ax=home or homes or community or domiciliary or residential
5.	cs=3 and 4
6.	ax=home and follow up
7.	ax=restorat*
8.	ax=care or approach* or intervention* or program*
9.	cs=7 and 8
10.	cs=1 or 2 or 5 or 6 or 9
	date parameters: 2005 –15/12/2014

D.4.15 Palliative care

- Does community-based palliative care improve outcomes compared with hospital care?

This search was an update of the searches in a Cochrane review:
Gomes B, Calanzani N, Curiale V, McCrone P, Higginson IJ. Effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers. Cochrane Database of Systematic Reviews. 2013; Issue 6:CD007760. DOI:10.1002/14651858.CD007760.pub2

Medline search terms

1.	palliative care/
2.	exp terminal care/
3.	terminally ill/
4.	palliat*.ti,ab.

5.	(terminal* adj3 (care or caring or ill*)).ti,ab.
6.	(terminal adj1 phase*).ti,ab.
7.	((advanced or end stage or terminal*) adj4 (disease* or illness* or cancer* or malignan*)).ti,ab.
8.	((terminal* or final or advance* or incurable) adj3 (ill* or disease* or condition*)).ti,ab.
9.	(dying or death).ti,ab.
10.	((approach* or close* or near*) adj2 (die or deathbed or death or "passing away" or "passing on" or expiring or expiration or "terminal stage" or "advance* stage" or "final stage*" or "end stage" or "last stage*" or last day* or last hour*)).ti,ab.
11.	(last year of life or lyol).ti,ab.
12.	(end adj2 life).ti,ab.
13.	or/1-12
14.	exp home care services/
15.	exp home care agencies/
16.	exp mobile health units/
17.	exp community health nursing/
18.	community health services/
19.	hospitals, community/
20.	"hospice and palliative care nursing"/
21.	((macmillan or marie curie or district) adj nurs*).ti,ab.
22.	((home or domicil* or outreach or residential or housing or posthospital or post-hospital or communit* or mobile or ambulatory or door to door) adj2 (team* or center* or centre* or treat* or care or interven* or therap* or management or model* or program or programs or programme* or service* or base* or nurs*)).ti,ab.
23.	(homecare or home-care or homebased or home-based).ti,ab.
24.	or/14-23
25.	13 and 24
26.	hospice*.ti,ab.
27.	hospices/
28.	hospice care/
29.	or/25-28
30.	Excluded study designs and publication types [A.3.1]
31.	29 not 30
32.	Limit 31 to English language
33.	Study filters RCT (D.3.2) or SR (D.3.3)
34.	Study filter ECON (D.3.4)
35.	32 and 33[C]
36.	32 and 34 [HE]
	Date parameters: 2010 – 02/12/2016

Embase search terms

1.	exp *palliative therapy/
2.	exp *terminal care/
3.	exp *terminally ill patient/
4.	palliat*.ti,ab.
5.	(terminal* adj3 (care or caring or ill*)).ti,ab.

6.	(terminal adj1 phase*).ti,ab.
7.	((advanced or end stage or terminal*) adj4 (disease* or illness* or cancer* or malignan*)).ti,ab.
8.	((terminal* or final or advance* or incurable) adj3 (ill* or disease* or condition*)).ti,ab.
9.	(dying or death).ti,ab.
10.	((approach* or close* or near*) adj2 (die or deathbed or death or "passing away" or "passing on" or expiring or expiration or "terminal stage" or "advance* stage" or "final stage*" or "end stage" or "last stage*" or last day* or last hour*)).ti,ab.
11.	(last year of life or lyol).ti,ab.
12.	(end adj2 life).ti,ab.
13.	or/1-12
14.	*home care/
15.	*home health agency/
16.	*community care/
17.	*community health nursing/
18.	*palliative nursing/
19.	*community hospital/
20.	((macmillan or marie curie or district) adj nurs*).ti,ab.
21.	((home or domicil* or outreach or residential or housing or posthospital or post-hospital or communit* or mobile or ambulatory or door to door) adj2 (team* or center* or centre* or treat* or care or interven* or therap* or management or model* or program or programs or programme* or service* or base* or nurs*)).ti,ab.
22.	(homecare or home-care or homebased or home-based).ti,ab.
23.	or/14-22
24.	13 and 23
25.	hospice*.ti,ab.
26.	*hospice/
27.	*hospice care/
28.	or/24-27
29.	Excluded study designs and publication types [D.3.1]
30.	28 not 29
31.	Limit 30 to English language
32.	Study filters RCT (D.3.2) or SR (D.3.3)
33.	Study filter ECON (D.3.4)
34.	31 and 32 [C]
35.	31 and 33 [HE]
	Date parameters: 2010 – 02/12/2016

CINAHL search terms

S1.	(mh "palliative care")
S2.	(mh "terminal care+")
S3.	(mh "terminally ill patients+")
S4.	palliat*
S5.	(terminal* n3 (care or caring or ill*))
S6.	(terminal n1 phase*)
S7.	((advanced or end stage or terminal*) n4 (disease* or illness* or cancer* or malignan*))

S8.	((terminal* or final or advance* or incurable) n3 (ill* or disease* or condition*))
S9.	(dying or death)
S10.	((approach* or close* or near*) n2 (die or deathbed or death or "passing away" or "passing on" or expiring or expiration or "terminal stage" or "advance* stage" or "final stage*" or "end stage" or "last stage*" or last day* or last hour*))
S11.	(last year of life or lyol)
S12.	(end n2 life)
S13.	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12
S14.	(mh "home health care+")
S15.	(mh "home health agencies")
S16.	(mh "mobile health units")
S17.	(mh "community health nursing+")
S18.	(mh "community health services")
S19.	(mh "hospitals, community")
S20.	(mh "hospice and palliative nursing")
S21.	((macmillan or marie curie or district) n1 nurs*)
S22.	((home or domicil* or outreach or residential or housing or posthospital or post-hospital or communit* or mobile or ambulatory or door to door) N2 (team* or center* or centre* or treat* or care or interven* or therap* or management or model* or program or programs or programme* or service* or base* or nurs*))
S23.	(homecare or home-care or homebased or home-based)
S24.	S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23
S25.	S13 and S24
S26.	hospice*
S27.	(mh "hospices") or (mh "hospice patients") or (mh "hospice care")
S28.	S25 or S26 or S27
S29.	mh random assignment
S30.	mh placebos
S31.	mh quantitative studies
S32.	mh clinical trials
S33.	mh multicenter studies
S34.	mh control group
S35.	mh triple-blind studies
S36.	mh double-blind studies
S37.	mh single-blind studies
S38.	pt clinical trial
S39.	random* or placebo*
S40.	control* or prospective* or volunteer*
S41.	((multicent* or multi-cent* or multisite* or multi-site*) and (study or studies or trial*))
S42.	(clin* n25 trial*)
S43.	((singl* or doubl* or trebl* or tripl*) n25 (blind* or mask*))
S44.	S29 or S30 or S31 or S32 or S33 or S34 or S35 or S36 or S37 or S38 or S39 or S40 or S41 or S42 or S43
S45.	S28 and S44
S46.	Excluded study designs and publication types [D.3.1]

S47.	S45 not S46
S48.	Limit S47 to English language [C]
	Date parameters: 2010 – 02/12/2016

Cochrane search terms

#1.	[mh "palliative care"]
#2.	[mh "terminal care"]
#3.	[mh "terminally ill"]
#4.	palliat*:ti,ab
#5.	(terminal* near/3 (care or caring or ill*)):ti,ab
#6.	(terminal near/1 phase*):ti,ab
#7.	((advanced or end stage or terminal*) near/4 (disease* or illness* or cancer* or malignan*)):ti,ab
#8.	((terminal* or final or advance* or incurable) near/3 (ill* or disease* or condition*)):ti,ab
#9.	(dying or death):ti,ab
#10.	((approach* or close* or near*) near/2 (die or deathbed or death or "passing away" or "passing on" or expiring or expiration or "terminal stage" or "advance* stage" or "final stage*" or "end stage" or "last stage*" or last day* or last hour*)):ti,ab
#11.	(last year of life or lyol):ti,ab
#12.	(end near/2 life):ti,ab
#13.	{or #1-#12}
#14.	[mh "home care services"]
#15.	[mh "home care agencies"]
#16.	[mh "mobile health units"]
#17.	[mh "community health nursing"]
#18.	[mh "community health services"]
#19.	[mh "hospitals, community"]
#20.	[mh "hospice and palliative care nursing"]
#21.	((macmillan or marie curie or district) next nurs*):ti,ab
#22.	((home or domicil* or outreach or residential or housing or posthospital or post-hospital or communit* or mobile or ambulatory or door to door) near/2 (team* or center* or centre* or treat* or care or interven* or therap* or management or model* or program or programs or programme* or service* or base* or nurs*)):ti,ab
#23.	(homecare or home-care or homebased or home-based):ti,ab
#24.	{or #14-#23}
#25.	#13 and #24
#26.	hospice*:ti,ab
#27.	[mh hospices]
#28.	[mh "hospice care"]
#29.	{or #25-#28} [C]
	Date parameters: 2010 – 02/12/2016

CRD search terms

#1.	MeSH descriptor palliative care
#2.	MeSH descriptor Terminal Care explode all trees
#3.	MeSH descriptor terminally ill

#4.	(palliat*)
#5.	((terminal* adj3 (care or caring or ill*)))
#6.	((terminal adj1 phase*))
#7.	(((advanced or end stage or terminal*) adj4 (disease* or illness* or cancer* or malignan*)))
#8.	(((terminal* or final or advance* or incurable) adj3 (ill* or disease* or condition*)))
#9.	((dying or death))
#10.	(((approach* or close* or near*) adj2 (die or deathbed or death or "passing away" or "passing on" or expiring or expiration or "terminal stage" or "advance* stage" or "final stage*" or "end stage" or "last stage*" or last day* or last hour*)))
#11.	((last year of life or lyol))
#12.	((end adj2 life))
#13.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12
#14.	MeSH descriptor home care services explode all trees
#15.	MeSH descriptor home care agencies explode all trees
#16.	MeSH descriptor mobile health units explode all trees
#17.	MeSH descriptor community health nursing explode all trees
#18.	MeSH descriptor community health services
#19.	MeSH descriptor hospitals, community
#20.	MeSH descriptor hospice and palliative care nursing
#21.	(((macmillan or marie curie or district) ADJ nurs*))
#22.	((homecare or home-care or homebased or home-based))
#23.	(((home or domicil* or outreach or residential or housing or posthospital or post-hospital or communit* or mobile or ambulatory or door to door) adj2 (team* or center* or centre* or treat* or care or interven* or therap* or management or model* or program or programs or programme* or service* or base* or nurs*)))
#24.	#14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23
#25.	#13 and #24
#26.	(hospice*)
#27.	MeSH descriptor hospices
#28.	MeSH descriptor hospice care
#29.	#25 or #26 or #27 or #28 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.16 Advanced care planning

- Does advance care planning improve outcomes compared with usual care?

Medline search terms

1.	exp advance care planning/
2.	(advance* adj2 (plan* or directive*)).ti,ab.
3.	advance decision.ti,ab.
4.	living will*.ti,ab.
5.	or/1-4
6.	exp primary health care/
7.	exp physician's practice patterns/
8.	exp family practice/
9.	exp physicians, primary care/

10.	exp general practice/
11.	exp physicians, family/
12.	exp general practitioners/
13.	exp "referral and consultation"/
14.	((primary or communit*) adj5 (health or service* or care)).ti,ab.
15.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
16.	exp outpatient clinics, hospital/
17.	exp ambulatory care/
18.	exp community health services/ or exp community health centers/
19.	or/6-18
20.	5 and 9
21.	Excluded study designs and publication types [D.3.1]
22.	20 not 21
23.	Limit 22 to English language; Date parameters: Database start date – 02/12/2016 [C]
24.	Study filter ECON (D.3.4)
25.	22 and 24
26.	Limit 25 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	living will/
2.	(advance* adj2 (plan* or directive*)).ti,ab.
3.	advance decision.ti,ab.
4.	living will*.ti,ab.
5.	or/1-4
6.	exp primary health care/
7.	exp professional practice/
8.	exp clinical practice/
9.	exp general practice/
10.	general practitioner/
11.	patient referral/
12.	((primary or communit*) adj5 (health or service* or care)).ti,ab.
13.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
14.	exp outpatient department/
15.	exp ambulatory care/
16.	exp community care/
17.	health center/
18.	or/6-17
19.	5 and 18
20.	Excluded study designs and publication types [D.3.1]
21.	19 not 20
22.	Limit 21 to English language; Date parameters: Database start date – 02/12/2016 [C]
23.	Study filter ECON (D.3.4)
24.	21 and 23
25.	Limit 24 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	[mh "advance care planning"]
#2.	(advance* near/2 (plan* or directive*)):ti,ab
#3.	advance next decision:ti,ab
#4.	living next will*:ti,ab
#5.	{or #1-#4} [C}
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	MeSH descriptor advance care planning explode all trees
#2.	((advance* adj2 (plan* or directive*)))
#3.	(advance decision)
#4.	(living will*)
#5.	#1 or #2 or #3 or #4
#6.	(#5) in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.17 ED opening hours

- Is 24-hour open access to ED more clinically and cost effective compared with limited opening times to ED?

Medline search terms

1.	emergency service, hospital/
2.	health facility closure/
3.	1 and 2
4.	(((emergency adj2 (ward* or department* or unit* or accident* or room* or center* or centre* or service*)) or "a&e" or casualty) adj3 (open* or close* or closure* or closing* or hour* or 24-h* or evening or weekend* or redistribut* or ((restrict* or limit*) adj2 access*))).ti,ab.
5.	3 or 4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*emergency ward/
2.	*health care facility/
3.	1 and 2
4.	(((emergency adj2 (ward* or department* or unit* or accident* or room* or center* or centre* or service*)) or "a&e" or casualty) adj3 (open* or close* or closure* or closing* or hour* or 24-h* or evening or weekend* or redistribut* or ((restrict* or limit*) adj2 access*))).ti,ab.
5.	3 or 4
6.	Excluded study designs and publication types [D.3.1]

7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016 [C]
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh ^"emergency service, hospital"]
#2.	[mh ^"health facility closure"]
#3.	(((emergency near/2 (ward* or department* or unit* or accident* or room* or center* or centre* or service*)) or "a&e" or casualty) near/3 (open* or close* or closure* or closing* or hour* or 24-h* or (24 next h*) or evening or weekend* or redistribut* or ((restrict* or limit*) near/2 access*))):ti,ab
#4.	#1 and #2
#5.	#3 or #4 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor emergency service, hospital
#2.	MeSH descriptor health facility closure
#3.	#1 and #2
#4.	((((emergency adj2 (ward* or department* or unit* or accident* or room* or center* or centre* or service*)) or "a&e" or casualty) adj3 (open* or close* or closure* or closing* or hour* or 24-h* or evening or weekend* or redistribut* or ((restrict* or limit*) adj2 access*))))
#5.	#3 or #4 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.18 GP-ED

- Does the presence of GPs within or on the same site as the ED reduce the demand on ED and/or improve outcomes?

Medline search terms

1.	(family practi* or family doctor* or family physician* or gp or gps or general practi*).ti,ab.
2.	exp general practitioners/
3.	exp physicians, primary care/
4.	exp physicians, family/
5.	exp emergency service, hospital/
6.	emergency medical services/
7.	(((emergenc* or trauma) adj2 (department* or unit* or centre* or center* or ward* or accident or service* or team* or dept* or room* or hospital* or medic*)) or a&e or ed).ti,ab.
8.	or/5-7
9.	or/1-4
10.	8 and 9
11.	(locat* or collaborat* or integrat* or co-locat* or led or triage* or sited or on-site).ti,ab.
12.	triage/
13.	11 or 12
14.	10 and 13

15.	Excluded study designs and publication types [D.3.1]
16.	14 not 15
17.	Limit 16 to English language; Date parameters: Database start date – 01/12/2016 [C]
18.	Study filter ECON (D.3.4)
19.	16 and 18
20.	Limit 19 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	(family practi* or family doctor* or family physician* or gp or gps or general practi*).ti,ab.
2.	exp *general practitioners/
3.	exp *general practice/
4.	or/1-3
5.	(((emergenc* or trauma) adj2 (department* or unit* or centre* or center* or ward* or accident or service* or team* or dept* or room* or hospital* or medic*)) or a&e or ed).ti,ab.
6.	*emergency ward/
7.	*emergency health service/
8.	or/5-7
9.	4 and 8
10.	(locat* or collaborat* or integrat* or co-locat* or led or triage* or sited or on-site).ti,ab.
11.	9 and 10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	Limit 13 to English language; Date parameters: Database start date – 01/12/2016 [C]
15.	Study filter ECON (D.3.4)
16.	13 and 15
17.	Limit 16 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	(family next practi* or family next doctor* or family next physician* or gp or gps or general next practi*):ti,ab
#2.	[mh "general practitioners"]
#3.	[mh "physicians, primary care"]
#4.	[mh "physicians, family"]
#5.	{or #1-#4}
#6.	[mh "emergency service, hospital"]
#7.	[mh ^"emergency medical services"]
#8.	(((emergenc* or trauma) near/2 (department* or unit* or centre* or center* or ward* or accident or service* or team* or dept* or room* or hospital* or medic*)) or a&e or ed):ti,ab
#9.	#6 or #7 or #8
#10.	#5 and #9 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(family practi* or family doctor* or family physician* or gp or gps or general practi*)
#2.	MeSH descriptor general practitioners
#3.	MeSH descriptor physicians, primary care explode all trees

#4.	MeSH descriptor physicians, family explode all trees
#5.	#1 or #2 or #3 or #4
#6.	((((emergenc* or trauma) adj2 (department* or unit* or centre* or center* or ward* or accident or service* or team* or dept* or room* or hospital* or medic*)) or a&e or ed))
#7.	MeSH descriptor emergency service, hospital explode all trees
#8.	MeSH descriptor emergency medical services
#9.	#6 or #7 or #8
#10.	#5 and #9 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.19 Minor injury unit, urgent care centre or walk-in centre

- Is a minor injury unit, urgent care centre or walk-in centre clinically and cost effective:
    1. as a standalone unit
    2. when co-located on the same site as a full emergency department?

Medline & Embase search terms

1.	((minor injur* or walk-in or urgent care or emergency care or primary care access) adj1 (unit* or centre* or center* or clinic or clinics)).ti,ab.
2.	Excluded study designs and publication types [A.3.1]
3.	1 not 2
4.	Limit 3 to English language; Date parameters: 1995 – 01/12/2016 [C]
5.	Study filter ECON (D.3.4)
6.	3 and 5
7.	Limit 6 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((minor next injur* or walk-in or "walk in" or "urgent care" or "emergency care" or "primary care access") near/1 (unit* or centre* or center* or clinic or clinics)):ti,ab [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((minor injur* or walk-in or urgent care or emergency care or primary care access) adj1 (unit* or centre* or center* or clinic or clinics)))
#2.	#1 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.20 Early vs late consultant review

Searches for the following two questions were run as one search:

- Is early consultant triage in the ED (RAT model) more clinically and cost effective than later consultant review?
- Is early consultant review in the AMU, ICU, HDU, CCU or Stroke Unit more clinically and cost effective than later consultant review?

Medline search terms

1.	(rapid* adj2 assessment* adj2 (team* or triag*)).ti,ab.
2.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) adj2

	triag*).ti,ab.
3.	((intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or physician* or intern*1 or internship or resident*1 or fellow*1) adj4 triag*).ti,ab.
4.	((prompt* or hour* or rapid* or within or early or earlier or time* or timing or late or later or delay*) adj2 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or physician* or intern*1 or internship or resident*1 or fellow*1) adj4 assess*).ti,ab.
5.	or/1-4
6.	((intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or ((attend* or render* or staff*) adj physician*) or intern*1 or internship or resident*1 or fellow*1) adj1 (review* or advi?e* or opinion* or assess*)).ti,ab.
7.	((prompt or hour* or rapid or within or early or earlier or time* or timing or late or later or delay*) adj3 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or ((attend* or render* or staff*) adj physician*) or intern*1 or internship or resident*1 or fellow*1)).ti,ab.
8.	or/6-7
9.	exp emergency medical services/
10.	(urgent* or intensive or acute* or emergenc* or acute* or critical* or stroke*).ti,ab.
11.	or/9-10
12.	8 and 11
13.	5 or 12
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language; Date parameters: Database start date – 01/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	15 and 17
19.	Limit 18 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	(rapid* adj2 assessment* adj2 (team* or triag*)).ti,ab.
2.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) adj2 triag*).ti,ab.
3.	((intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or physician* or intern*1 or internship or resident*1 or fellow*1) adj4 triag*).ti,ab.
4.	((prompt* or hour* or rapid* or within or early or earlier or time* or timing or late or later or delay*) adj2 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or physician* or intern*1 or internship or resident*1 or fellow*1) adj4 assess*).ti,ab.
5.	or/1-4
6.	((intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or ((attend* or render* or staff*) adj physician*) or intern*1 or internship or resident*1 or fellow*1) adj1 (review* or advi?e* or opinion* or assess*)).ti,ab.
7.	((prompt or hour* or rapid or within or early or earlier or late* or time* or timing or late or later or delay*) adj3 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or ((attend* or render* or staff*) adj physician*) or intern*1 or internship or resident*1 or fellow*1)).ti,ab.
8.	or/6-7
9.	(urgent* or intensive or acute* or emergenc* or acute* or critical* or stroke*).ti,ab.

10.	exp emergency health service/
11.	exp emergency care/
12.	or/9-11
13.	8 and 12
14.	5 or 13
15.	Excluded study designs and publication types [D.3.1]
16.	14 not 15
17.	Limit 16 to English language; Date parameters: Database start date – 01/12/2016 [C]
18.	Study filter ECON (D.3.4)
19.	16 and 18
20.	Limit 19 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	(rapid* near/2 assessment* near/2 (team* or triag*)):ti,ab
#2.	((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) near/2 triag*):ti,ab
#3.	((consultant* or specialist* or senior* or junior* or registrar* or house officer* or physician* or intern* or internship or resident* or fellow*) near/4 triag*):ti,ab
#4.	((prompt* or hour* or rapid* or within or early or earlier or time* or timing or late or later or delay*) near/2 (consultant* or specialist* or senior* or junior* or registrar* or house officer* or physician* or intern* or internship or resident* or fellow*) near/4 assess*):ti,ab
#5.	{or #1-#4}
#6.	((intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or intern*1 or internship or resident*1 or fellow*1) near/1 (review* or advi?e* or opinion* or assess*)):ti,ab
#7.	((prompt or hour* or rapid or within or early or earlier or late* or time* or timing or late or later or delay*) near/3 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or registrar* or house officer* or intern*1 or internship or resident*1 or fellow*1)):ti,ab
#8.	((review* or advi?e* or opinion* or assess*) near/1 ((attend* or render* or staff*) next physician*)):ti,ab
#9.	((prompt or hour* or rapid or within or early or earlier or late* or time* or timing or late or later or delay*) near/3 ((attend* or render* or staff*) next physician*)):ti,ab
#10.	{or #6-#9}
#11.	[mh "emergency medical services"]
#12.	(urgent* or intensive or acute* or emergenc* or acute* or critical* or stroke*):ti,ab
#13.	{or #11-#12}
#14.	#10 and #13
#15.	#5 or #14 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((rapid* adj2 assessment* adj2 (team* or triag*))))
#2.	((((interdisciplinary or multidisciplinary or combin* or inter disciplinary or multi disciplinary or interprofessional or multiprofessional or inter professional or multi professional) adj2 triag*)))
#3.	(((((intensivist* or consultant* or specialist* or senior* or junior* or registrar* or house officer* or physician* or intern* or internship or resident* or fellow*) adj4 triag*))))
#4.	(((((prompt* or hour* or rapid* or within or early or earlier or time* or timing or late or later

	or delay*) adj2 (intensivist* or consultant* or specialist* or senior* or junior* or registrar* or house officer* or physician* or intern* or internship or resident* or fellow*) adj4 assess*))))
#5.	#1 or #2 or #3 or #4
#6.	(((((intensivist* or consultant* or specialist* or senior* or junior* or registrar* or house officer* or ((attend* or render* or staff*) adj physician*) or intern* or internship or resident* or fellow*) adj1 (review* or advi* or opinion* or assess*)))))
#7.	(((((prompt or hour* or rapid or within or early or earlier or late* or time* or timing or late or later or delay*) adj3 (intensivist* or consultant* or specialist* or senior* or junior* or registrar* or house officer* or ((attend* or render* or staff*) adj physician*) or intern* or internship or resident* or fellow*)))))
#8.	#6 or #7
#9.	MeSH descriptor emergency medical services explode all trees
#10.	(((urgent* or intensive or acute* or emergenc* or acute* or critical* or stroke*)))
#11.	#9 or #10
#12.	#8 and #11
#13.	#5 or #12
#14.	#13 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.21 Physician extenders

- Do physician extenders (for example, physician assistants, and emergency nurse practitioners) improve outcomes in secondary care?

Medline search terms

1.	physician assistants/
2.	exp nurse practitioners/
3.	(physician* adj1 (associate* or extender* or assistant*)).ti,ab.
4.	nurse practitioner*.ti,ab.
5.	(nurse* adj1 (heart failure or critical care outreach or advanced practice or specialist or specialty)).ti,ab.
6.	(pharmacist* adj1 prescri* adj2 independent*).ti,ab.
7.	(advance* adj2 (nurse* or paramedic* or care) adj2 practitioner*).ti,ab.
8.	(practitioner* adj2 (critical care or mid-level)).ti,ab.
9.	(pharmacist* adj3 prescri*).ti,ab.
10.	or/1-9
11.	Excluded study designs and publication types [D.3.1]
12.	10 not 11
13.	Limit 12 to English language
14.	Study filters RCT (D.3.2) or SR (D.3.3)
15.	Study filter OBS (D.3.6)
16.	Date parameters: Database start date– 01/12/2016
17.	Date parameters: 2005 – 13/07/2015
18.	Study filter ECON (D.3.4)
19.	((13 and 14 and 16) or (13 and 15 and 17)) [C]
20.	13 and 18; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*physician assistant/
2.	exp *advanced practice nurse/
3.	(physician* adj1 (associate* or extender* or assistant*)).ti,ab.
4.	nurse practitioner*.ti,ab.
5.	(nurse* adj1 (heart failure or critical care outreach or advanced practice or specialist or specialty)).ti,ab.
6.	(pharmacist* adj1 prescri* adj2 independent*).ti,ab.
7.	(advance* adj2 (nurse* or paramedic* or care) adj2 practitioner*).ti,ab.
8.	(practitioner* adj2 (critical care or mid-level)).ti,ab.
9.	(pharmacist* adj3 prescri*).ti,ab.
10.	or/1-9
11.	Excluded study designs and publication types [D.3.1]
12.	10 not 11
13.	Limit 12 to English language
14.	Study filters RCT (D.3.2) or SR (D.3.3)
15.	Study filter OBS (D.3.6)
16.	Date parameters: Database start date– 01/12/2016
17.	Date parameters: 2005 – 13/07/2015
18.	Study filter ECON (D.3.4)
19.	((13 and 14 and 16) or (13 and 15 and 17)) [C]
20.	13 and 18; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh ^"physician assistants"]
#2.	[mh "nurse practitioners"]
#3.	(physician* near/1 (associate* or extender* or assistant*)):ti,ab
#4.	(nurse next practitioner*):ti,ab
#5.	(nurse* near/1 ("heart failure" or "critical care outreach" or "advanced practice" or specialist or specialty)):ti,ab
#6.	(pharmacist* near/1 prescri* near/2 independent*):ti,ab
#7.	(advance* near/2 (nurse* or paramedic* or care) near/2 practitioner*):ti,ab
#8.	(practitioner* near/2 ("critical care" or mid-level)):ti,ab
#9.	(pharmacist* near/3 prescri*):ti,ab
#10.	{or #1-#9} [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	((pharmacist* adj3 prescri*))
#2.	MeSH descriptor physician assistants
#3.	MeSH descriptor nurse practitioners explode all trees
#4.	((advance* adj2 (nurse* or paramedic* or care) adj2 practitioner*))
#5.	((physician* adj1 (associate* or extender* or assistant*)))
#6.	((practitioner* adj2 (nurse* or critical care or mid-level)))
#7.	((nurse* adj1 (heart failure or critical care outreach or advanced practice or specialist or specialty)))
#8.	((pharmacist* adj1 prescri* adj2 independent*))

#9.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.22 Standarised criteria for admission

- Do standardised criteria for hospital admission facilitate appropriate admission?

Medline & Embase search terms

1.	blatchford*.ti,ab.
2.	(curb65 or crb65 or curb-65 or crb-65).ti,ab.
3.	(curb adj3 (criteria or rule* or scor* or predict*)).ti,ab.
4.	(grace adj3 (criteria or rule* or scor* or predict*)).ti,ab.
5.	heart scor*.ti,ab.
6.	(qadmission* or q-admission*).ti,ab.
7.	or/1-6
8.	Excluded study designs and publication types [D.3.1]
9.	7 not 8
10.	Limit 9 to English language; Date parameters: Database start date – 01/12/2016 [C]
11.	Study filter ECON (D.3.4)
12.	9 and 11
13.	Limit 12 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	blatchford*:ti,ab
#2.	(curb65 or crb65 or curb-65 or curb next 65 or crb-65 or crb next 65):ti,ab
#3.	(curb near/3 (criteria or rule* or scor* or predict*)):ti,ab
#4.	(grace near/3 (criteria or rule* or scor* or predict*)):ti,ab
#5.	heart next scor*:ti,ab
#6.	(qadmission* or q-admission* or q next admission*):ti,ab
#7.	{or #1-#6} [C]
	Date parameters: 2005– 01/12/2016

CRD search terms

#1.	(blatchford*)
#2.	(curb65 or crb65 or curb-65 or crb-65)
#3.	((curb adj3 (criteria or rule* or scor* or predict*)))
#4.	((grace adj3 (criteria or rule* or scor* or predict*)))
#5.	(heart scor*)
#6.	(qadmission* or q-admission*)
#7.	#1 or #2 or #3 or #4 or #5 or #6
#8.	#7 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.23 7 day radiology

- Does the provision of 7 day diagnostic radiology in hospital improve patient outcomes?

Medline search terms

1.	radiology department, hospital/ or radiology/ or nuclear medicine/ or radiology, interventional/
2.	whole body imaging/
3.	((radiograph* or radiology) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat* or department*)).ti,ab.
4.	(nuclear medicine or neuroradiography or imaging department*).ti,ab.
5.	diagnostic imaging/ or exp echocardiography/ or exp imaging, three-dimensional/ or exp radiography/ or exp tomography/ or exp ultrasonography/
6.	(diagnostic imaging or radio diagnostic* or whole body imag* or whole body scan*).ti,ab.
7.	((ct or pet or spect or cat or mdct) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
8.	(tomograph* adj2 (comput* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
9.	((cxr or xray or x ray or x-ray) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
10.	((ultrasonograph* or ultrasound* or echocardiograph*) adj2 (imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
11.	((magnetic resonance or mr or mri or nmr) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
12.	or/1-11
13.	after-hours care/
14.	((flexible or increas* or enhance* or round-the-clock or extend* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
15.	((morning* or evening* or weekday or 9-5 or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or saturday or sunday or monday-friday 9 to 5 or nine to five or monday to friday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
16.	or/13-15
17.	12 and 16
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language
21.	Study filters RCT (D.3.2) or SR (D.3.3) or OBS (D.3.6)
22.	Study filter ECON (D.3.4)
23.	20 and 21; Date parameters: Database start date – 01/12/2016 [C]
24.	20 and 22; Date parameters: 2005 – 01/12/2016; [HE]

Embase search terms

1.	radiology/ or interventional radiology/ or radiology department/ or nuclear medicine/
2.	whole body imaging/
3.	((radiograph* or radiology) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat* or department*)).ti,ab.
4.	(nuclear medicine or neuroradiography or imaging department*).ti,ab.
5.	diagnostic imaging/
6.	exp echocardiography/
7.	three dimensional imaging/
8.	exp radiography/
9.	exp tomography/

10.	nuclear magnetic resonance imaging/
11.	exp echography/
12.	(diagnostic imaging or radio diagnostic* or whole body imag* or whole body scan*).ti,ab.
13.	((ct or pet or spect or cat or mdct) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
14.	(tomograph* adj2 (comput* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
15.	((cxr or xray or x ray or x-ray) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
16.	((ultrasonograph* or ultrasound* or echocardiograph*) adj2 (imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
17.	((magnetic resonance or mr or mri or nmr) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)).ti,ab.
18.	or/1-17
19.	health care delivery/
20.	((flexible or increas* or enhance* or round-the-clock or extend* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
21.	((morning* or evening* or weekday or 9-5 or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or saturday or sunday or monday-friday 9 to 5 or nine to five or monday to friday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
22.	or/19-21
23.	18 and 22
24.	Excluded study designs and publication types [D.3.1]
25.	23 not 24
26.	Limit 25 to English language
27.	Study filters RCT (D.3.2) or SR (D.3.3) or OBS (D.3.6)
28.	Study filter ECON (D.3.4)
29.	26 and 27; Date parameters: Database start date – 01/12/2016 [C]
30.	26 and 28; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	MeSH descriptor: [radiology department, hospital] this term only
#2.	MeSH descriptor: [radiology] this term only
#3.	MeSH descriptor: [nuclear medicine] this term only
#4.	MeSH descriptor: [radiology, interventional] this term only
#5.	MeSH descriptor: [whole body imaging] this term only
#6.	((radiograph* or radiology) near/2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat* or department*)):ti,ab
#7.	(nuclear medicine or neuroradiography or imaging department*):ti,ab
#8.	MeSH descriptor: [diagnostic imaging] this term only
#9.	MeSH descriptor: [echocardiography] explode all trees
#10.	MeSH descriptor: [imaging, three-dimensional] explode all trees
#11.	MeSH descriptor: [radiology] explode all trees
#12.	MeSH descriptor: [tomography] explode all trees
#13.	MeSH descriptor: [ultrasonography] explode all trees
#14.	(diagnostic imaging or radio diagnostic* or whole body imag* or whole body scan*):ti,ab
#15.	((ct or pet or spect or cat or mdct) near/2 (tomogra* or imag* or scan* or diagnos* or

	intervent* or investigat*)):ti,ab
#16.	(tomograph* near/2 (comput* or imag* or scan* or diagnos* or intervent* or investigat*)):ti,ab
#17.	((cxr or xray or x ray or x-ray) near/2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)):ti,ab
#18.	((ultrasonograph* or ultrasound* or echocardiograph*) near/2 (imag* or scan* or diagnos* or intervent* or investigat*)):ti,ab
#19.	((magnetic resonance or mr or mri or nmr) near/2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)):ti,ab
#20.	{or #1-#19}
#21.	MeSH descriptor: [after-hours care] this term only
#22.	((flexible or increas* or enhance* or round-the-clock or extend* or urgent or emergency) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#23.	((morning* or evening* or weekday or 9-5 or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or saturday or sunday or monday-friday 9 to 5 or nine to five or monday to friday) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#24.	{or #21-#23}
#25.	#20 and #24 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor radiology
#2.	MeSH descriptor nuclear medicine
#3.	MeSH descriptor radiology, interventional
#4.	MeSH descriptor whole body imaging
#5.	((radiograph* or radiology) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat* or department*))
#6.	((nuclear medicine or neuroradiography or imaging department*))
#7.	MeSH descriptor diagnostic imaging
#8.	MeSH descriptor echocardiography explode all trees
#9.	MeSH descriptor imaging, three-dimensional explode all trees
#10.	MeSH descriptor radiography explode all trees
#11.	MeSH descriptor tomography explode all trees
#12.	MeSH descriptor ultrasonography explode all trees
#13.	((diagnostic imaging or radio diagnostic* or whole body imag* or whole body scan*))
#14.	(((ct or pet or spect or cat or mdct) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)))
#15.	((tomograph* adj2 (comput* or imag* or scan* or diagnos* or intervent* or investigat*)))
#16.	(((cxr or xray or x ray or x-ray) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*)))
#17.	(((ultrasonograph* or ultrasound* or echocardiograph*) adj2 (imag* or scan* or diagnos* or intervent* or investigat*)))
#18.	((((magnetic resonance or mr or mri or nmr) adj2 (tomogra* or imag* or scan* or diagnos* or intervent* or investigat*))))
#19.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18
#20.	MeSH descriptor after-hours care explode all trees

#21.	((((flexible or increas* or enhance* or round-the-clock or extend* or urgent or emergency) adj3 (service* or access* or availab* or hour* or appointment*))))
#22.	((((morning* or evening* or weekday or 9-5 or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or saturday or sunday or monday-friday 9 to 5 or nine to five or monday to friday) adj3 (service* or access* or availab* or hour* or appointment*))))
#23.	#20 or #21 or #22
#24.	#19 and #23 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.24 Liaison psychiatry

- Do acute psychiatric services improve outcomes for patients with mental health disturbance presenting with an acute medical emergency?

Medline search terms

1.	(liais* adj3 psych*).ti,ab.
2.	(consult* adj3 liais*).ti,ab.
3.	((psychiatric or psychological) adj medicine).ti,ab.
4.	"rapid assessment interface and discharge".ti,ab.
5.	(liais* adj3 mental).ti,ab.
6.	or/1-5
7.	Excluded study designs and publication types [D.3.1]
8.	6 not 7
9.	Limit 8 to English language; Date parameters: 1990 – 01/12/2016 [C]
10.	Study filter ECON (D.3.4)
11.	8 and 10
12.	Limit 11 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	(liais* adj3 psych*).ti,ab.
2.	(consult* adj3 liais*).ti,ab.
3.	((psychiatric or psychological) adj medicine).ti,ab.
4.	"rapid assessment interface and discharge".ti,ab.
5.	(liais* adj3 mental).ti,ab.
6.	*liaison psychiatry/
7.	"rapid assessment interface and discharge integrated model"/
8.	or/1-7
9.	Excluded study designs and publication types [D.3.1]
10.	8 not 9
11.	Limit 10 to English language; Date parameters: 1990 – 01/12/2016 [C]
12.	Study filter ECON (D.3.4)
13.	10 and 12
14.	Limit 13 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	(liais* near/3 psych*):ti,ab
#2.	(consult* near/3 liais*):ti,ab

#3.	((psychiatric or psychological) next medicine):ti,ab
#4.	rapid assessment interface and discharge:ti,ab
#5.	(liais* near/3 mental):ti,ab
#6.	{or #1-#5} [C]
	Date parameters: 1990 – 01/12/2016

CRD search terms

#1.	((liais* adj3 psych*))
#2.	((consult* adj3 liais*))
#3.	(((psychiatric or psychological) adj medicine))
#4.	((liais* adj3 mental))
#5.	("rapid assessment interface")
#6.	#1 or #2 or #3 or #4 or #5 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

PsycINFO terms

1.	su.exact("consultation liaison psychiatry") or ti,ab(liais* near/3 psych*) or ti,ab(consult* near/3 liais*) or ti,ab(psychiatric-medicine or psychological-medicine) or ti,ab("rapid assessment interface and discharge") or ti,ab(liais* near/3 mental)
2.	English
3.	1 and 2 [C]
	Date parameters: Database start date – 01/12/2016

D.4.25 AMU admission

- Does admission or assessment through an acute medical unit (AMU) increase hospital discharges, improve patient outcomes and hospital resource usage?

Medline search terms

1.	((acute or medical or emergenc*) adj1 (assess* or admission*) adj3 (unit* or centre* or center* or department*)).ti,ab.
2.	(acute medical adj3 (unit* or centre* or center* or department*)).ti,ab.
3.	(clinical decision adj3 (unit* or centre* or center* or department*)).ti,ab.
4.	(emergency care adj3 (unit* or centre* or center* or department*)).ti,ab.
5.	or/1-4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 8 to English language; Date parameters: Database start date – 01/12/2016 [C]
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	((acute or medical or emergenc*) adj1 (assess* or admission*) adj3 (unit* or centre* or center* or department*)).ti,ab.
2.	(acute medical adj3 (unit* or centre* or center* or department*)).ti,ab.
3.	(clinical decision adj3 (unit* or centre* or center* or department*)).ti,ab.
4.	(emergency care adj3 (unit* or centre* or center* or department*)).ti,ab.

5.	or/1-4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016 [C]
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

CINAHL search terms

S1.	((acute or medical or emergenc*) n1 (assess* or admission*) n3 (unit* or centre* or center* or department*))
S2.	(acute medical n3 (unit* or centre* or center* or department*))
S3.	(clinical decision n3 (unit* or centre* or center* or department*))
S4.	(emergency care n3 (unit* or centre* or center* or department*))
S5.	S1 or S2 or S3 or S4
S6.	Excluded study designs and publication types [D.3.1]
S7.	S5 not S6
S8.	Limit S7 to English language [C]
	Date parameters: Database start date – 01/12/2016

Cochrane search terms

#1.	((acute or medical or emergenc*) near/1 (assess* or admission*) near/3 (unit* or centre* or center* or department*)):ti,ab
#2.	("acute medical" near/3 (unit* or centre* or center* or department*)):ti,ab
#3.	("clinical decision" near/3 (unit* or centre* or center* or department*)):ti,ab
#4.	("emergency care" near/3 (unit* or centre* or center* or department*)):ti,ab
#5.	{or #1-#4} [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((acute or medical or emergenc*) adj1 (assess* or admission*) adj3 (unit* or centre* or center* or department*)))
#2.	((acute medical adj3 (unit* or centre* or center* or department*)))
#3.	((clinical decision adj3 (unit* or centre* or center* or department*)))
#4.	((emergency care adj3 (unit* or centre* or center* or department*)))
#5.	#1 or #2 or #3 or #4 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.26 Elderly care assessment units

- Does assessment and management during admission through an elderly care assessment unit (ECAU) improve patient outcomes and hospital resource usage?

Medline search terms

1.	((elder* or older or frail* or geriatric* or aged or senior*) adj2 (assess* or admission* or evaluat* or consult*) adj2 (unit* or team* or service* or area* or centre* or center* or department*)).ti,ab.
2.	((elder* or older or frail* or geriatric* or aged or senior*) adj2 "evaluation and management").ti,ab.

3.	((acute or medical or emergenc*) adj1 (assess* or admission*) adj3 (unit* or centre* or center* or department*)).ti,ab.
4.	(acute medical adj3 (unit* or centre* or center* or department*)).ti,ab.
5.	(clinical decision adj3 (unit* or centre* or center* or department*)).ti,ab.
6.	(emergency care adj3 (unit* or centre* or center* or department*)).ti,ab.
7.	or/3-6
8.	(elder* or older or frail* or geriatric* or aged).ti,ab.
9.	7 and 8
10.	(comprehensive geriatric assess* and (hospital* or inpatient* or emergenc* or ward*)).ti,ab.
11.	1 or 2 or 9 or 10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	Limit 13 to English language; Date parameters: Database start date – 01/12/2016 [C]
15.	Study filter ECON (D.3.4)
16.	13 and 15
17.	Limit 16 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	((elder* or older or frail* or geriatric* or aged or senior*) adj2 (assess* or admission* or evaluat* or consult*) adj2 (unit* or team* or service* or area* or centre* or center* or department*)).ti,ab.
2.	((elder* or older or frail* or geriatric* or aged or senior*) adj2 "evaluation and management").ti,ab.
3.	((acute or medical or emergenc*) adj1 (assess* or admission*) adj3 (unit* or centre* or center* or department*)).ti,ab.
4.	(acute medical adj3 (unit* or centre* or center* or department*)).ti,ab.
5.	(clinical decision adj3 (unit* or centre* or center* or department*)).ti,ab.
6.	(emergency care adj3 (unit* or centre* or center* or department*)).ti,ab.
7.	or/3-6
8.	(elder* or older or frail* or geriatric* or aged).ti,ab.
9.	7 and 8
10.	(comprehensive geriatric assess* and (hospital* or inpatient* or emergenc* or ward*)).ti,ab.
11.	1 or 2 or 9 or 10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	Limit 13 to English language; Date parameters: Database start date – 01/12/2016 [C]
15.	Study filter ECON (D.3.4)
16.	13 and 15
17.	Limit 16 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((elder* or older or frail* or geriatric* or aged or senior*) near/2 (assess* or admission* or evaluat* or consult*) near/2 (unit* or team* or service* or area* or centre* or center* or department*)):ti,ab
#2.	((acute or medical or emergenc*) near/1 (assess* or admission*) near/3 (unit* or centre* or center* or department*)):ti,ab
#3.	("acute medical" near/3 (unit* or centre* or center* or department*)):ti,ab

#4.	("clinical decision" near/3 (unit* or centre* or center* or department*)):ti,ab
#5.	("emergency care" near/3 (unit* or centre* or center* or department*)):ti,ab
#6.	{or #2-#5}
#7.	(elder* or older or frail* or geriatric* or aged):ti,ab
#8.	#6 and #7
#9.	((comprehensive next geriatric next assess*) and (hospital* or inpatient* or emergenc* or ward*)):ti,ab
#10.	((elder* or older or frail* or geriatric* or aged or senior*) near/2 "evaluation and management"):ti,ab
#11.	#1 or #8 or #9 or #10 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((elder* or older or frail* or geriatric* or aged or senior*) adj2 (assess* or admission* or evaluat* or consult*) adj2 (unit* or team* or service* or area* or centre* or center* or department*)))
#2.	(((((acute or medical or emergenc*) adj1 (assess* or admission*) adj3 (unit* or centre* or center* or department*)))))
#3.	((((acute medical adj3 (unit* or centre* or center* or department*)))))
#4.	((((clinical decision adj3 (unit* or centre* or center* or department*)))))
#5.	(((emergency care adj3 (unit* or centre* or center* or department*))))
#6.	#2 or #3 or #4 or #5
#7.	(((elder* or older or frail* or geriatric* or aged)))
#8.	#6 and #7
#9.	((comprehensive geriatric assess* and (hospital* or inpatient* or emergenc* or ward*)))
#10.	#1 or #8 or #9 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.27 Consultant frequency

- What is the most clinically and cost-effective frequency of review by a consultant in AMU, ICU, CCU, stroke units and general medical wards?

Medline search terms

1.	((frequen* or hour* or daily or week* or day or interval* or visit* or night*) adj4 ((ward* or teach* or grand* or morning* or attend*) adj1 round*)).ti,ab.
2.	((frequen* or hour* or daily or week* or day or interval*) adj4 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) adj4 (review* or assess* or round* or advi?e* or opinion*)).ti,ab.
3.	((night* adj2 ((intensivist* or consultant* or specialist* or senior*1 or junior*1 or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) adj2 (staff* or resident* or on-call* or cover*))) or cross-cover*).ti,ab.
4.	intentional round*.ti,ab.
5.	or/1-4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016 [C]

9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	((frequen* or hour* or daily or week* or day or interval* or visit* or night*) adj4 ((ward* or teach* or grand* or morning* or attend*) adj1 round*)).ti,ab.
2.	((frequen* or hour* or daily or week* or day or interval*) adj4 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) adj4 (review* or assess* or round* or advi?e* or opinion*)).ti,ab.
3.	((night* adj2 ((intensivist* or consultant* or specialist* or senior*1 or junior*1 or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) adj2 (staff* or resident* or on-call* or cover*))) or cross-cover*).ti,ab.
4.	intentional round*.ti,ab.
5.	or/1-4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016 [C]
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((frequen* or hour* or daily or week* or day or interval* or visit* or night*) near/4 ((ward* or teach* or grand* or morning* or attend*) near/1 round*)):ti,ab
#2.	((frequen* or hour* or daily or week* or day or interval*) near/4 (intensivist* or consultant* or specialist* or senior*1 or junior*1 or sho or registrar* or spr or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) near/4 (review* or assess* or round* or advi?e* or opinion*)):ti,ab
#3.	((night* near/2 ((intensivist* or consultant* or specialist* or senior*1 or junior*1 or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) near/2 (staff* or resident* or on-call* or cover*))) or cross-cover* or cross next cover*):ti,ab
#4.	(intentional next round*):ti,ab
#5.	{or #1-#4} [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((((frequen* or hour* or daily or week* or day or interval*) ADJ4 (intensivist* or consultant* or specialist* or senior* or junior* or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern* or internship or resident* or fellow* or foundation doctor) ADJ4 (review* or assess* or round* or advi* or opinion*)))))
#2.	(((frequen* or hour* or daily or week* or day or interval* or visit* or night*) adj4 ((ward* or teach* or grand* or morning* or attend*) adj1 round*)))
#3.	(((night* adj2 ((intensivist* or consultant* or specialist* or senior*1 or junior*1 or SHO or registrar* or SPR or house officer* or houseofficer* or housestaff* or physician* or intern*1 or internship or resident*1 or fellow*1 or foundation doctor) adj2 (staff* or resident* or on-call* or cover*))) or cross-cover*))

#4.	(intentional round*)
#5.	#1 or #2 or #3 or #4
#6.	#5 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.28 Critical care outreach

- Does the provision of a critical care outreach team in secondary care improve outcomes?

Medline search terms

1.	hospital rapid response team/
2.	(critical care adj2 outreach).ti,ab.
3.	rapid response team*.ti,ab.
4.	medical emergency team*.ti,ab.
5.	hospital at night.ti,ab.
6.	or/1-5
7.	Excluded study designs and publication types [D.3.1]
8.	6 not 7
9.	Limit 8 to English language; Date parameters: Database start date – 01/12/2016 [C]
10.	Study filter ECON (D.3.4)
11.	8 and 10
12.	Limit 11 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	(critical care adj2 outreach).ti,ab.
2.	rapid response team*.ti,ab.
3.	medical emergency team*.ti,ab.
4.	hospital at night.ti,ab.
5.	code team*.ti,ab.
6.	crash team*.ti,ab.
7.	rapid response system*.ti,ab.
8.	rapid response team/
9.	or/1-8
10.	Excluded study designs and publication types [D.3.1]
11.	9 not 10
12.	Limit 11 to English language; Date parameters: Database start date – 01/12/2016 [C]
13.	Study filter ECON (D.3.4)
14.	11 and 13
15.	Limit 14 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh "hospital rapid response team"]
#2.	(critical care near/2 outreach):ti,ab
#3.	rapid response team*:ti,ab
#4.	medical emergency team*:ti,ab
#5.	hospital at night:ti,ab
#6.	code team*:ti,ab

#7.	crash team*:ti,ab
#8.	rapid response system*:ti,ab
#9.	{or #1-#8} [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor hospital rapid response team explode all trees
#2.	(critical care adj2 outreach)
#3.	(rapid response team*)
#4.	(medical emergency team*)
#5.	(hospital at night)
#6.	#1 or #2 or #3 or #4 or #5 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.29 Structured ward rounds

- Do structured ward rounds improve processes and outcomes?

Medline search terms

1.	exp hospital units/
2.	inpatients/
3.	(inpatient* or hospital* or ward*).ti,ab.
4.	or/1-3
5.	(round or rounds or rounding).ti.
6.	4 and 5
7.	teaching rounds/
8.	((inpatient* or structur* or standard* or hospital* or ward* or daily or morning or afternoon or teach* or doctor* or nurs* or clinic* or check* or physician* or matron* or bedside or bed-side or attending or consult* or resident* or intern*) adj3 (round or rounds or rounding)).ti,ab.
9.	(ward adj2 (check* or assess* or review*)).ti,ab.
10.	(daily goal* adj2 (chart* or record* or review* or check*)).ti,ab.
11.	intentional round*.ti,ab.
12.	or/7-11
13.	6 or 12
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language; Date parameters: 1990 – 01/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	15 and 17
19.	Limit 18 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	ward/
2.	hospital patient/
3.	(inpatient* or hospital* or ward*).ti,ab.
4.	or/1-3
5.	(round or rounds or rounding).ti.

6.	4 and 5
7.	teaching round/
8.	((inpatient* or structur* or standard* or hospital* or ward* or daily or morning or afternoon or teach* or doctor* or nurs* or clinic* or check* or physician* or matron* or bedside or bed-side or attending or consult* or resident* or intern*) adj3 (round or rounds or rounding)).ti,ab.
9.	(ward adj2 (check* or assess* or review*)).ti,ab.
10.	intentional round*.ti,ab.
11.	(daily goal* adj2 (chart* or record* or review* or check*)).ti,ab.
12.	or/7-11
13.	6 or 12
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language; Date parameters: 1990 – 01/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	15 and 17
19.	Limit 18 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	MeSH descriptor: [hospital units] explode all trees
#2.	MeSH descriptor: [inpatients] this term only
#3.	(inpatient* or hospital* or ward*):ti,ab
#4.	{or #1-#3}
#5.	(round or rounds or rounding):ti
#6.	#4 and #5
#7.	MeSH descriptor: [teaching rounds] this term only
#8.	((inpatient* or structur* or standard* or hospital* or ward* or daily or morning or afternoon or teach* or doctor* or nurs* or clinic* or check* or physician* or matron* or bedside or bed-side or attending or consult* or resident* or intern*) near/3 (round or rounds or rounding)):ti,ab
#9.	(ward near/2 (check* or assess* or review*)):ti,ab
#10.	(intentional next round*):ti,ab
#11.	(daily next goal* near/2 (chart* or record* or review* or check*)):ti,ab
#12.	{or #6-#11} [C]
	Date parameters: 1990 – 01/12/2016

CRD search terms

#1.	MeSH descriptor hospital units explode all trees
#2.	MeSH descriptor inpatients
#3.	(inpatient* or hospital* or ward*)
#4.	#1 or #2 or #3
#5.	(round or rounds or rounding)
#6.	#4 and #5
#7.	MeSH descriptor teaching rounds
#8.	((inpatient* or structur* or standard* or hospital* or ward* or daily or morning or afternoon or teach* or doctor* or nurs* or clinic* or check* or physician* or matron* or bedside or bed-side or attending or consult* or resident* or intern*) adj3 (round or rounds or rounding))
#9.	((ward adj2 (check* or assess* or review*)))

#10.	(intentional round*)
#11.	((daily goal* adj2 (chart* or record* or review* or check*)))
#12.	#6 or #7 or #8 or #9 or #10 or #11 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.30 MDTs

- Do ward multidisciplinary team meetings (MDTs) improve processes and patient outcomes?

Medline & Embase search terms

1.	(((interdisciplinary or inter-disciplinary or multidisciplinary or multi-disciplinary or multi-professional* or multiprofessional*) adj2 (team* or meeting* or manag* or appointment* or care or intervention* or ward* or round*)) or mdt or idt).ti.
2.	Excluded study designs and publication types [D.3.1]
3.	1 not 2
4.	Limit 3 to English language; Date parameters: Database start date – 01/12/2016 [C]
5.	Study filter ECON (D.3.4)
6.	3 and 5
7.	Limit 6 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	(((interdisciplinary or inter-disciplinary or multidisciplinary or multi-disciplinary or multi-professional* or multiprofessional*) near/2 (team* or meeting* or manag* or appointment* or appointment* or care or intervention* or ward* or round*)) or mdt or idt):ti [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	((((interdisciplinary or inter-disciplinary or multidisciplinary or multi-disciplinary or multi-professional* or multiprofessional*) adj2 (team* or meeting* or manag* or appointment* or care or intervention* or ward* or round*)) or mdt or idt))
#2.	#1 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.31 Pharmacist support

- Do ward-based pharmacists improve patient outcomes?

Medline search terms

1.	pharmacists/
2.	pharmacists' aides/
3.	exp hospital units/
4.	1 or 2
5.	3 and 4
6.	((pharmacist* or pharmacy or pharmacies) adj4 (ward* or unit* or icu or intensive care or ccu or critical care or acute care or urgent care or emergenc*)).ti,ab.
7.	(case manage* adj1 (pharmacy or pharmacies or pharmacist*)).ti,ab.
8.	(clinical adj1 (pharmacy or pharmacies or pharmacist*)).ti,ab.
9.	pharmaceutical care.ti,ab.
10.	(medicine* adj (management or optimi* or reconciliat*)).ti,ab.
11.	or/8-10

12.	(hospital* or secondary care or ward* or unit* or icu or intensive care or ccu or critical care or acute care or urgent care or emergenc*).ti,ab.
13.	11 and 12
14.	or/5-7,13
15.	Excluded study designs and publication types [D.3.1]
16.	15 not 15
17.	Limit 16 to English language
18.	Study filters RCT (D.3.2) or SR (D.3.3)
19.	Study filter ECON (D.3.4)
20.	17 and 18; Date parameters: Database start date – 01/12/2016 [C]
21.	17 and 19; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*pharmacist/
2.	*clinical pharmacy/
3.	or/1-2
4.	exp *ward/
5.	3 and 4
6.	((pharmacist* or pharmacy or pharmacies) adj4 (ward* or unit* or icu or intensive care or ccu or critical care or acute care or urgent care or emergenc*)).ti,ab.
7.	(case manage* adj1 (pharmacy or pharmacies or pharmacist*)).ti,ab.
8.	(clinical adj1 (pharmacy or pharmacies or pharmacist*)).ti,ab.
9.	pharmaceutical care.ti,ab.
10.	(medicine* adj (management or optimi* or reconciliat*)).ti,ab.
11.	or/8-10
12.	(hospital* or secondary care or ward* or unit* or icu or intensive care or ccu or critical care or acute care or urgent care or emergenc*).ti,ab.
13.	11 and 12
14.	or/5-7,13
15.	Excluded study designs and publication types [D.3.1]
16.	14 not 15
17.	Limit 16 to English language
18.	Study filters RCT (D.3.2) or SR (D.3.3)
19.	Study filter ECON (D.3.4)
20.	17 and 18; Date parameters: Database start date – 01/12/2016 [C]
21.	17 and 19; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh ^pharmacists]
#2.	[mh ^"pharmacists' aides"]
#3.	#1 or #2
#4.	[mh "hospital units"]
#5.	#3 and #4
#6.	((pharmacist* or pharmacy or pharmacies) near/4 (ward* or unit* or icu or "intensive care" or ccu or "critical care" or "acute care" or "urgent care" or emergenc*)):ti,ab
#7.	(case next manage* near/1 (pharmacy or pharmacies or pharmacist*)):ti,ab

#8.	(clinical near/1 (pharmacy or pharmacies or pharmacist*)):ti,ab
#9.	pharmaceutical next care:ti,ab
#10.	(medicine* next (management or optimi* or reconciliat*)):ti,ab
#11.	#8 or #9 or #10
#12.	(hospital* or "secondary care" or ward* or unit* or icu or "intensive care" or ccu or "critical care" or "acute care" or "urgent care" or emergenc*):ti,ab
#13.	#11 and #12
#14.	#5 or #6 or #7 or #13 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor pharmacists
#2.	MeSH descriptor pharmacists' aides explode all trees
#3.	MeSH descriptor hospital units explode all trees
#4.	(((pharmacist* or pharmacy or pharmacies) adj4 (ward* or unit* or icu or intensive care or ccu or critical care or acute care or urgent care or emergenc*)))
#5.	((case manage* adj1 (pharmacy or pharmacies or pharmacist*)))
#6.	((clinical adj1 (pharmacy or pharmacies or pharmacist*)))
#7.	(pharmaceutical care)
#8.	((medicine* adj (management or optimi* or reconciliat*)))
#9.	((hospital* or secondary care or ward* or unit* or icu or intensive care or ccu or critical care or acute care or urgent care or emergenc*))
#10.	#1 or #2
#11.	#3 and #10
#12.	#6 or #7 or #8
#13.	#9 and #12
#14.	#4 or #5 or #11 or #13 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.32 Enhanced therapy access

- Is enhanced access to physiotherapy and/or occupational therapy for hospital patients clinically and cost effective?

Medline search terms

1.	physical therapists/
2.	physical therapy department, hospital/
3.	physical therapist assistants/
4.	(physical therap* or physiotherap*).ti,ab.
5.	occupational therapy/
6.	(occupational therap* or ot).ti,ab.
7.	rehabilitation/
8.	physical rehab*.ti,ab.
9.	physical therapy modalities/
10.	or/1-9
11.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard*) adj3 (service* or access* or availab* or hour* or

	appointment*)).ti,ab.
12.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
13.	after-hours care/
14.	workload/
15.	or/11-14
16.	10 and 15
17.	Excluded study designs and publication types [D.3.1]
18.	16 not 17
19.	Limit 18 to English language
20.	Study filter ECON (D.3.4)
21.	19 [C]
22.	19 and 20 [HE]
	Date parameters: 2005 – 01/12/2016

Embase search terms

1.	*physiotherapist/
2.	physiotherapist assistant/
3.	*physiotherapy/
4.	(physical therap* or physiotherap*).ti,ab.
5.	*occupational therapy/
6.	(occupational therap* or OT).ti,ab.
7.	*rehabilitation/
8.	physical rehab*.ti,ab.
9.	*physiotherapy practice/
10.	or/1-9
11.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard*) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
12.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or Monday-Friday or Saturday or Sunday) adj3 (service* or access* or availab* or hour* or appointment*)).ti,ab.
13.	*workload/
14.	or/11-13
15.	Excluded study designs and publication types [D.3.1]
16.	14 not 15
17.	Limit 16 to English language
18.	Study filter ECON (D.3.4)
19.	17 [C]
20.	17 and 18 [HE]
	Date parameters: 2005 – 01/12/2016

CINAHL search terms

S1.	(MH "physical therapists") or (MH "physical therapist assistants") or (MH "physical therapy")
S2.	(MH "occupational therapy") or (MH "occupational therapy assistants")
S3.	(physical therap* or physiotherap* or occupational therap* or ot or physical rehab*)

S4.	(MH "Rehabilitation")
S5.	S1 or S2 or S3 or S4
S6.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard*) n3 (service* or access* or availab* or hour* or appointment*))
S7.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or Monday-Friday or Saturday or Sunday) n3 (service* or access* or availab* or hour* or appointment*))
S8.	(MH "workload")
S9.	S6 or S7 or S8
S10.	S5 and S9
S11.	Limit S10 to English language [C]
	Date parameters: 2005 – 01/12/2016

Cochrane search terms

#1.	MeSH descriptor: [physical therapists] this term only
#2.	MeSH descriptor: [physical therapy department, hospital] this term only
#3.	MeSH descriptor: [physical therapist assistants] this term only
#4.	(physical therap* or physiotherap*):ti,ab
#5.	MeSH descriptor: [occupational therapy] this term only
#6.	(occupational therap* or ot):ti,ab
#7.	MeSH descriptor: [rehabilitation] this term only
#8.	physical rehab*:ti,ab
#9.	MeSH descriptor: [physical therapy modalities] this term only
#10.	{or #1-#9}
#11.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard*) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#12.	((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) near/3 (service* or access* or availab* or hour* or appointment*)):ti,ab
#13.	MeSH descriptor: [after-hours care] this term only
#14.	MeSH descriptor: [workload] this term only
#15.	{or #11-#14}
#16.	#10 and #15 [C]
	Date parameters: 2005 – 01/12/2016

CRD search terms

#1.	MeSH descriptor physical therapists
#2.	MeSH descriptor physical therapy department, hospital
#3.	MeSH descriptor occupational therapy
#4.	MeSH descriptor physical therapy specialty
#5.	MeSH descriptor rehabilitation
#6.	(physical therap* or physiotherap*)
#7.	(occupational therap* or ot)
#8.	(physical rehab*)

#9.	MeSH descriptor physical therapy modalities
#10.	(#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9)
#11.	((restrict* or intensiv* or frequen* or flexible or flexitime or enhance* or round-the-clock or extend* or routine or standard*) adj3 (service* or access* or availab* or hour* or appointment*))
#12.	(((morning* or evening* or weekday or weekend* or 7 day or seven day or seven-day or after-hour* or 24 hour* or 24hour* or twenty-four-hour* or out-of-hour* or 9-5 or monday-friday or saturday or sunday) adj3 (service* or access* or availab* or hour* or appointment*)))
#13.	MeSH descriptor after-hours care
#14.	MeSH descriptor workload
#15.	#11 or #12 or #13 or #14
#16.	#10 and #15 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.33 Structured patient handovers

- Do structured patient handovers between healthcare professionals improve outcomes?

Medline search terms

1.	patient handoff/
2.	((handover* or hand-over* or handoff* or hand-off*) adj2 (patient* or clinical or nurse* or nursing or doctor* or physician* or structur* or electronic* or form* or chart* or paper* or table* or checklist* or check-list* or team* or record* or system* or quality or shift* or duty or resident* or protocol* or process* or standard* or verbal* or telephon* or paramedic* or interprofessional* or inter-professional* or meeting* or triage*)).ti,ab.
3.	sbar.ti,ab.
4.	documentation/
5.	*"forms and records control"/
6.	*nursing records/
7.	or/4-6
8.	(handover* or hand-over* or handoff* or hand-off*).ti,ab.
9.	7 and 8
10.	(round* adj2 report*).ti,ab.
11.	(sign-out* and round*).ti,ab.
12.	or/1-3,9-11
13.	Excluded study designs and publication types [D.3.1]
14.	12 not 13
15.	Limit 14 to English language;
16.	Study filter ECON (D.3.4)
17.	15 [C]
18.	15 and 16 [HE]
	Date parameters: 2005 – 02/12/2016

Embase search terms

1.	clinical handover/ or "change of shift report"/
2.	((handover* or hand-over* or handoff* or hand-off*) adj2 (patient* or clinical or nurse* or nursing or doctor* or physician* or structur* or electronic* or form* or chart* or paper* or table* or checklist* or check-list* or team* or record* or system* or quality or shift* or duty or resident* or protocol* or process* or standard* or verbal* or telephon* or paramedic* or

	interprofessional* or inter-professional* or meeting* or triage*)).ti,ab.
3.	*documentation/ or *medical documentation/
4.	(handover* or hand-over* or handoff* or hand-off*).ti,ab.
5.	3 and 4
6.	SBAR.ti,ab.
7.	(round* adj2 report*).ti,ab.
8.	(sign-out* and round*).ti,ab.
9.	or/1-2,5-8
10.	Excluded study designs and publication types [D.3.1]
11.	9 not 10
12.	Limit 11 to English language
13.	Study filter ECON (D.3.4)
14.	12 [C]
15.	12 and 13 [HE]
	Date parameters: 2005 – 02/12/2016

Cochrane search terms

#1.	[mh "patient handoff"]
#2.	((handover* or hand-over* or hand next over* or handoff* or hand-off* or hand next off*) near/2 (patient* or clinical or nurse* or nursing or doctor* or physician* or structur* or electronic* or form* or chart* or paper* or table* or checklist* or check-list* or team* or record* or system* or quality or shift* or duty or resident* or protocol* or process* or standard* or verbal* or telephon* or paramedic* or interprofessional* or inter-professional* or meeting* or triage*)):ti,ab
#3.	sbar:ti,ab
#4.	(round* near/2 report*):ti,ab
#5.	(sign-out* and round*):ti,ab
#6.	[mh ^documentation]
#7.	[mh ^"forms and records control"]
#8.	[mh ^"nursing Records"]
#9.	#6 or #7 or #8
#10.	(handover* or hand-over* or hand next over* or handoff* or hand-off* or hand next off*):ti,ab
#11.	#9 and #10
#12.	#1 or #2 or #3 or #4 or #5 or #11 [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	MeSH descriptor patient handoff
#2.	(((handover* or hand-over* or handoff* or hand-off*) adj2 (patient* or clinical or nurse* or nursing or doctor* or physician* or structur* or electronic* or form* or chart* or paper* or table* or checklist* or check-list* or team* or record* or system* or quality or shift* or duty or resident* or protocol* or process* or standard* or verbal* or telephon* or paramedic* or interprofessional* or inter-professional* or meeting* or triage*)))
#3.	(sbar)
#4.	MeSH descriptor documentation
#5.	MeSH descriptor forms and records control

#6.	MeSH descriptor nursing records
#7.	#4 or #5 or #6
#8.	((handover* or hand-over* or handoff* or hand-off*))
#9.	#7 and #8
#10.	#1 or #2 or #3 or #9 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.34 Integrated patient information systems

- Do integrated patient information systems throughout the AME pathway (primary and secondary care) improve patient outcomes?

Medline search terms

1.	dossier medical personnel.ti,ab.
2.	summary care record*.ti,ab.
3.	(summar* adj2 patient* record*).ti,ab.
4.	((((health* or patient* or electronic* or medical or care) adj2 (record* or detail* or summary or summaries)) or scr or scrs) adj3 (access* or view* or share* or integrat* or standard*)).ti,ab.
5.	("patient information" adj2 (system* or database*) adj3 (access* or view* or share* or integrat* or standard*)).ti,ab.
6.	electronic health records/ or *health records, personal/ or medical records systems, computerized/ or medical record linkage/ or access to information/ or patient access to records/
7.	"delivery of health care, integrated"/
8.	patient care management/
9.	continuity of care/
10.	patient centered care/
11.	or/7-10
12.	6 and 11
13.	or/1-5,12
14.	Excluded study designs and publication types [D.3.1]
15.	13 not 14
16.	Limit 15 to English language; Date parameters: Database start date – 02/12/2016 [C]
17.	Study filter ECON (D.3.4)
18.	15 and 17
19.	Limit 18 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	dossier medical personnel.ti,ab.
2.	summary care record*.ti,ab.
3.	(summar* adj2 patient* record*).ti,ab.
4.	((((health* or patient* or electronic* or medical or care) adj2 (record* or detail* or summary or summaries)) or scr or scrs) adj3 (access* or view* or share* or integrat* or standard*)).ti,ab.
5.	("patient information" adj2 (system* or database*) adj3 (access* or view* or share* or integrat* or standard*)).ti,ab.
6.	*electronic medical record/

7.	*documentation/ or *medical documentation/
8.	*information system/
9.	*access to information/
10.	or/6-9
11.	*integrated health care system/
12.	*patient care/
13.	11 or 12
14.	10 and 13
15.	or/1-5,14
16.	Excluded study designs and publication types [D.3.1]
17.	15 not 16
18.	Limit 17 to English language; Date parameters: Database start date – 02/12/2016 [C]
19.	Study filter ECON (D.3.4)
20.	17 and 19
21.	Limit 20 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	("dossier medical personnel"):ti,ab
#2.	(summary next care next record*):ti,ab
#3.	(summar* near/2 patient* next record*):ti,ab
#4.	((((health* or patient* or electronic* or medical or care) near/2 (record* or detail* or summary or summaries)) or scr or scrs) near/3 (access* or view* or share* or integrat* or standard*)):ti,ab
#5.	("patient information" near/2 (system* or database*) near/3 (access* or view* or share* or integrat* or standard*)):ti,ab
#6.	[mh ^"electronic health records"]
#7.	[mh ^"health records, personal"]
#8.	[mh ^"medical records systems, computerized"]
#9.	[mh ^"medical record linkage"]
#10.	[mh ^"access to information"]
#11.	[mh ^"patient access to records"]
#12.	{or #1-#11} [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	("dossier medical personnel")
#2.	(summary care record*)
#3.	((summar* adj2 patient* record*))
#4.	(((((health* or patient* or electronic* or medical or care) adj2 (record* or detail* or summary or summaries)) or scr or scrs) adj3 (access* or view* or share* or integrat* or standard*)))
#5.	(("patient information" adj2 (system* or database*) adj3 (access* or view* or share* or integrat* or standard*)))
#6.	MeSH descriptor electronic health records
#7.	MeSH descriptor health records, personal
#8.	MeSH descriptor medical records systems, computerized
#9.	MeSH descriptor medical record linkage

#10.	MeSH descriptor access to information explode all trees
#11.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.35 Hospital transfers

- Do standardised systems of care for intra- and inter-hospital transfers of critically ill patients improve outcomes?

Medline search terms

1.	patient transfer/
2.	(standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or scor* or guide*).ti.
3.	1 and 2
4.	((hospital* or patient* or ward* or interhospital* or inter-hospital*or intrahospital* or intra-hospital*) adj3 (transfer* or dump* or transport*) adj4 (standard* or system* or criteri* or checklist* or plan* or polic* or procedure* or process* or model* or strateg* or method* or protocol* or scor* or guide*)).ti,ab.
5.	3 or 4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016 [C]
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*patient transport/
2.	(standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or scor* or guide*).ti.
3.	1 and 2
4.	((hospital* or patient* or ward* or interhospital* or inter-hospital*or intrahospital* or intra-hospital*) adj3 (transfer* or dump* or transport*) adj4 (standard* or system* or criteri* or checklist* or plan* or polic* or procedure* or process* or model* or strateg* or method* or protocol* or scor* or guide*)).ti,ab.
5.	3 or 4
6.	Excluded study designs and publication types [D.3.1]
7.	5 not 6
8.	Limit 7 to English language; Date parameters: Database start date – 01/12/2016 [C]
9.	Study filter ECON (D.3.4)
10.	7 and 9
11.	Limit 10 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh ^"patient transfer"]
#2.	(standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or scor* or guide*):ti
#3.	#1 and #2
#4.	((hospital* or patient* or ward* or interhospital* or inter-hospital*or intrahospital* or intra-

	hospital*) near/3 (transfer* or dump* or transport*) near/4 (standard* or system* or criteri* or checklist* or plan* or polic* or procedure* or process* or model* or strateg* or method* or protocol* or scor* or guide*)):ti,ab
#5.	#3 or #4 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor patient transfer
#2.	(((hospital* or patient* or ward* or interhospital* or inter-hospital*or intrahospital* or intra-hospital*) adj3 (transfer* or dump* or transport*) adj4 (standard* or system* or criteri* or checklist* or plan* or polic* or procedure* or process* or model* or strateg* or method* or protocol* or scor* or guide*)))
#3.	#1 or #2 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.36 Discharge planning

- Does discharge planning facilitate early hospital discharge?

This search was an update of the search for a Cochrane review.:
Goncalves-Bradley DC, Lannin NA, Clemson LM, Cameron ID, Shepperd S. Discharge planning from hospital. Cochrane Database of Systematic Reviews. 2016; Issue 1:CD000313. DOI:10.1002/14651858.CD000313.pub5

Medline search terms

1.	(discharge and (plan* or service? or program* or intervention?)).ti.
2.	*patient discharge/
3.	(patient* adj2 discharge*).ti,ab.
4.	(hospital adj2 discharge*).ti,ab.
5.	(discharge adj2 plan*).ti,ab.
6.	(discharge adj (service? or program* or procedure*)).ti,ab.
7.	or/2-6
8.	*"continuity of patient care"/
9.	*"length of stay"/
10.	patient readmission/
11.	(readmission or readmitted or re-admission or re-admitted).ti,ab.
12.	(rehospitali?ation* or re-hospitali?ation* or rehospitali?ed or re-hospitali?ed).ti,ab.
13.	length of stay.ti,ab.
14.	length of hospital stay.ti,ab.
15.	((hospital or hospitali?ed or bed) adj2 days).ti,ab.
16.	or/8-15
17.	7 and 16
18.	1 or 17
19.	Excluded study designs and publication types [D.3.1]
20.	18 not 19
21.	Limit 20 to English language
22.	Study filter RCT (D.3.2)
23.	Study filter ECON (D.3.4)

24.	21 and 22; Date parameters: 2015 – 01/12/2016 [C]
25.	21 and 23; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	(discharge and (plan* or service? or program* or intervention?)).ti.
2.	*patient discharge/
3.	((patient* or hospital) adj2 discharge*).ti,ab.
4.	(discharge adj2 plan*).ti,ab.
5.	(discharge adj (service* or program* or procedure*)).ti,ab.
6.	or/2-5
7.	*"continuity of patient care"/
8.	*"length of stay"/
9.	patient readmission/
10.	(readmission or readmitted or re-admission or re-admitted).ti,ab.
11.	(rehospitali?ation* or re-hospitali?ation* or rehospitali?ed or re-hospitali?ed).ti,ab.
12.	length of stay.ti,ab.
13.	length of hospital stay.ti,ab.
14.	((hospital or hospitali?ed or bed) adj2 days).ti,ab.
15.	or/7-14
16.	6 and 15
17.	1 or 16
18.	Excluded study designs and publication types [D.3.1]
19.	17 not 18
20.	Limit 19 to English language
21.	Study filter RCT (D.3.2)
22.	Study filter ECON (D.3.4)
23.	20 and 21; Date parameters: 2015 – 01/12/2016 [C]
24.	20 and 22; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	(discharge and (plan* or service? or program* or intervention?)):ti
#2.	[mh "patient discharge"]
#3.	((patient* or hospital) near/2 discharge):ti,ab,kw
#4.	(discharge near/2 plan*):ti,ab,kw
#5.	discharge service* or "discharge program*" or "discharge procedure*":ti,ab,kw
#6.	#2 or #3 or #4 or #5
#7.	[mh "patient readmission"]
#8.	[mh "length of stay"]
#9.	[mh ^"continuity of patient care"]
#10.	(readmission or readmitted or re-admission or re-admitted):ti,ab,kw
#11.	(rehospitali?ation* or re-hospitali?ation* or rehospitali?ed or re-hospitali?ed):ti,ab,kw
#12.	length of stay:ti,ab,kw
#13.	length of hospital stay:ti,ab,kw
#14.	((hospital or hospitali?ed or bed) near/2 days):ti,ab,kw
#15.	{or #7-#14}

#16.	#6 and #15
#17.	#1 or #16 [C]
	Date parameters: 2015 – 01/12/2016

CINAHL search terms

S1.	ti (discharge and (plan* or service? or program* or intervention?))
S2.	(mh "discharge planning")
S3.	S1 or S2
S4.	(mm "patient discharge education") or (mm "patient discharge") or (mm "early patient discharge")
S5.	ti patient* n2 discharge* or ab patient* n2 discharge*
S6.	ti hospital n2 discharge* or ab hospital n2 discharge*
S7.	ti discharge* n2 plan* or ab discharge* n2 plan*
S8.	ti discharge service* or ab discharge service*
S9.	ti discharge program* or ab discharge program*
S10.	ti discharge procedure* or ab discharge procedure*
S11.	S4 or S5 or S6 or S7 or S8 or S9 or S10
S12.	(mm "continuity of patient care")
S13.	(mh "length of stay")
S14.	(mh "readmission")
S15.	ti (readmission or readmitted or re-admission or re-admitted) or ab (readmission or readmitted or re-admission or re-admitted)
S16.	ti (rehospitali?ation* or re-hospitali?ation* or rehospitali?ed or re-hospitali?ed) or ab (rehospitali?ation* or re-hospitali?ation* or rehospitali?ed or re-hospitali?ed)
S17.	ti length n2 stay or ab length n2 stay
S18.	ti length n2 hospital stay or ab length n2 hospital stay
S19.	ti (((hospital or hospitali?ed or bed) n2 days)) or ab (((hospital or hospitali?ed or bed) n2 days))
S20.	S12 or S13 or S14 or S15 or S16 or S17 or S18 or S19
S21.	S11 and S20
S22.	S3 or S21
S23.	((mh "experimental studies+") or (mh "treatment outcomes+")) or ti random* or ab random*
S24.	S22 and S23
S25.	Limit S24 to Enlgish language [C]
	Date parameters: 2015 – 01/12/2016

CRD search terms

#1.	((discharge and (plan* or service* or program* or intervention*))):ti
#2.	MeSH descriptor patient discharge
#3.	(patient* adj2 discharge*)
#4.	(hospital adj2 discharge*)
#5.	(discharge adj2 plan*)
#6.	((discharge adj (service* or program* or procedure*)))
#7.	#2 or #3 or #4 or #5 or #6
#8.	MeSH descriptor continuity of patient care
#9.	MeSH descriptor length of stay

#10.	MeSH descriptor patient readmission
#11.	(readmission or readmitted or re-admission or re-admitted)
#12.	(rehospitali?ation* or re-hospitali?ation* or rehospitali?ed or re-hospitali?ed)
#13.	(length of stay)
#14.	(length of hospital stay)
#15.	(((hospital or hospitali?ed or bed) adj2 days))
#16.	#8 or #9 or #10 or #11 or #12 or #13 or #14 or #15
#17.	#7 and #16
#18.	#1 or #17 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.37 Discharge criteria

- Do standardised criteria for hospital discharge facilitate earlier discharge and/or reduce readmission rates?

Medline search terms

1.	patient discharge/
2.	(standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or guideline* or guidance or score or scores or scoring).ti.
3.	1 and 2
4.	((hospital* or patient*) adj3 discharg* adj3 (standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model* or strateg* or method* or protocol* or score or scores or scoring)).ti,ab.
5.	(discharg* and (blatchford* or curb65 or crb65 or curb-65 or crb-65 or grace scor* or heart scor* or qadmission* or q-admission*)).ti,ab.
6.	(discharg* adj2 (protocol* or guideline* or guidance)).ti,ab.
7.	or/3-6
8.	Excluded study designs and publication types [D.3.1]
9.	7 not 8
10.	Limit 9 to English language
11.	Study filters RCT (D.3.2) or SR (D.3.3) or OBS (D.3.6)
12.	Study filter ECON (D.3.4)
13.	10 and 11; Date parameters: Database start date – 01/12/2016 [C]
14.	10 and 12; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*hospital discharge/
2.	(standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or guideline* or guidance or score or scores or scoring).ti.
3.	1 and 2
4.	((hospital* or patient*) adj3 discharg* adj3 (standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model* or strateg* or method* or protocol* or score or scores or scoring)).ti,ab.
5.	(discharg* and (blatchford* or curb65 or crb65 or curb-65 or crb-65 or grace scor* or heart scor* or qadmission* or q-admission*)).ti,ab.
6.	(discharg* adj2 (protocol* or guideline* or guidance)).ti,ab.
7.	or/3-6

8.	Excluded study designs and publication types [D.3.1]
9.	7 not 8
10.	Limit 9 to English language
11.	Study filters RCT (D.3.2) or SR (D.3.3) or OBS (D.3.6)
12.	Study filter ECON (D.3.4)
13.	10 and 11; Date parameters: Database start date – 01/12/2016 [C]
14.	10 and 12; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	MeSH descriptor: [patient discharge] this term only
#2.	(standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or guideline* or guidance or score or scores or scoring):ti
#3.	#1 and #2
#4.	((hospital* or patient*) near/3 discharg* near/3 (standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model* or strateg* or method* or protocol* or score or scores or scoring)):ti,ab
#5.	(discharg* and (blatchford* or curb65 or crb65 or curb-65 or crb-65 or grace scor* or heart scor* or qadmission* or q-admission*)):ti,ab
#6.	(discharg* near/2 (protocol* or guideline* or guidance)):ti,ab
#7.	#3 or #4 or #5 or #6 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor patient discharge explode all trees
#2.	((standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model or strateg* or method* or protocol* or guideline* or guidance or score or scores or scoring))
#3.	#1 and #2
#4.	(((hospital* or patient*) adj3 discharg* adj3 (standard* or system* or criteria or checklist* or plan* or polic* or procedure* or model* or strateg* or method* or protocol* or score or scores or scoring)))
#5.	((discharg* and (blatchford* or curb65 or crb65 or curb-65 or crb-65 or grace scor* or heart scor* or qadmission* or q-admission*)))
#6.	((discharg* adj2 (protocol* or guideline* or guidance)))
#7.	#3 or #4 or #5 or #6 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.38 Post discharge early follow up clinics

- Do post discharge early follow up clinics optimise patient outcomes?

Medline search terms

1.	(after discharge* or hospital discharge* or post admission* or post discharge* or postdischarge* or posthospitali#ation* or post hospitali#ation* or out patient or outpatient or out-patient).ti,ab.
2.	outpatients/
3.	or/1-2
4.	((followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative) adj3 (clinic or clinics)).ti,ab.
5.	(followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or

	postoperative or post operative).ti,ab. and outpatient clinics, hospital/
6.	4 or 5
7.	3 and 6
8.	Excluded study designs and publication types [D.3.1]
9.	7 not 8
10.	Limit 9 to English language; Date parameters: Database start date – 02/12/2016 [C]
11.	Study filter ECON (D.3.4)
12.	9 and 11
13.	Limit 12 to English language Date parameters: 2005 – 02/12/2016; [HE]

Embase search terms

1.	(after discharge* or hospital discharge* or post admission* or post discharge* or postdischarge* or posthospitali#ation* or post hospitali#ation* or out patient or outpatient or out-patient).ti,ab.
2.	outpatient/
3.	or/1-2
4.	((followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative) adj3 (clinic or clinics)).ti,ab.
5.	(followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative).ti,ab. and *outpatient department/
6.	4 or 5
7.	3 and 6
8.	Excluded study designs and publication types [D.3.1]
9.	7 not 8
10.	Limit 9 to English language; Date parameters: Database start date – 02/12/2016 [C]
11.	Study filter ECON (D.3.4)
12.	9 and 11
13.	Limit 12 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	(after discharge* or hospital discharge* or post admission* or post discharge* or postdischarge* or posthospitali?ation* or post hospitali?ation* or out patient or outpatient or out-patient):ti,ab
#2.	MeSH descriptor: [outpatients] this term only
#3.	{or #1-#2}
#4.	((followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative) near/3 (clinic or clinics)):ti,ab
#5.	(followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative):ti,ab
#6.	MeSH descriptor: [outpatient clinics, hospital] this term only
#7.	#5 and #6
#8.	#4 or #7
#9.	#3 and #8 [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	((after discharge* or hospital discharge* or post admission* or post discharge* or postdischarge* or posthospitali#ation* or post hospitali#ation* or out patient or outpatient or

	out-patient))
#2.	MeSH descriptor outpatients
#3.	#1 or #2
#4.	((followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative) adj3 (clinic or clinics))
#5.	((followup* or follow up* or follow-up* or post critical care or post icu care or critical illness or postoperative or post operative))
#6.	MeSH descriptor outpatient clinics, hospital
#7.	#5 and #6
#8.	#4 or #7
#9.	#3 and #8 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.39 Integrated care

- Do integrated care models improve patient outcomes?

Medline search terms

1.	"delivery of health care, integrated"/
2.	(integrat* adj2 (care or health*)).ti,ab.
3.	(shared care or one-stop clinic* or one stop clinic* or patient management or patient care team*).ti,ab.
4.	hospitals, high-volume/
5.	*tertiary care centers/
6.	centralized hospital services/
7.	(hub adj2 spoke).ti,ab.
8.	((hub or spoke) adj2 (hospital* or site* or centre* or center* or unit*)).ti,ab.
9.	(high-volume adj2 (hospital* or site* or centre* or center* or unit*)).ti,ab.
10.	patient care team/
11.	or/1-10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	Limit 13 to English language
15.	Study filter RCT (D.3.2)
16.	Study filter ECON (D.3.4)
17.	14 and 15; Date parameters: Database start date – 01/12/2016 [C]
18.	13 and 16; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	*integrated health care system/
2.	(integrat* adj2 (care or health*)).ti,ab.
3.	(shared care or one-stop clinic* or one stop clinic* or patient management or patient care team*).ti,ab.
4.	high volume hospital/
5.	*tertiary care center/
6.	hospital management/
7.	(hub adj2 spoke).ti,ab.

8.	((hub or spoke) adj2 (hospital* or site* or centre* or center* or unit*)).ti,ab.
9.	(high-volume adj2 (hospital* or site* or centre* or center* or unit*)).ti,ab.
10.	*patient care/
11.	Or/1-10
12.	Excluded study designs and publication types [D.3.1]
13.	12 not 13
14.	Limit 13 to English language
15.	Study filter RCT (D.3.2)
16.	Study filter ECON (D.3.4)
17.	14 and 15; Date parameters: Database start date – 01/12/2016 [C]
18.	14 and 16; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	MeSH descriptor: [delivery of health care, integrated] this term only
#2.	(integrate* near/2 (care or healthcare)):ti,ab
#3.	(shared care or one-stop clinic* or one stop clinic* or patient management or patient care team*) .ti,ab
#4.	MeSH descriptor: [hospitals, high-volume] this term only
#5.	MeSH descriptor: [tertiary care centers] this term only
#6.	MeSH descriptor: [centralized hospital services] this term only
#7.	(hub near/2 spoke):ti,ab
#8.	((hub or spoke) near/2 (hospital* or site* or centre* or center* or unit*)):ti,ab
#9.	(high-volume near/2 (hospital* or site* or centre* or center* or unit*)):ti,ab
#10.	MeSH descriptor: [patient care team] this term only
#11.	{or #1-#10} [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	MeSH descriptor delivery of health care, integrated
#2.	((integrat* adj2 (care or health*)))
#3.	((shared care or one-stop clinic* or one stop clinic* or patient management))
#4.	MeSH descriptor hospitals, high-volume
#5.	MeSH descriptor tertiary care centers
#6.	MeSH descriptor centralized hospital services
#7.	((hub adj2 spoke))
#8.	(((hub or spoke) adj2 (hospital* or site* or centre* or center* or unit*)))
#9.	((high-volume adj2 (hospital* or site* or centre* or center* or unit*)))
#10.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.4.40 Bed capacity

- What is the appropriate level of bed occupancy in hospital to facilitate optimal patient flow?

Medline search terms

1.	exp *hospital bed capacity/
2.	*bed occupancy/

3.	((bed or beds) adj2 (demand* or occupanc*)).ti,ab.
4.	(hospital* adj2 (capacit* or occpanc* or flow)).ti,ab.
5.	((emergency or ed) adj2 (overcrowd* or over-crowd* or boarding)).ti,ab.
6.	((bed or beds) adj1 block*).ti,ab.
7.	access block*.ti,ab.
8.	((admission* or admit*) adj2 delay*).ti,ab.
9.	or/1-8
10.	Excluded study designs and publication types [D.3.1]
11.	9 not 10
12.	Limit 11 to English language; Date parameters: Database start date – 02/12/2016 [C]
13.	Study filter ECON (D.3.4)
14.	11 and 13
15.	Limit 14 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Embase search terms

1.	*hospital bed utilization/
2.	exp *hospital bed capacity/
3.	((bed or beds) adj2 (demand* or occupanc*)).ti,ab.
4.	(hospital* adj2 (capacit* or occpanc* or flow)).ti,ab.
5.	((emergency or ed) adj2 (overcrowd* or over-crowd* or boarding)).ti,ab.
6.	((bed or beds) adj1 block*).ti,ab.
7.	access block*.ti,ab.
8.	((admission* or admit*) adj2 delay*).ti,ab.
9.	or/1-8
10.	Excluded study designs and publication types [D.3.1]
11.	9 not 10
12.	Limit 11 to English language; Date parameters: Database start date – 02/12/2016 [C]
13.	Study filter ECON (D.3.4)
14.	11 and 13
15.	Limit 14 to English language; Date parameters: 2005 – 02/12/2016 [HE]

Cochrane search terms

#1.	[mh "hospital bed capacity"]
#2.	[mh ^"bed occupancy"]
#3.	((bed or beds) near/2 (demand* or occupanc*)):ti,ab
#4.	(hospital* near/2 (capacit* or occpanc* or flow)):ti,ab
#5.	((emergency or ed) near/2 (overcrowd* or over-crowd* or boarding)):ti,ab
#6.	((bed or beds) near/1 block*):ti,ab
#7.	access next block*:ti,ab
#8.	((admission* or admit*) near/2 delay*):ti,ab
#9.	{or #1-#8} [C]
	Date parameters: Database start date – 02/12/2016

HMIC search terms

1.	bed occupancy/ or bed availability/ or bed occupancy rates/ or blocked beds/
2.	((bed or beds) adj2 (demand* or occupanc*)).ti,ab.

3.	(hospital* adj2 (capacit* or occpanc* or flow)).ti,ab.
4.	((emergency or ed) adj2 (overcrowd* or over-crowd* or boarding)).ti,ab.
5.	overcrowding/
6.	((bed or beds) adj1 block*).ti,ab.
7.	access block*.ti,ab.
8.	((admission* or admit*) adj2 delay*).ti,ab.
9.	or/1-8 [C]
	Date parameters: Database start date – 02/12/2016

CRD search terms

#1.	MeSH descriptor hospital bed capacity explode all trees
#2.	MeSH descriptor bed occupancy
#3.	(((bed or beds) adj2 (demand* or occupanc*)))
#4.	((hospital* adj2 (capacit* or occpanc* or flow)))
#5.	(((emergency or ed) adj2 (overcrowd* or over-crowd* or boarding)))
#6.	(((bed or beds) adj1 block*))
#7.	(access block*)
#8.	(((admission* or admit*) adj2 delay*))
#9.	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 in HTA or NHSEED [HE]
	Date parameters: 2005 – 02/12/2016

D.4.41 Escalation measures

- What are the appropriate escalation measures to manage surges in demand to facilitate optimal patient flow?

Medline search terms

1.	surge capacity/
2.	((surge or surges or alert*) adj2 capacit*).ti,ab.
3.	((exceed* adj2 capacit*) and (hospital* or medical*)).ti,ab.
4.	exp *disaster planning/
5.	*pandemics/
6.	*disasters/
7.	or/4-6
8.	exp hospital units/ or exp hospitals/ or exp health services/
9.	7 and 8
10.	((surge or surges or disaster* or pandemic* or sars or major incident* or seasonal* or (winter adj (flu or influenza))) adj2 (plan or plans or planning or planned or planner* or alert*)).ti,ab.
11.	or/1-3,9-10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	Limit 13 to English language; Date parameters: 2000 – 01/12/2016 [C]
15.	Study filters ECON (D.3.4) or EXT MOD (D.3.5)
16.	13 and 15
17.	Limit 16 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Embase search terms

1.	surge capacity/
2.	((surge or surges or alert*) adj2 capacit*).ti,ab.
3.	((exceed* adj2 capacit*) and (hospital* or medical*)).ti,ab.
4.	*disaster planning/
5.	*pandemic/
6.	exp *disaster/
7.	or/4-6
8.	exp *"health care facilities and services"/
9.	7 and 8
10.	((surge or surges or disaster* or pandemic* or sars or major incident* or seasonal* or (winter adj (flu or influenza))) adj2 (plan or plans or planning or planned or planner* or alert*)).ti,ab.
11.	or/1-3,9-10
12.	Excluded study designs and publication types [D.3.1]
13.	11 not 12
14.	Limit 13 to English language; Date parameters: 2000 – 01/12/2016 [C]
15.	Study filters ECON (D.3.4) or EXT MOD (D.3.5)
16.	13 and 15
17.	Limit 16 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	[mh ^"surge capacity"]
#2.	((surge or surges or alert*) near/2 capacit*):ti,ab
#3.	((exceed* near/2 capacit*) and (hospital* or medical*)):ti,ab
#4.	[mh "disaster planning"]
#5.	[mh ^pandemics]
#6.	[mh ^disasters]
#7.	((surge or surges or disaster* or pandemic* or sars or major next incident* or seasonal* or (winter next (flu or influenza))) near/2 (plan or plans or planning or planned or planner* or alert*)):ti,ab
#8.	{or #1-#7} [C]
	Date parameters: 2000 – 01/12/2016

HMIC search terms

1.	((surge or surges or alert*) adj2 capacit*).ti,ab.
2.	((exceed* adj2 capacit*) and (hospital* or medical*)).ti,ab.
3.	emergency planning/
4.	exp disasters/ or exp major incidents/
5.	exp health services/
6.	4 and 5
7.	((surge or surges or disaster* or pandemic* or sars or major incident* or seasonal* or (winter adj (flu or influenza))) adj2 (plan or plans or planning or planned or planner* or alert*)).ti,ab.
8.	or/1-3,6-7 [C]
	Date parameters: 2000 – 01/12/2016

CRD search terms

#1.	MeSH descriptor surge capacity
#2.	(((surge or surges or alert*) adj2 capacit*))

#3.	((exceed* adj2 capacit*))
#4.	MeSH descriptor disaster planning explode all trees
#5.	MeSH descriptor pandemics
#6.	MeSH descriptor disasters
#7.	(((surge or surges or disaster* or pandemic* or sars or major incident* or seasonal* or (winter adj (flu or influenza))) adj2 (plan or plans or planning or planned or planner* or alert*)))
#8.	#1 or #2 or #3 or #4 or #5 or #6 or #7
#9.	#8 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.5 Health economics searches

Health economic searches were run by applying the HE study type filter search terms to the same strategies used for the clinical searches. (See section D.4 for details).

Additional searches for specific topics were run to inform the health economic model. For the outliers and weekend admissions searches a clinical review was also undertaken to inform the model.

Table 3: Databases searched

Question	Question number	Databases
Discrete event simulations	D.5.3	Medline, Embase, CRD, EconLit
Frailty	D.5.5	Medline, Embase, CRD
National Early Warning Score	D.5.4	Medline, Embase, CRD
Outliers	D.5.1	Medline, Embase, the Cochrane Library, CRD
Quality of life	D.5.7	Medline, Embase
Survival analysis	D.5.6	Medline, Embase
Weekend admissions	D.5.2	Medline, Embase, the Cochrane Library, CRD

D.5.1 Outliers

- What is the impact on clinical outcomes for medical outliers admitted to hospital with an acute medical emergency?

Medline and Embase search terms

1.	((medical or surgical or patient* or ward* or inpatient* or bed or beds or department* or emergenc* or ed) adj5 (outlier* or outlying* or out-lier* or out-lying* or boarding or boarded or boarder* or guest*)).ti,ab.
2.	(sleep-out or sleep-outs).ti,ab.
3.	(ward* adj1 inappropriat*).ti,ab.
4.	or/1-3
5.	Excluded study designs and publication types [D.3.1]
6.	4 not 5
7.	Limit 6 to English language; Date parameters: 1990 – 01/12/2016 [C]
8.	Study filter ECON (D.3.4)
9.	6 and 8

10.	Limit 9 to English language; Date parameters: 2005 – 01/12/2016 [HE]

Cochrane search terms

#1.	((medical or surgical or patient* or ward* or inpatient* or bed or beds or department* or emergenc* or ed) near/5 (outlier* or outlying* or out-lier* or out next lier* or out-lying* or out next lying* or boarding or boarded or boarder* or guest*)):ti,ab
#2.	(sleep-out or sleep-outs or "sleep out" or "sleep outs"):ti,ab
#3.	(ward* near/1 inappropriat*):ti,ab
#4.	#1 or #2 or #3 [C]
	Date parameters: Database start date – 01/12/2016

CRD search terms

#1.	(((medical or surgical or patient* or ward* or inpatient* or bed or beds or department* or emergenc* or ed) adj5 (outlier* or outlying* or out-lier* or out-lying* or boarding or boarded or boarder* or guest*))) in nhseed, hta
#2.	((sleep-out or sleep-outs or "sleep out" or "sleep outs")) in nhseed, hta
#3.	((ward* adj1 inappropriat*)) in nhseed, hta
#4.	#1 or #2 or #3 in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.5.2 Weekend admissions

- Is weekend admission associated with worse outcome than weekday admission in England (after controlling for case-mix)?

Medline search terms

1.	((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) adj10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)).ti,ab.
2.	((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) adj10 (mortality or death*)).ti,ab.
3.	(day* adj3 week* adj10 (mortality or death*)).ti,ab.
4.	(day* adj3 week* adj10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)).ti,ab.
5.	exp mortality/ and (weekend or week-end* or weekday* or week-day*).ti,ab.
6.	or/1-5
7.	Excluded study designs and publication types [D.3.1]
8.	6 not 7
9.	Limit 8 to English language
10.	Study filter ECON (A.3.4)
11.	9 [C]
12.	9 and 10 [HE]
	Date parameters: 2005 – 01/12/2016

Embase search terms

1.	((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) adj10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)).ti,ab.
2.	((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) adj10 (mortality or death*)).ti,ab.

3.	(day* adj3 week* adj10 (mortality or death*)).ti,ab.
4.	(day* adj3 week* adj10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)).ti,ab.
5.	exp mortality/
6.	(weekend or week-end* or weekday* or week-day*).ti,ab.
7.	5 and 6
8.	or/1-4,7
9.	Excluded study designs and publication types [D.3.1]
10.	8 not 9
11.	Limit 10 to English language
12.	Study filter ECON (A.3.4)
13.	11 [C]
14.	11 and 12 [HE]
	Date parameters: 2005 – 01/12/2016

Cochrane search terms

#1.	((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) near/10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)):ti,ab
#2.	((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) near/10 (mortality or death*)):ti,ab
#3.	(day* near/3 week* near/10 (mortality or death*)):ti,ab
#4.	(day* near/3 week* near/10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)):ti,ab
#5.	[mh mortality]
#6.	(weekend or week-end* or weekday* or week-day*):ti,ab
#7.	#5 and #6
#8.	#1 or #2 or #3 or #4 or #7 [C]
	Date parameters: 2005 – 01/12/2016

CRD search terms

#1.	MeSH descriptor mortality explode all trees
#2.	((weekend or week-end* or weekday* or week-day*))
#3.	#1 and #2
#4.	((day* adj3 week* adj10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)))
#5.	((day* adj3 week* adj10 (mortality or death*)))
#6.	(((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) adj10 (mortality or death*)))
#7.	(((weekend* or week-end* or weekday* or week-day* or monday* or tuesday* or wednesday* or thursday* or friday* or saturday* or sunday*) adj10 (admit* or admiss* or attend* or hospitalis* or hospitaliz* or readmit* or readmiss*)))
#8.	#3 or #4 or #5 or #6 or #7
#9.	in HTA or NHSEED [HE]
	Date parameters: 2005 – 01/12/2016

D.5.3 Discrete event simulations

Medline & Embase search terms

1.	(discrete event* adj2 (model* or simulat*)).ti,ab.
2.	Excluded study designs and publication types [D.3.1]
3.	1 not 2
4.	Limit 3 to English language
	Date parameters: Database start date – 18/02/2015

CRD search terms

#1.	((discrete event* adj2 (model* or simulat*))) in NHSEED or HTA
	Date parameters: Database start date – 18/02/2015

EconLit search terms

S1.	(discrete event* n2 (model* or simulat*))
S2.	tx health*
S3.	S1 and S2
	Date parameters: Database start date – 18/02/2015

D.5.4 National Early Warning Score

Medline search terms

1.	("national early warning" or (new adj scor*)).ti,ab.
2.	exp emergency service, hospital/
3.	emergency medical services/
4.	(((emergenc* or trauma) adj2 (department* or unit* or centre* or center* or ward* or accident or service* or team* or dept* or room* or hospital* or medic*)) or a&e or ed).ti,ab.
5.	or/2-4
6.	1 and 5
7.	Excluded study designs and publication types [D.3.1]
8.	6 not 7
9.	Limit 8 to English language
	Date parameters: Database start date – 24/01/2017

Embase search terms

1.	("national early warning" or (new adj scor*)).ti,ab.
2.	"national early warning score"/
3.	1 or 2
4.	(((emergenc* or trauma) adj2 (department* or unit* or centre* or center* or ward* or accident or service* or team* or dept* or room* or hospital* or medic*)) or a&e or ed).ti,ab.
5.	*emergency ward/
6.	*emergency health service/
7.	or/4-6
8.	3 and 7
9.	Excluded study designs and publication types [D.3.1]
10.	8 not 9
11.	Limit 10 to English language

	Date parameters: Database start date – 24/01/2017

CRD search terms

#1.	(("national early warning" or (new adj scor*))) in NHSEED or HTA
	Date parameters: Database start date – 24/01/2017

D.5.5 Frailty

Medline search terms

1.	frail elderly/
2.	frail*.ti,ab.
3.	1 or 2
4.	Excluded study designs and publication types [D.3.1]
5.	3 not 4
6.	Limit 5 to English language
7.	Study filter ECON (D.3.4)
8.	6 and 7
	Date parameters: 2005 – 04/10/2016

Embase search terms

1.	frail elderly/
2.	frail*.ti,ab.
3.	1 or 2
4.	Excluded study designs and publication types [D.3.1]
5.	3 not 4
6.	Limit 5 to English language
7.	Study filter ECON (D.3.4)
8.	6 and 7
	Date parameters: 2005 – 04/10/2016

CRD search terms

#1.	MeSH descriptor frail elderly
#2.	(frail*)
#3.	#1 or #2 in NHSEED, HTA
	Date parameters: 2005 – 04/10/2016

D.5.6 Survival analysis

Medline search terms

1.	standardi#ed mortality ratio*.ti,ab.
2.	exp *survival analysis/
3.	(survival adj (analys* or curve* or ratio*)).ti,ab.
4.	(mortality adj (rate or rates)).ti,ab.
5.	or/1-4
6.	(medical or acute* or admission* or admit* or emergenc*).ti.
7.	(critical ill* or heart failure or ((renal or kidney) adj failure) or pneumonia or diabet*).ti.
8.	*critical illness/ or *critical care/ or exp *heart failure/ or exp *renal insufficiency/ or exp

	*pneumonia/ or exp *diabetes mellitus/
9.	or/6-8
10.	discharg*.ti,ab.
11.	(long-term or longterm or year or years).ti,ab.
12.	5 and 9 and 10 and 11
13.	Excluded study designs and publication types [D.3.1]
14.	12 not 13
15.	Limit 14 to English language
	Date parameters: Database start date – 13/07/2016

Embase search terms

1.	standardi#ed mortality ratio*.ti,ab.
2.	standardized mortality ratio/
3.	*survival/ or *long term survival/ or *survival rate/ or *survival time/
4.	(survival adj (analys* or curve* or ratio*)).ti,ab.
5.	(mortality adj (rate or rates)).ti,ab.
6.	or/1-5
7.	(medical or acute* or admission* or admit* or emergenc*).ti.
8.	(critical ill* or heart failure or ((renal or kidney) adj failure) or pneumonia or diabet*).ti.
9.	7 or 8
10.	discharg*.ti,ab.
11.	(long-term or longterm or year or years).ti,ab.
12.	6 and 9 and 10 and 11
13.	Excluded study designs and publication types [D.3.1]
14.	12 not 13
15.	Limit 14 to English language
	Date parameters: Database start date – 13/07/2016

D.5.7 Quality of Life

Medline search terms

1.	exp emergency medical services/
2.	emergencies/
3.	(acute adj3 (emergenc* or admission*)).ti,ab.
4.	emergency medicine/
5.	((emergenc* or urgent*) adj3 (care* or healthcare or service* or admi* or appoint*)).ti,ab.
6.	or/1-5
7.	Excluded study designs and publication types [D.3.1]
8.	6 not 7
9.	Limit 8 to English language
10.	Study filter QOL (D.3.7)
11.	9 and 10
	Date parameters: Database start date – 17/06/2016

Embase search terms

1.	*emergency health service/

2.	*emergency/
3.	*emergency medicine/
4.	*emergency ward/
5.	(acute adj3 (emergenc* or admission*)).ti,ab.
6.	((emergenc* or urgent*) adj3 (care* or healthcare or service* or admi* or appoint*)).ti,ab.
7.	or/1-6
8.	Excluded study designs and publication types [D.3.1]
9.	7 not 8
10.	Limit 9 to English language
11.	Study filter QOL (D.3.7)
12.	10 and 11
	Date parameters: Database start date – 17/06/2016

Appendix E: NICE technical team

Name	Role
Nichole Taske	Technical Lead
Bhash Naidoo	Health Economist
Clifford Middleton	Guideline Commissioning Manager
Oyindamola Adebanji	Guideline Coordinator
Judith McBride	Editor

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