National Institute for Health and Care Excellence

Final

Chapter 18 Minor injury unit, urgent care centre or walk-in centre

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

NICE guideline фп

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18.1 Introduction

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 the following hypothetical considerations:

- Can Minor Injuries units (MIU), Walk-in centres (WiC), or Urgent Care centres (UCC) reduce the demand on Emergency departments (ED) by treating patients who do not have an AME, and thereby improve access and responsiveness for patients with an AME when they attend hospital?
- What are the causes and consequences of patients with acute medical emergencies who attend MIU, WiC or UCC when they should have presented urgently to an ED?
- Mild acute medical emergencies?

18.2 Review question: 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?

For full details see review protocol in Appendix A.

Table 1: PICO characteristics of review question

Population	Adults and young people (16 years and over) presenting with a suspected or confirmed AME.
Interventions	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 care department. Absence of minor injury units, urgent care centres or walk in centres.
Comparisons	All interventions compared to each other.
Outcomes	• Avoidable adverse events (including redirection of care) (CRITICAL) • Quality of life (CRITICAL) • Patient and/or carer satisfaction (CRITICAL) • Waiting time in ED including A&E 4 hour waiting target breach (CRITICAL) • Mortality (CRITICAL) • ED avoidance (IMPORTANT)
Study design	Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no

relevant SRs or RCTs are identified.

18.3 Clinical evidence

Five before-after studies were included in the review;[1,9,10,15,21,35] these are summarised in Table 2 below. Evidence from these studies is summarised in the clinical evidence summary below (Table 3). See also the study selection flow chart in Appendix B, study evidence tables in Appendix D, forest plots in Appendix C, GRADE tables in Appendix F and excluded studies list in Appendix G.

Table 2: Summary of studies included in the review

Study	Intervention and comparison	Population	Outcomes	Comments
Arain 2015[1] Before and after study	Standalone walk-in centre. Versus Absence of standalone walk-in centre.	GP-type cases – patients who were referred or discharged from the ED without needing any investigation, or only some low cost investigation as defined by the tariff codes used by the primary care trust.	Mean monthly GP-type ED attendances.	Walk-in centre was GP-led. Indirect population – patients were GP-type cases therefore did not have a suspected or confirmed acute medical emergency.
Chalder 2003[10] Controlled before and after study	EDs before and after the opening of walk-in centres in the same town (7 stand-alone and 3 co-located). Versus EDs in matched control sites with no walk-in centre before and after the opening of walk-in centres in intervention sites.	Patients consulting at EDs.	Mean number of monthly consultations.	Control sites were towns of similar size to intervention towns, in the same region but as distant as possible from any existing walk-in centre.
Freeman 2010[15] Before and after study	Co-located minor injuries unit. Versus Absence of co-located minor injuries unit.	n=584,321. Inclusion: patients >14 years of age attending the ED. Exclusion: patients attending for a follow up appointment, dead on arrival or <14 years of age.	Time to clinician (minutes). Number dying per 1000 attendees.	Quality checks on the accuracy of the hospital database were undertaken on a weekly basis in collaboration with information services, radiology and ED staff. No major changes in staffing levels during the study period.
Hsu 2003[21]	EDs before and after the opening of a local	Patients attending ED.	Annual rate of non-ambulance	Rate is adjusted for a decrease in

Study	Intervention and comparison	Population	Outcomes	Comments
Controlled before and after study	standalone walk-in centre. Versus EDs in a control town with no walk-in centre before and after the opening of a walk-in centre in the intervention town.		attendances (per 1000 population).	attendances in the control ED. Data from the same period of the year were compared (that is, January to June 2000 and 2001).
Salisbury 2007[9,35] Controlled before and after study	EDs before and after the opening of standalone walk-in centres in the same town. Versus EDs in matched control sites with no walk-in centre before and after the opening of walk-in centres in intervention sites.	Patients consulting at EDs or co-located walk-in centres.	Mean visit duration (minutes). Cases complying with A&E 4 hour waiting target. Patient dissatisfaction (subsample of 704 patients).	Intervention and control EDs were matched according to performance against the A&E 4 hour waiting target, size and case-mix.

Table 3: Clinical evidence summary: Stand-alone units (walk-in centres) versus absence

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with absence	Risk difference with Stand-alone units (95% CI)
ED avoidance Mean monthly attendance rates	Not applicable (2 studies) 1 year	⨁⊖⊖⊖ VERY LOW[a,b] due to imprecision	Not calculable	Not calculable	The mean ED avoidance in the intervention groups was 194.83 lower (322 to 67.66 lower)
ED avoidance Annual non-ambulance attendance rates (per 1000 population)	Not applicable (1 study) 1 year	⨁⊖⊖⊖ VERY LOW[a,b] due to imprecision	1.17 (1.03 to 1.33)	Moderate	
				Not calculable	Absolute effect cannot be calculated

(a) Downgraded by 1 increment if the confidence interval crossed 1 MID, and downgraded by 2 increments if the confidence interval crossed both MIDs.

(b) All non-randomised studies automatically downgraded due to selection bias. Studies may be further downgraded by 1 increment if other factors suggest additional high risk of bias, or 2 increments if other factors suggest additional very high risk of bias.

Table 4: Clinical evidence summary: Co-located (walk-in centres and minor injury units) on the same site as the ED versus absence

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with absence	Risk difference with Co-located with ED (95% CI)
Avoidable adverse events (re-consultations) Number of re-consultations - ED patients only	477 (1 study) 4 weeks	⨁⊖⊖⊖ LOW[a] due to risk of bias	RR 0.96 (0.77 to 1.2)	Moderate	
				489 per 1000	20 fewer per 1000 (from 112 fewer to 98 more)
Avoidable adverse events (re-consultations) Number of re-consultations (ED + WiC patients combined)	692 (1 study) 4 weeks	⨁⊖⊖⊖ LOW[a] due to risk of bias	RR 0.92 (0.79 to 1.08)	Moderate	
				489 per 1000	39 fewer per 1000 (from 103 fewer to 39 more)
ED avoidance Patient throughput (mean monthly attendances)	Not applicable (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[b, c] due to imprecision	Not calculable	Not calculable	The mean ED avoidance in the intervention groups was 542 higher (347 lower to 1431 higher)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with absence	Risk difference with Co-located with ED (95% CI)
ED avoidance Mean monthly attendance rates	Not applicable (1 study) 1 year	⊕⊖⊖⊖ VERY LOW[b] due to imprecision	Not calculable	Not calculable	The mean ED avoidance in the intervention groups was 349 lower (696 to 2 lower)
Waiting time in ED Cases complying with A&E 4 hour waiting target (ED cases after the introduction of a co-located WiC versus before)	2100 (1 study) 3 months	⊕⊕⊖⊖ LOW[c]	RR 1.08 (1.05 to 1.11)	Moderate	
				874 per 1000	70 more per 1000 (from 44 more to 96 more)
Waiting time in ED Cases complying with A&E 4 hour waiting target (ED + WiC cases after the introduction of a co-located WiC versus before)	2861 (1 study) 3 months	⊕⊕⊖⊖ LOW[c]	RR 1.09 (1.06 to 1.11)	Moderate	
				874 per 1000	79 more per 1000 (from 52 more to 96 more)
Waiting time in ED Cases complying with A&E 4 hour waiting target (ED cases after the introduction of a co-located WiC versus control EDs)	2315 (1 study) 3 months	⊕⊕⊖⊖ LOW[c]	RR 1 (0.98 to 1.02)	Moderate	
				948 per 1000	0 fewer per 1000 (from 19 fewer to 19 more)
Waiting time in ED Average change in time to clinician (minutes) per year	Not applicable (1 study) 3 years	⊕⊕⊖⊖ LOW[c]	Not calculable	Not calculable	The mean waiting time in ED in the intervention groups was 11 lower (14 to 8 lower)
Mortality Number dying per 1000 attendees	Not applicable (1 study) 3 years	Unable to assess imprecision without MID values	Not calculable	Not calculable	The mean mortality in the intervention groups was 1.8 higher (1.6 to 2 higher)

(a) Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.

(b) Downgraded by 1 increment if the confidence interval crossed 1 MID, and downgraded by 2 increments if the confidence interval crossed both MIDs.

(c) All non-randomised studies automatically downgraded due to selection bias. Studies may be further downgraded by 1 increment if other factors suggest additional high risk of bias, or 2 increments if other factors suggest additional very high risk of bias.

18.4 Economic evidence

Published literature

One economic evaluation was identified with the relevant comparison and has been included in this review.[35] This is summarised in the economic evidence profiles below (Table 5) and the economic evidence tables in Appendix E.

The economic article selection protocol and flow chart for the whole guideline can found in the guideline's Appendix 41A and Appendix 41B.

Table 5: Economic evidence profile: walk-in centre (stand-alone or co-located) versus none

Study	Applicability	Limitations	Other comments	Incremental cost	Incremental effects	Cost effectiveness	Uncertainty
Salisbury 2007[35] ([UK])	Partially applicable[(a)]	Potentially serious limitations[(b)]	- Design: controlled before and after study, comparative cost analysis - Population: Patients with acute medical emergencies - Comparators: - EDs before and after the opening of co-located walk-in-centres - Follow-up: 6 months	Co-located versus no walk-in centre: -£3.06 (95% CI: -£16.50 to £10.39; p=NR)	n/a	n/a	Sensitivity analysis including admission costs (mean incremental cost= -£20.97; 95% CI: -£64.98 to £23.04)

Abbreviations: ED: emergency department; N/A: not applicable; NR: not reported; UTI: urinary tract infection.

(a) Some uncertainty regarding the applicability of resource use and costs from 2004-2005 to current NHS context. The study is a comparative cost analysis; hence, QALYs were not used as an outcome measure.

(b) The study has a short follow-up period (3 months before and 3 months after), so follow-up may not have been long enough to capture all relevant differences in costs and outcomes. Sources of unit costs are not reported and may not be reflective of national unit costs.

18.5 Evidence statements

Clinical

Stand-alone walk-in centre versus absence

Three studies (number of participants not reported) evaluated stand-alone walk-in centres for improving outcomes in secondary care in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that stand-alone walk-in centres may provide a benefit in ED avoidance expressed as mean monthly attendance rates (2 studies, very low quality). However, the evidence suggested that there was no effect on ED avoidance expressed as annual non-ambulance attendance rates; per 1000 population (1 study, very low quality). The evidence for ED avoidance was inconsistent due to different reported methodologies (mean and rate ratio reported separately).

Co-located (MIU/walk-in centres) on the same site as the ED versus absence

Walk-in centres

One study (number of participants not reported) evaluated EDs with co-located walk-in centres for improving outcomes in secondary care in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that co-located walk-in centres may provide a benefit in terms of ED avoidance mean monthly attendance rates (very low). There was a possible increase in ED avoidance patient throughput expressed as mean monthly attendances (very low quality). The evidence suggested there was no effect on avoidable adverse events (low quality).

Minor-injury units

One study comprising 584,321participants evaluated co-located minor injury units for improving outcomes in secondary care in adults and young people at risk of an AME, or with a suspected or confirmed AME. The organisation of the minor injury unit was not defined, other than stating that there were no major changes in staffing levels before and after its introduction. The evidence suggested there was no effect on waiting time in ED and mortality (low quality).

Economic

One comparative cost analysis found that co-located walk-in centres are less costly compared to emergency department (cost saving: £3.06 per patient). This analysis was assessed as partially applicable with potentially serious limitations.

18.6 Recommendations and link to evidence

Recommendations	-
Research recommendations	**RR10. 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 an emergency department?**
Relative values of different outcomes	Avoidable adverse events (including redirection of care to another urgent care provider), quality of life, patient and/or carer satisfaction, waiting time in ED, including A&E 4 hour waiting time target, and mortality were considered by the guideline committee to be critical outcomes. ED avoidance was considered to be an important outcome.
Trade-off between clinical benefits and harms	There was evidence from 5 observational studies; 3 studies compared standalone walk-in centres with no stand-alone walk-in centres, 1 study compared EDs with co-located walk-in centres with EDs without co-located walk-in centres and 1 study compared co-located minor injury units with absence of co-located minor injury units. **Stand-alone units** **Minor injury units** No evidence was found specifically for stand-alone minor injury units, although the nomenclature and the definitions appear very interchangeable. **Urgent care centres** No evidence was found specifically for stand-alone urgent care centres, although the nomenclature and the definitions appear very interchangeable. **Walk-in centres** There was evidence from 3 studies comparing stand-alone walk-in centres with absence of stand-alone walk-in centres. The evidence suggested that stand-alone walk-in centres may provide a benefit in terms of ED avoidance (mean monthly attendance rates). However, there was no effect on ED avoidance expressed as annual non-ambulance attendance rates per 1000 population. The evidence for ED avoidance was inconsistent due to different reported methodologies (mean and rate ratio were reported separately). There was no evidence for avoidable adverse events, re-consultation, quality of life, patient and/or carer satisfaction, waiting time in ED and mortality. The committee highlighted the importance of how the units or centres were defined by the studies in their consideration of the evidence. With regard to studies comparing stand-alone walk-in centres with absence of a walk-in centre, 1 study was based on a GP-led walk-in centre, open from 8am to 9pm, 7 days a week; 1 study assessed the impact of 10 different walk-in centres, which varied in terms of setting, available services and staffing; the other study did not specify details about staffing or set-up, other than that it shared the same premises, entrance and triage process as a minor injuries unit. **Co-located units:** **Urgent care centres** No evidence was found for co-located urgent care centres. **Walk-in centres** One study (number of participants not reported) suggested that co-located walk-in

Recommendations	-
Research recommendations	**RR10. 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 an emergency department?**
	centres provided benefits in terms of ED avoidance mean monthly attendance rates. The evidence suggested there was an increase in ED avoidance patient throughput (mean monthly attendances). There was no effect on avoidable adverse events. There was no evidence available for re-consultation, quality of life, patient and/or carer satisfaction and mortality. **Minor-injury units** One study comprising 584,321 participants evaluated co-located minor injury units for improving outcomes in secondary care. The organisation of the minor injury unit was not defined, other than stating that there were no major changes in staffing levels before and after its introduction. The evidence suggested there was no effect on waiting time in ED and mortality. There was no evidence available for ED avoidance, avoidable adverse events, re-consultation, quality of life and patient and/or carer satisfaction. Given the lack of evidence for avoidable adverse events, quality of life, patient and/or carer satisfaction and mortality and the heterogeneous evidence for ED avoidance, the committee did not consider increased compliance with the A&E 4 hour waiting time target alone to be sufficient to justify a recommendation. The committee therefore decided not to make a recommendation for minor injury units, urgent care centres or walk-in centres. However, there was no evidence to suggest that these units are harmful. 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. It was therefore decided to recommend that further research should be carried out.
Trade-off between net effects and costs	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 committee 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 committee. 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 (£114). The committee 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 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 (that is, flexing of staff to demand); however, co-location may not always be practical especially in rural

Recommendations	-
Research recommendations	**RR10. 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 an emergency department?**
	areas. Additionally, a concern was expressed that the presence of these units might result in a supplier-induced demand that is, more presentations by people who could have managed without professional intervention, or who could have attended their GP. Overall, the committee 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.
Quality of evidence	All included studies were observational study designs. For the comparison between stand-alone units versus absence and co-located units versus absence, the evidence was considered to be of low to very low quality due to the high risk of bias and imprecision. The economic evidence was rated as partially applicable with potentially serious limitations. The included study is a comparative cost analysis; hence, QALYs were not used as an outcome measure. There was also uncertainty regarding the applicability of resource use and costs from 2004-2005 to current NHS context. The study had a short follow-up period (cost data analysed for 3 months before and 3 months after the introduction co-located walk-in-centre), so follow-up may not have been long enough to capture all relevant differences in costs and outcomes. Sources of unit costs are not reported and may not be reflective of national unit costs.
Other considerations	Over the last 30 years the NHS has have opened 'walk-in centres', 'minor injury units', 'urgent care centres' and a substantial range of similarly-named facilities that all offer slightly different services, at slightly different times, in different places. This has resulted in a very confusing system for patients. 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. Walk-in centres (WICs), were established in England in 2009 to improve access to GPs as well as to prevent unnecessary attendances at ED by having extended opening hours and being placed in a convenient location. There are many units located in the major cities particularly in London. 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 (either co-located or stand-alone). All of these factors have a significant impact on case mix. The committee noted the following definitions applicable to different types of A&E departments[27]: • **Type 1 A&E department**: A consultant led 24 hour service with full resuscitation facilities and designated accommodation for the reception of accident and emergency patients. • **Type 2 A&E departments**: A consultant led single specialty accident and

Recommendations	-
Research recommendations	**RR10. 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 an emergency department?**
	emergency service (for example, ophthalmology or dental) with designated accommodation for the reception of patients. • **Type 3 A&E department/Type 4 A&E department/Urgent Care Centre:** Other type of A&E/minor injury units (MIUs)/Walk-in Centres (WiCs)/Urgent Care Centre primarily designed for the receiving of accident and emergency patients. The committee considered that greater access to GPs (evening and Saturday GP appointments) would potentially reduce the need for walk-in centres in particular. It was noted that there is a tendency among rural populations to make use of GPs to a greater extent than urban populations, which may impact on ED demand. Future research on the impact of MIUs/UCCs/WiCs on ED demand should include measurement of case mix. 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 (mean and variance) or admission rate due to the higher acuity of the residual ED case-mix. It was agreed that the absence of a consistent terminology for structures and processes and also the level and type of staffing relating to MIUs, UCCs and WiCs makes their evaluation challenging. Future studies should take into account several contextual factors including location (inner-city, urban and rural), opening times (24 hour 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. The majority of the evidence 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. 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. In summary, the current level of evidence is insufficient to permit a recommendation on the internal or external configuration of such units. Opportunities should be taken to evaluate MIUs, UCCs and WICs using existing services or if local health economies choose to implement such services.

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39 Snooks H, Foster T, Nicholl J. Results of an evaluation of the effectiveness of triage and direct transportation to minor injuries units by ambulance crews. Emergency Medicine Journal. 2004; 21(1):105-111

40 Stark L. A minor injuries clinic: a year of change, innovation and integrated working. Emergency Nurse. 2004; 12(6):14-16

41 Taylor J. The rise of the walk-in centre. Nursing Times. 2008; 104(33):16-18

42 Vaughan J. Developing a nurse-led paracentesis service in an ambulatory care unit. Nursing Standard. 2013; 28(4):44-50

43 Villasenor S, Krouse HJ. Can the use of urgent care clinics improve access to care without undermining continuity in primary care? Journal of the American Association of Nurse Practitioners. 2016; 28(6):335-341

44 Ward S. Walk-in centres. On the wrong foot? Health Service Journal. 2001; 111(5767):24-27

45 Weatherburn G, Ward S, Johnston G, Chisholm S. Off-site expert support for nurses undertaking ECGs in primary care. British Journal of Nursing. 2009; 18(9):551-554

46 Welch L. Ambulatory care: a decade of evolution. Health Estate. 2009; 63(1):50-53

47 Zimmerman DR. Community-based urgent care in Israel and worldwide. Israel Journal of Health Policy Research. 2013; 2(1):38

Appendices

Appendix A: Review protocol

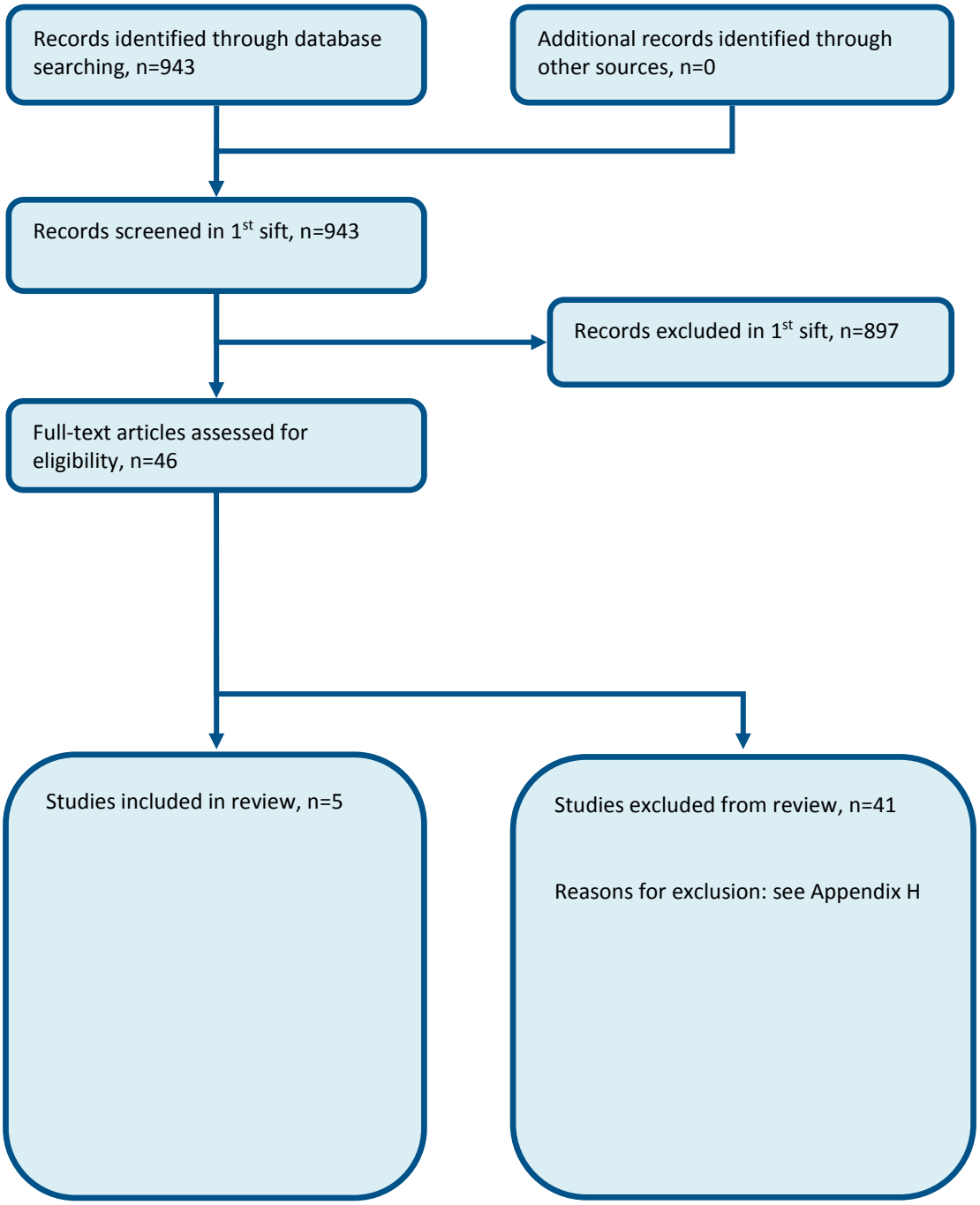
Table 6: Review protocol: Minor injury unit, urgent care centre or walk-in centre

Review question	Minor injury unit, urgent care centre or walk-in centre
Guideline condition and its definition	Acute medical emergencies.
Objectives	Is a minor injury unit, urgent care centre or walk-in centre clinically and cost effective: 1. as a stand-alone unit 2. when located on the same site as a full emergency department?
Review population	Adults and young people (16 years and over) presenting with a suspected or confirmed AME.
	Adults and young people (16 years and over).
	Line of therapy not an inclusion criterion.
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	Presence of minor injury units, urgent care centres or walk in centres; as stand-alone units. Presence of minor injury units, urgent care centres or walk in centres; within a full emergency department. Absence of minor injury units, urgent care centres or walk in centres; absence.
Outcomes	- Avoidable adverse events (Dichotomous) CRITICAL - Quality of life (Continuous) CRITICAL - Patient and/or carer satisfaction (Continuous) CRITICAL - Waiting time in ED (including A&E 4 hour waiting target breach) (Continuous) CRITICAL - Mortality (Dichotomous) CRITICAL - ED Avoidance (Dichotomous) IMPORTANT
Study design	Systematic Review RCT Quasi-RCT Non randomised study Prospective cohort study Retrospective cohort study Controlled before and after study Before and after study
Unit of randomisation	Patient. Hospital. Ward.
Crossover study	Not permitted.
Minimum duration of study	Not defined.
Subgroup analyses if there is heterogeneity	- Case mix (frail elderly; not frail elderly); effects may be different in this subgroup. - Skill mix (doctor present; nurse led); effects may be different in this subgroup - Facilities (access to radiology; access to pathology); effects may be different in

Review question	Minor injury unit, urgent care centre or walk-in centre
	this subgroup. - Opening hours (24 hours a day; less than 24 hours a day); effects may be different in this subgroup. - Location (rural; urban); effects may be different in this subgroup.
Exclusions	UK only.
Search criteria	Databases: Medline, Embase, the Cochrane Library. Date limits for search: 1995. Language: English only.

Appendix B: Clinical article selection

Figure 1: Flow chart of clinical article selection for the review of minor injury unit, urgent care centre or walk-in centre



Appendix C: Forest plots

C.1 Stand-alone units versus absence

Figure 2: ED avoidance (mean monthly attendance rates)

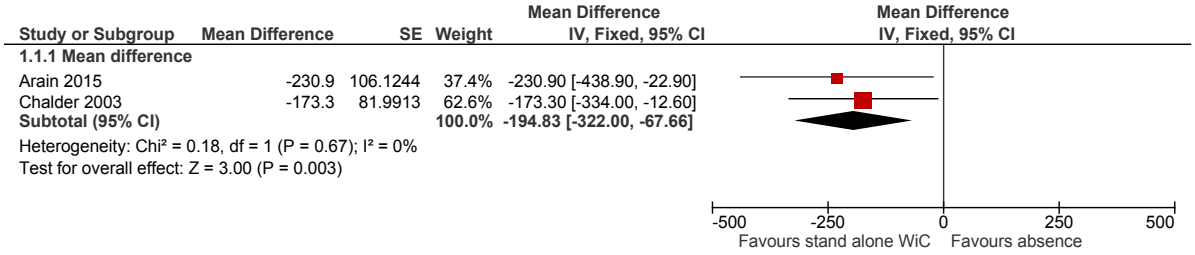
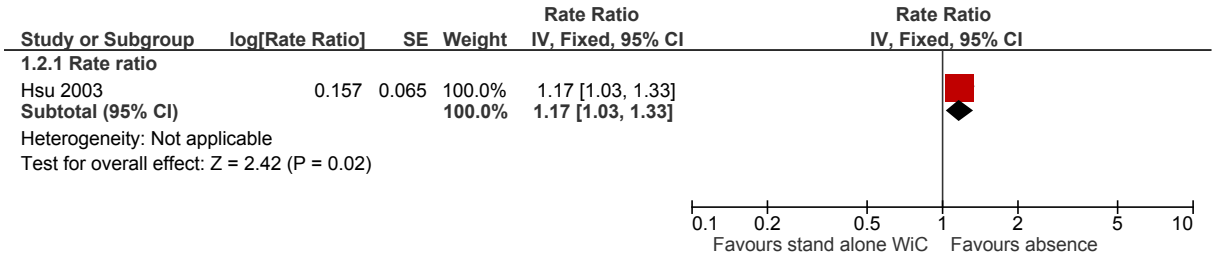


Figure 3: ED avoidance (annual non-ambulance attendance rates per 1000 population)



C.2 Co-located on the same site as the ED versus absence

Figure 4: Avoidable adverse events (ED re-consultations)

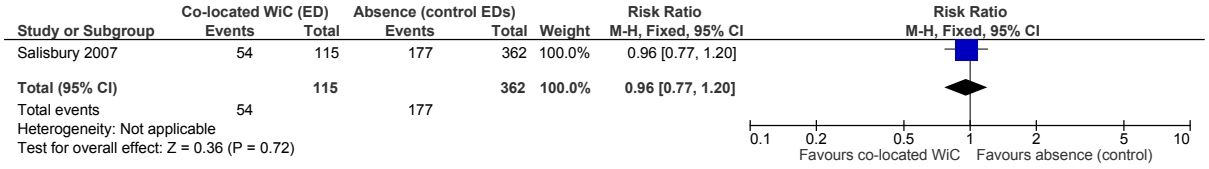


Figure 5: Avoidable adverse events (ED + WiC re-consultations)

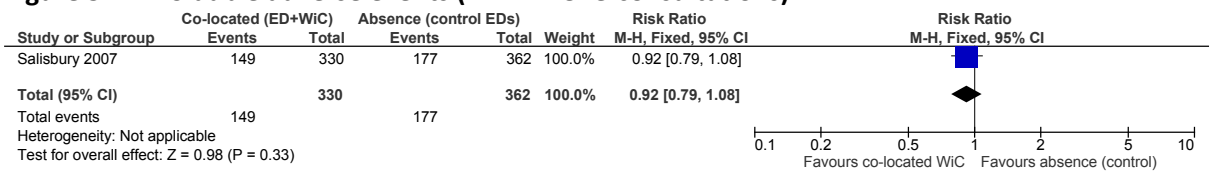


Figure 6: ED avoidance (mean monthly attendances)

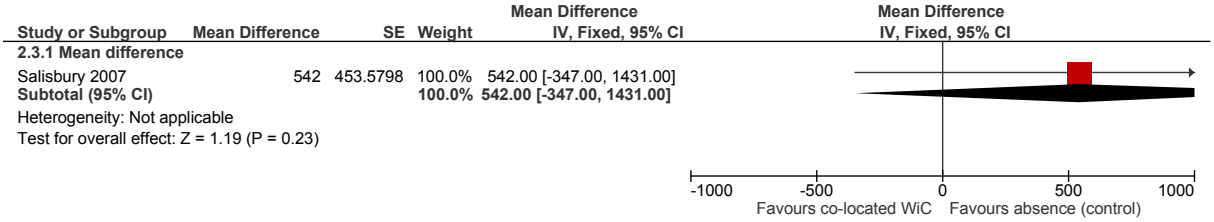


Figure 7: ED avoidance (mean monthly attendances)

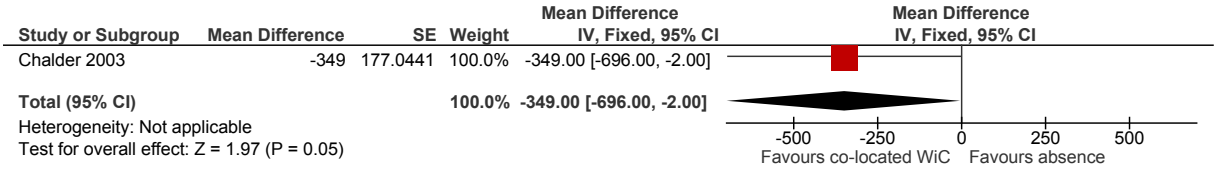


Figure 8: Waiting time in ED (ED cases complying with A&E 4 hour waiting target)

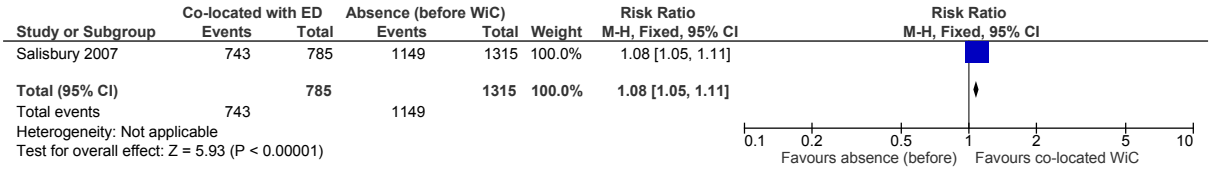


Figure 9: Waiting time in ED (ED + WiC cases complying with A&E 4 hour waiting target)

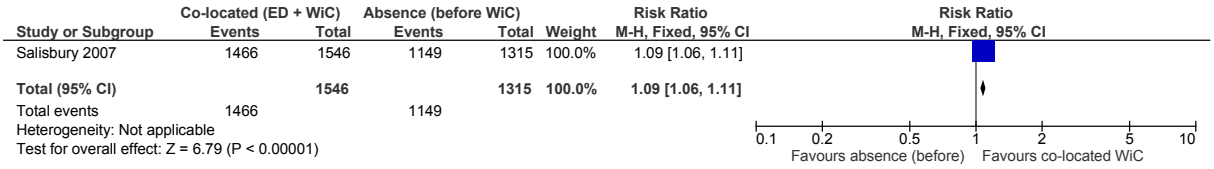


Figure 10: Waiting time in ED (ED cases complying with A&E 4 hour waiting target)

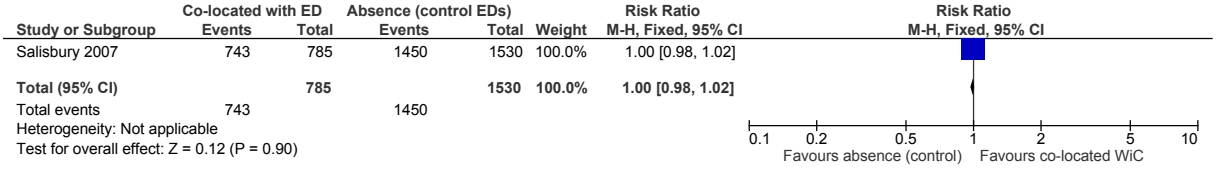


Figure 11: Waiting time in ED (time to clinician)

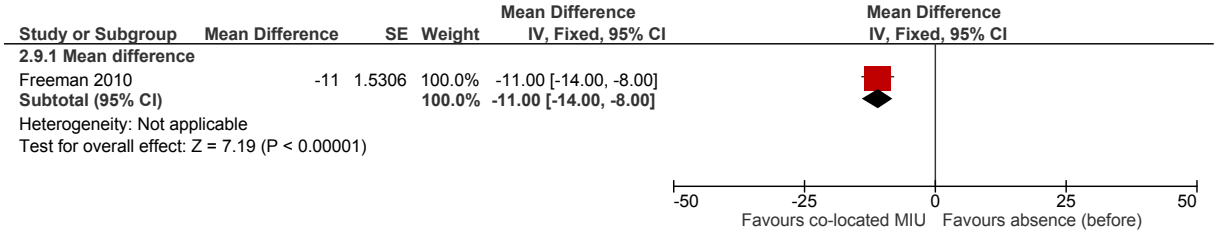
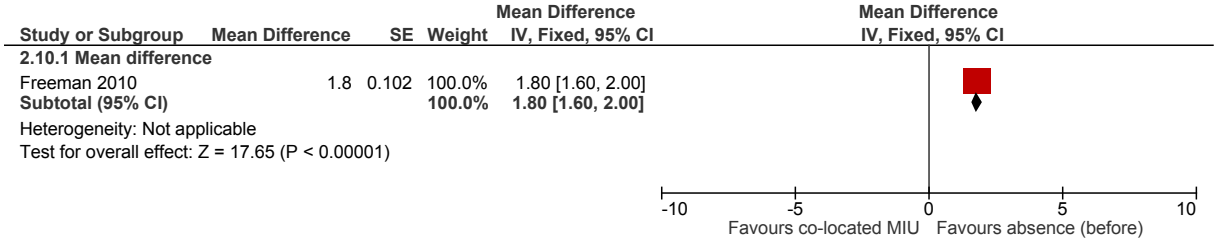


Figure 12: Mortality (number dying per 1000 attendees)



Appendix D: Clinical evidence tables

Study	Arain 2015 trial: Arain 2015[1]
Study type	Before and after study.
Number of studies (number of participants)	Not reported.
Countries and setting	Conducted in United Kingdom; setting: emergency department and minor injuries unit.
Line of therapy	Not applicable.
Duration of study	Other: 1 year before and 1 year after the opening of a GP led WiC.
Method of assessment of guideline condition	Partially adequate method of assessment/diagnosis: patients attending the ED.
Stratum	Overall.
Subgroup analysis within study	Not applicable.
Inclusion criteria	Patients attending the ED.
Exclusion criteria	None stated.
Recruitment/selection of patients	Consecutive patients.
Age, gender and ethnicity	Age: not reported. Gender (M:F): not reported. Ethnicity: not reported.
Further population details	1. Case mix: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness.
Interventions	Intervention 1: Presence of minor injury unit, urgent care centre or walk in centre - as stand-alone units. GP-led walk-in centre. Duration: 1 year after the opening of a GP-led walk-in centre. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear 2. Location: urban 3. Opening hours: less than 24 hours a day 4. Skill mix: doctor present. Intervention 2: Absence of minor injury unit, urgent care centre or walk in centre - absence. Emergency department with absence of stand-alone walk-in centre. Duration: 1 year before the opening of a GP-led walk-in centre. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear 2. Location: urban. 3. Opening hours: 24 hours a day. 4. Skill mix: doctor present.
Funding	Funding not stated.

Study	Arain 2015 trial: Arain 2015[1]
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: AS STAND ALONE UNITS versus ABSENCE. Protocol outcome 1: ED avoidance. - Actual outcome: Mean monthly ED attendances at 1 year before and 1 year after the opening of a GP-led walk-in centre; Mean: -230.9 (95% CI -438.9 to -21.9); Risk of bias: All domain - High, Selection - Very high, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events; Quality of life; Patient and/or carer satisfaction; Waiting time in ED (including A&E 4 hour waiting target breach); Mortality.

Study	Chalder 2003 trial: Chalder 2003[10]
Study type	Controlled before and after study.
Number of studies (number of participants)	Not reported.
Countries and setting	Conducted in United Kingdom; setting: 20 A&E departments.
Line of therapy	Not applicable.
Duration of study	Other: 1 year before and 1 year after the opening of a local walk-in centre, or the opening of a walk-in centre in the matched site for control sites.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall.
Subgroup analysis within study	Not applicable.
Inclusion criteria	Not reported.
Exclusion criteria	Not reported.
Recruitment/selection of patients	A&E department closest to the walk-in centre or town centre for control sites.
Age, gender and ethnicity	Age - Other: Age not reported. Gender (M:F): Not reported. Ethnicity: Not reported.
Further population details	1. Case mix: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness.
Interventions	(n=10) Intervention 1: Presence of minor injury unit, urgent care centre or walk in centre - as stand-alone units. EDs after the opening of local walk-in centres. Duration: 1 year after walk-in centres opened. Concurrent medication/care: Not applicable.

Study	Chalder 2003 trial: Chalder 2003[10]
	Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear. (n=10) Intervention 2: Absence of minor injury unit, urgent care centre or walk in centre - absence. EDs before the opening of local walk-in centres. Duration: 1 year before walk-in centres opened. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening Hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear.
Funding	Academic or government funding (Department of Health).
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: AS STAND ALONE UNITS versus ABSENCE. Protocol outcome 1: ED avoidance. - Actual outcome: Mean number of monthly consultations at 1 year (all walk-in centres); Mean -173 (95%CI -334 to -12); Risk of bias: All domain - Low, Selection - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness ; Baseline details: control sites were of a similar size and in the same region Actual outcome: Mean number of monthly consultations at 1 year (co-located walk-in centres only): Mean -349 (95%CI -696 to -2); Risk of bias: All domain - High, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness ; Baseline details: control sites were of a similar size and in the same region	
Protocol outcomes not reported by the study	Avoidable adverse events; Quality of life; Patient and/or carer satisfaction; Waiting time in ED (including A&E 4 hour waiting target breach); Mortality.

Study	Freeman 2010 trial: Freeman 2010[15]
Study type	Before and after study.
Number of studies (number of participants)	(n=584,321).
Countries and setting	Conducted in United Kingdom; setting: A&E department.
Line of therapy	Not applicable.
Duration of study	Other: 2 years before and 4 years after the opening of a co-located minor injuries unit.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis: quality checks on hospital database accuracy undertaken on a weekly basis.
Stratum	Overall.
Subgroup analysis within study	Not applicable.

Study	Freeman 2010 trial: Freeman 2010[15]
Inclusion criteria	Patients attending the ED.
Exclusion criteria	Patients attending for planned follow-up appointments; patients who were dead on arrival; aged <14 years.
Recruitment/selection of patients	Consecutive patients.
Age, gender and ethnicity	Age - Median: 40. Gender (M:F): 54/46. Ethnicity: not reported.
Further population details	1. Case mix: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness.
Interventions	(n=333,832) Intervention 1: Presence of minor injury unit, urgent care centre or walk in centre - within a full emergency department. Co-located minor injuries unit. Duration: 4 years after the opening of a co-located MIU. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Urban 3. Opening Hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear. (n=250,489) Intervention 2: Absence of minor injury unit, urgent care centre or walk in centre - absence. ED with no co-located minor injuries unit. Duration: 2 years before the opening of a co-located MIU. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: urban. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear.
Funding	Funding not stated.
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: WITHIN A FULL EMERGENCY CARE DEPARTMENT versus ABSENCE. Protocol outcome 1: Waiting time in ED (including A&E 4 hour waiting target breach). - Actual outcome: Time (minutes) to clinician at visit; Other: -11 (95%CI -14 to -8); Risk of bias: All domain - Low, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Mortality. - Actual outcome: Number dying per 1000 attendees at visit; Other: 1.8 (95%CI 1.6 to 1.9); Risk of bias: All domain - Low, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events; Quality of life; Patient and/or carer satisfaction; ED Avoidance.

Study	Hsu 2003 trial: Hsu 2003[21]

Study	Hsu 2003 trial: Hsu 2003[21]
Study type	Controlled before and after study.
Number of studies (number of participants)	Not reported.
Countries and setting	Conducted in United Kingdom; setting: EDs with and without stand-alone walk-in centres in the same town.
Line of therapy	Not applicable.
Duration of study	Other: 6 months before and 1 year after the opening of a stand -alone walk-in centre.
Method of assessment of guideline condition	Method of assessment/diagnosis not stated.
Stratum	Overall.
Subgroup analysis within study	Not applicable.
Inclusion criteria	Not reported.
Exclusion criteria	Not reported.
Recruitment/selection of patients	Consecutive patients.
Age, gender and ethnicity	Age - Other: not reported. Gender (M:F): not reported. Ethnicity: not reported.
Further population details	1. Case mix: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness.
Interventions	(n=3) Intervention 1: Presence of minor injury units, urgent care centre or walk in centre - as stand-alone units. EDs after the opening of local stand-alone walk-in centres. Duration: 6 months after the opening of walk-in centres. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear. (n=3) Intervention 2: Absence of minor injury unit, urgent care centre or walk in centre - absence. EDs before the opening of local stand-alone walk-in centres. Duration: 6 months before the opening of walk-in centres. Concurrent medication/care: not applicable Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear.
Funding	Academic or government funding (Department of Health).
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: AS STAND ALONE UNITS versus ABSENCE. Protocol outcome 1: ED avoidance.	

Study	Hsu 2003 trial: Hsu 2003[21]
- Actual outcome: Annual rate of non-ambulance attendances (per 1000 population) at 6 months; Other: 1.17 (95%CI 1.03 to 1.33); Comments: Adjusted rate ratio Risk of bias: All domain - Low, Selection - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events; Quality of life; Patient and/or carer satisfaction; Waiting time in ED (including A&E 4 hour waiting target breach); Mortality.

Study	Salisbury 2007 trial: Salisbury 2007[35]
Study type	Controlled before and after study.
Number of studies (number of participants)	Not reported.
Countries and setting	Conducted in United Kingdom; setting: EDs with or without co-located walk-in centres.
Line of therapy	Not applicable.
Duration of study	Other: 9 months before and 6 months after the opening of co-located walk-in centres.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis: patient records.
Stratum	Overall.
Subgroup analysis within study	Not applicable.
Inclusion criteria	Patients consulting at EDs with and without co-located walk-in centres.
Exclusion criteria	Patients under 16 years of age.
Recruitment/selection of patients	Randomly selected from those consulting in a 2-week period at least 3 months after the walk-in centres opened and the same period 1 year earlier.
Age, gender and ethnicity	Age - Other: age not reported. Gender (M:F): not reported. Ethnicity: not reported.
Further population details	1. Case mix: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness.
Interventions	(n=785) Intervention 1: Presence of minor injury units, urgent care centre or walk in centre - within a full emergency department. EDs after the opening of co-located walk-in centres. Duration: 6 months after the opening of co-located walk-in centres. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: doctor present.

Study	Salisbury 2007 trial: Salisbury 2007[35]
	(n=1,315) Intervention 2: Absence of minor injury unit, urgent care centre or walk in centre - absence. EDs before the opening of co-located walk-in centres. Duration: 9 months before the opening of co-located walk in centres. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: doctor present. (n=1,546) Intervention 3: Presence of minor injury units, urgent care centre or walk in centre - within a full emergency department. EDs and walk-in centres after the opening of co-located walk-in centres. Duration: 6 months after the opening of co-located walk-in centres. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: doctor present. (n=1,530) Intervention 4: Absence of minor injury unit, urgent care centre or walk in centre - absence. Control EDs after the opening of co-located walk-in centres at intervention EDs. Duration: 6 months after the opening of co-located walk-in centres at intervention EDs. Concurrent medication/care: not applicable. Further details: 1. Facilities: Not applicable/Not stated/Unclear. 2. Location: Not applicable/Not stated/Unclear. 3. Opening hours: Not applicable/Not stated/Unclear. 4. Skill mix: Not applicable/Not stated/Unclear.
Funding	Academic or government funding (Department of Health).
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: WITHIN A FULL EMERGENCY CARE DEPARTMENT versus ABSENCE. Protocol outcome 1: Waiting time in ED (including A&E 4 hour waiting target breach). - Actual outcome: Mean visit duration at visit; Risk of bias: All domain - Low, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness - Actual outcome: Cases complying with A&E 4 hour waiting target at visit; Group 1: 743/785, Group 2: 1149/1315; Risk of bias: All domain - Low, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: WITHIN A FULL EMERGENCY CARE DEPARTMENT versus ABSENCE (CONTROL EDS). Protocol outcome 1: Avoidable adverse events. - Actual outcome: Re-consultations about the same problem at 4 weeks after visit; Group 1: 54/115, Group 2: 177/362; Risk of bias: All domain - High, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - High, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Waiting time in ED (including A&E 4 hour waiting target breach). - Actual outcome: Mean visit duration at visit; Risk of bias: Low; Indirectness of outcome: No indirectness. - Actual outcome: Cases complying with A&E 4 hour waiting target at visit; Group 1: 743/785, Group 2: 1450/1530; Risk of bias: Low; Indirectness of outcome: No indirectness.	

Study	Salisbury 2007 trial: Salisbury 2007[35]
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: WITHIN A FULL EMERGENCY CARE DEPARTMENT (ED+WIC) versus ABSENCE. Protocol outcome 1: Waiting time in ED (including A&E 4 hour waiting target breach). - Actual outcome: Mean visit duration at visit; Risk of bias: All domain - Low, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness - Actual outcome: Cases complying with A&E 4 hour waiting target at visit; Group 1: 1466/1546, Group 2: 1149/1315; Risk of bias: All domain - Low, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: WITHIN A FULL EMERGENCY CARE DEPARTMENT (ED+WIC) versus ABSENCE (CONTROL EDS). Protocol outcome 1: Avoidable adverse events. - Actual outcome: Re-consultations about the same problem at 4 weeks after visit; Group 1: 149/330, Group 2: 177/362; Risk of bias: All domain - High, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - High, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: ED Avoidance. - Actual outcome: Attendances at per month; Other: 542 (95%CI -347 to 1431); Risk of bias: All domain - High, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - High, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Quality of life; Patient and/or carer satisfaction; Mortality.

Appendix E: Economic evidence tables

Study	Salisbury 2007[35]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CC **Study design:** controlled before and after study **Approach to analysis:** Regression analysis was used to compare the resource use, costs and outcomes data, adjusting for clustering. The data were obtained from anonymised patient records and by means of a patient survey. Sites were matched based on performance on the 4-hour target, proportion admitted and size of ED. **Perspective:** UK NHS **Follow-up**: 6 months (3 months before and 3 months after) **Treatment effect duration**[(a)]**:** same as follow-up **Discounting:** Costs: NA; Outcomes: NA	**Population:** Patients consulting at EDs/co-located walk-in centres **Cohort settings:** Start age: NR Male: NR **Intervention 1:** EDs in matched control sites with no walk-in centre before and after the opening of walk-in centres in intervention sites **Intervention 2:** EDs before and after the opening of standalone walk-in centres in the same town	**Total costs, before (mean per patient):** Intervention 1: £113.39 Intervention 2: £110.96 Incremental (2−1): -£2.94 (95% CI: NR; p=NR) **Total costs, after (mean per patient):** Intervention 1: £121.67 Intervention 2: £117.18 Incremental (2−1): -£4.49 (95% CI: NR; p=NR) **Change in total cost (after-before) (mean per patient):** Intervention 1: £8.28 Intervention 2: £6.22 Incremental (2−1): -£3.06 (95% CI: -£16.50 to £10.39; p=NR) **Currency & cost year:** 2004-2005 UK pounds **Cost components incorporated:** Variable costs relating to the following resources: Clinical staff time, administrative and clerical staff time, investigations, treatments, medications, admissions (included only in sensitivity analysis, onward referrals, and re-consultations.	**N/A**	**ICER (Intervention 2 versus Intervention 1):** N/A **Analysis of uncertainty:** Sensitivity analysis including admission costs was reported and showed no significant difference in the change in cost per patient (-£20.97; 95% CI: -£64.98 to £23.04)

Data sources
Health outcomes: before and after data collected via survey and patient records on ED visit duration, re-consultation rates and patient satisfaction. Regression analysis adjusting for clustering was used. **Quality-of-life weights:** N/A. **Cost sources:** hospital records.
Comments
Source of funding: Department of Health. **Applicability and limitations:** Some uncertainty regarding the applicability of resource use and costs from 2004-2005 to current NHS context. The study is a comparative cost analysis; hence, QALYs were not used as an outcome measure. The study has a short follow-up period (3 months before and 3 months after), so follow-up may not have been long enough to capture all relevant differences in costs and outcomes. Sources of unit costs are not reported and may not be reflective of national unit costs.
Overall applicability[(b)]: partially applicable **Overall quality[(c)]:** potentially serious limitations

Abbreviations: CC: comparative cost analysis; 95% CI: 95% confidence interval; CUA: cost–utility analysis; ICER: incremental cost-effectiveness ratio; NR: not reported; QALYs: quality-adjusted life years.

(a) For studies where the time horizon is longer than the treatment duration, an assumption needs to be made about the continuation of the study effect. For example, does a difference in utility between groups during treatment continue beyond the end of treatment and if so for how long?

(b) Directly applicable/Partially applicable/Not applicable.

(c) Minor limitations/Potentially serious limitations/Very serious limitations.

Appendix F: GRADE tables

Table 7: Clinical evidence profile: Stand-alone units versus absence

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Stand-alone units	Absence	Relative (95% CI)	Absolute		
ED avoidance (follow-up mean 1 years; measured with: Mean monthly attendance rates; Better indicated by lower values)												
2	observational studies	no serious risk of bias[2]	no serious inconsistency	no serious indirectness	serious[1]	None	not applicable	not applicable	not calculable	MD 194.83 lower (322 to 67.66 lower)	⊕OOO VERY LOW	IMPORTANT
ED avoidance (follow-up mean 1 years; assessed with: Annual attendance rates (per 1000 population))												
1	observational studies	no serious risk of bias[2]	no serious inconsistency	no serious indirectness	serious[1]	None	not applicable	not applicable	1.17 (1.03 to 1.33)	not calculable	⊕OOO VERY LOW	IMPORTANT

[1] Downgraded by 1 increment if the confidence interval crossed 1 MID, and downgraded by 2 increments if the confidence interval crossed both MIDs.
[2] All non-randomised studies automatically downgraded due to selection bias. Studies may be further downgraded by 1 increment if other factors suggest additional high risk of bias, or 2 increments if other factors suggest additional very high risk of bias.

Table 8: Clinical evidence profile: Co-located on the same site as the ED versus absence

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Co-located with ED	Absence	Relative (95% CI)	Absolute		
Avoidable adverse events (re-consultations) (follow-up 4 weeks; assessed with: Number of re-consultations - ED patients only)												
1	observational studies	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	54/115 (47%)	48.9%	RR 0.96 (0.77 to 1.2)	20 fewer per 1000 (from 112 fewer to	⊕OOO LOW	CRITICAL

										98 more)		
Avoidable adverse events (re-consultations) (follow-up 4 weeks; assessed with: Number of re-consultations (ED + WiC patients combined))												
1	observational studies	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	149/330 (45.2%)	48.9%	RR 0.92 (0.79 to 1.08)	39 fewer per 1000 (from 103 fewer to 39 more)	⊕OOO LOW	CRITICAL
ED avoidance (follow-up 6 months; measured with: Patient throughput (mean monthly attendances); Better indicated by lower values)												
1	observational studies	no serious risk of bias[3]	no serious inconsistency	no serious indirectness	very serious[2]	none	not applicable	not applicable	not calculable	MD 542 higher (347 lower to 1431 higher)	⊕OOO VERY LOW	IMPORTANT
ED avoidance (follow-up 1 year; measured with: Mean monthly attendances); Better indicated by lower values)												
1	observational studies	no serious risk of bias[3]	no serious inconsistency	no serious indirectness	serious[1]	none	not applicable	not applicable	not calculable	MD 349 lower (696 to 2 lower)	⊕OOO VERY LOW	IMPORTANT
Waiting time in ED (follow-up 3 months; assessed with: Cases complying with A&E 4 hour waiting target)												
1	observational studies	no serious risk of bias[3]	no serious inconsistency	no serious indirectness	no serious imprecision	none	743/785 (94.6%)	87.4%	RR 1.08 (1.05 to 1.11)	70 more per 1000 (from 44 more to 96 more)	⊕⊕OO LOW	CRITICAL
Waiting time in ED (follow-up 3 months; assessed with: Cases complying with A&E 4 hour waiting target)												
1	observational studies	no serious risk of bias[3]	no serious inconsistency	no serious indirectness	no serious imprecision	none	1466/1546 (94.8%)	87.4%	RR 1.09 (1.06 to 1.11)	79 more per 1000 (from 52 more to 96 more)	⊕⊕OO LOW	CRITICAL
Waiting time in ED (follow-up 3 months; assessed with: Cases complying with A&E 4 hour waiting target)												
1	observational studies	no serious risk of bias[3]	no serious inconsistency	no serious indirectness	no serious imprecision	none	743/785 (94.6%)	94.8%	RR 1 (0.98 to 1.02)	0 fewer per 1000 (from 19 fewer to 19 more)	⊕⊕OO LOW	CRITICAL
Waiting time in ED (follow-up 3 years; measured with: Average change in time to clinician (mins) per year; Better indicated by lower values)												
1	observational studies	no serious risk of bias[3]	no serious inconsistency	no serious indirectness	no serious imprecision	none	not applicable	not applicable	not calculable	MD 11 lower (14 to 8 lower)	⊕⊕OO LOW	CRITICAL
Mortality (follow-up 3 years; measured with: Number dying per 1000 attendees; Better indicated by lower values)												

1	observational studies	no serious risk of bia[3]s	no serious inconsistency	no serious indirectness	unable to assess imprecision without MID values	none	not applicable	not applicable	not calculable	MD 1.8 higher (1.6 to 2 higher)	–	IMPORTANT

[1] Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.
[2] Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.
[3] All non-randomised studies automatically downgraded due to selection bias. Studies may be further downgraded by 1 increment if other factors suggest additional high risk of bias, or 2 increments if other factors suggest additional very high risk of bias.

Appendix G: Excluded clinical studies

Table 9: Studies excluded from the clinical review

Study	Exclusion reason
Banerjee 2012[2]	Inappropriate comparison (audit – no comparator)
Beales 1995[3]	Inappropriate comparison (descriptive article – no comparator)
Bickerton 2005[5]	Inappropriate comparison. Incorrect interventions (retrospective case note analysis – no intervention or comparator)
Bickerton 2012[4]	No relevant outcomes reported
Byrne 2000[6]	Not review population (exclusively minor injuries patients)
CASPERS2016 [7]	Non-UK study (USA). Full text next available
Castledine 2008[8]	Inappropriate comparison. Incorrect interventions (descriptive article – no intervention or comparator)
Chalder 2007[9]	No extractable data
Chapman 2004[11]	Systematic review is not relevant to review question or unclear PICO
Dale 1996[12]	Inappropriate comparison (no comparator)
Davis 2005[13]	Inappropriate comparison (descriptive article – no comparator)
Desborough 2012[14]	Systematic review is not relevant to review question or unclear PICO
Freij 1996[16]	No relevant outcomes reported
Gnani 2013[17]	Inappropriate comparison (descriptive article – no comparator)
Grant 2002[18]	Incorrect comparison (walk-in centre versus GP practice)
Gray 2003[19]	Inappropriate comparison (descriptive study - no comparator)
Heaney 1997[20]	No extractable outcome data
Ismail 2013[22]	Systematic review is not relevant to review question or unclear PICO
Jackson 2005[23]	Inappropriate comparison. No relevant outcomes (descriptive qualitative article – no comparator)
Land 2013[24]	Inappropriate comparison. No relevant outcomes (patient survey – no comparator)
Marshall 1998[25]	Inappropriate comparison (descriptive article – no comparator)
Mcintosh 1996[26]	Inappropriate comparison (descriptive non-UK article – no comparator)
Paxton 1997[28]	Incorrect interventions. Inappropriate comparison (patient survey – no comparator)
Roberts 1998[29]	Systematic review is not relevant to review question or unclear PICO
Rourke 2009[30]	Not review population (exclusively ENT conditions)
Rudge 2013[31]	Inappropriate comparison (distance to MIU)
Sakr 2003[32]	Not review population (exclusively minor injuries patients)
Salisbury 2002[36]	Incorrect comparison (walk-in centre versus GP practice)
Salisbury 2002[34]	Inappropriate comparison (descriptive article – no comparator)
Salisbury 2003[33]	No extractable outcome data
Salisbury 2003[37]	Systematic review is not relevant to review question or unclear PICO
Simpson 2001[38]	Unclear intervention (centralisation of 3 A&E departments involving several changes including a new MIU and EAU)
Snooks 2004[39]	Not review population (exclusively minor injuries patients)
Stark 2004[40]	Inappropriate comparison (descriptive article – no comparator)

Study	Exclusion reason
Taylor 2008[41]	Inappropriate comparison (descriptive article – no comparator)
Vaughan 2013[42]	Incorrect interventions (nurse-led versus doctor-led hospital service)
VILLASENOR2016[43]	Systematic review. No relevant references
Ward 2001[44]	Inappropriate comparison (no comparator)
Weatherburn 2009[45]	Not review intervention (telemetric cardiology service)
Welch 2009[46]	Inappropriate comparison (descriptive article – no comparator)
Zimmerman 2013[47]	Systematic review is not relevant to review question or unclear PICO

Appendix H: Excluded health economic studies

No studies were excluded.