National Institute for Health and Care Excellence

Final

# Chapter 6 GP-led home visits

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

*NICE guideline 94*

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Chapter 6 GP led-home visits

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# 6 GP led home visits

## 6.1 Introduction

Primary care home visits are well established in current UK practice. Home visits could help avoid unplanned hospital admission when supported with appropriate diagnostic back up. In addition when a patients' own GP is attending they may have access to patient records and history. It should enable a discussion of options and shared decision making. Primary care visits are particularly useful with people who have complex care needs.

This review question examined whether primary care led home visits reduced unplanned hospital admission for adults and young people with a suspected or confirmed AME or at risk of an AME.

## 6.2 Review question: Do primary care led home visits reduce unplanned hospital admissions?

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) with a suspected or confirmed AME or at risk of an AME. |
| **Interventions** | Primary care led home visits which are directed by, or originate from, GPs<br>• Home visits provided within practice hours<br>• Home visits provided out of practice hours<br>• Home visits provided both within practice hours and out of practice hours<br>• No home visits |
| **Comparison** | All interventions compared with one another. |
| **Outcomes** | Patient outcomes;<br>• Mortality (CRITICAL)<br>• Avoidable adverse events (for example, incorrect diagnosis, delay in diagnosis, delay in treatment or investigations) (CRITICAL)<br>• Quality of life (CRITICAL)<br>• ED attendance (consider admissions as a proxy in absence of ED attendance) (CRITICAL)<br>• Patient and/or carer satisfaction (CRITICAL)<br>• Attendance at other health services (IMPORTANT)<br>• Complaints and feedback (IMPORTANT) |
| **Study design** | Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no relevant SRs or RCTs are identified. |

## 6.3 Clinical evidence

No relevant clinical studies were identified.

## 6.4 Economic evidence

**Published literature**

No relevant economic evaluations were identified.

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

In the absence of health economic evidence, unit costs were presented to the guideline committee – see Chapter 41 Appendix I.

## 6.5 Evidence statements

**Clinical**

No relevant clinical studies were identified.

**Economic**

No relevant economic evaluations were identified.

## 6.6 Recommendations and link to evidence

| **Recommendations** | **-** |
|---|---|
| **Research recommendations** | **RR4. What 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?** |
| Relative values of different outcomes | The committee considered mortality, avoidable adverse events (for example, incorrect diagnosis, delay in diagnosis, delay in treatment or investigations), quality of life and emergency department attendance to be critical outcomes. Patient and/or carer satisfaction, attendance at other health services, and complaints and feedback were considered to be important outcomes. |
| Trade-off between benefits and harms | 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.<br>The committee felt that the long tradition of GP home visits in the UK had a number of benefits, which could include the avoidance of unplanned hospital admissions for a subgroup of suspected or confirmed acute medical emergencies, when supported with appropriate diagnostic back up. There may be additional benefits in the patient's 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 people who have complex care needs. However, the committee also discussed the opportunity costs of a GP leaving the surgery to do a home visit.<br>The committee acknowledged however, that the ability to detect or characterise an acute medical emergency may be limited by lack of access to diagnostic investigations, and that presentation directly to hospital might be more appropriate. |

| Recommendations | - |
|---|---|
| Research recommendations | **RR4. What 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?** |
| | However, the alternative option of calling NHS 111 or the 999 services would involve remote decisions being made by call handlers unfamiliar with the patient, using an algorithm-based assessment over the phone, which could result in unnecessary ED attendances. Increased access to point of care testing in the future might improve the effectiveness of home visits.<br>Given the lack of evidence, the committee did not feel that it was possible to develop a practice recommendation and instead chose to develop a research recommendation.<br>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: GP visits, a GP co-operative looking after a region, or a primary care-integrated service compared to usual local practice. |
| Trade-off between net effects and costs | No economic evidence was identified and therefore unit costs were presented to the committee.<br>The committee noted that urgent home visits would normally be undertaken either by the GP or by a nurse practitioner and accompanied by a dedicated driver from a locally commissioned provider; co-operative of GPs, community NHS Trust or private company.<br>Home visits will generally take about 40-60 minutes (including travel) whereas most surgery appointments are 10-15 minutes. Time allocated to travelling for home visits could have been used for more patient assessments at the surgery, includingshort-notice appointments. In addition to this opportunity cost, there is the cost of the driver's time and fuel. Access to diagnostic testing is also important in the rapid assessment of a suspected medical emergency, therefore we expect point of care testing to have an increasing role, subject to evaluation.<br>The costs could be offset to some extent by potential savings from reducing the need for ambulance calls and ED attendances. However, no published evidence was available to support this. At a cost of £233 for an ambulance conveyance and £132 for an ED attendance (source: NHS Reference costs), a primary care-led home visit, if appropriate, is likely to be less costly.<br>The committee concluded that there was no clear evidence to confirm or refute the cost-effectiveness of primary care visits. |
| Quality of evidence | No evidence was identified. A research recommendation was developed. |
| Other considerations | It was noted that primary care-led home visits are well established in current UK practice. However, different models of providing this service have not been evaluated, particularly for acutely ill patients. The expanding role of paramedic ambulance staff and of hospital-at-home services (primary or secondary care-led) potentially offers an alternative to GP home visits for patients with AMEs. With the development of mobile technologies and integrated IT systems, these acute care practitioners and teams could either deliver a 'stand-alone' service or access the expertise of a patient's GP without requiring their physical presence in the patient's home.<br>The research question addresses the equality gaps of people who are home bound and have limited access to health care services in the community. |

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# Appendices

# Appendix A: Review protocol

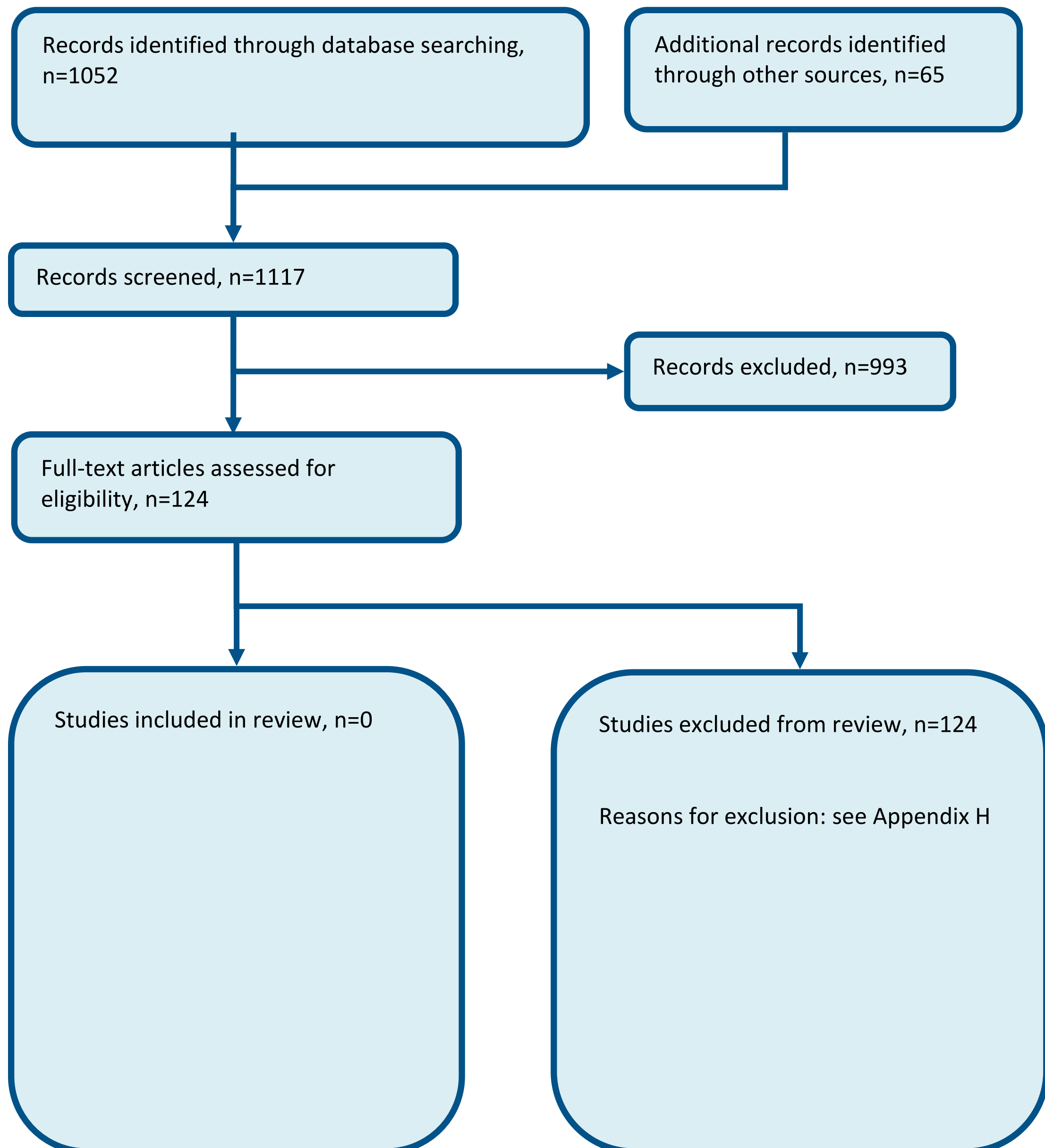
**Table 2: Review protocol: Do primary care led home visits reduce unplanned hospital admissions?**

| Review question | Do primary care-led home visits reduce unplanned hospital admissions? |
|---|---|
| Guideline condition and its definition | Acute medical emergencies. Definition: 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 and after trauma. |
| Review population | Adults and young people (16 years and over) with a suspected or confirmed AME (in all contexts not just secondary care). |
| | Adults. |
| | Line of therapy not an inclusion criterion. |
| Interventions and comparators: generic/class; specific/drug<br><br>(All interventions will be compared with each other, unless otherwise stated) | Primary care led home visits which are directed by, or originate from, GPs; home visits provided within practice hours.<br>Primary care led home visits which are directed by, or originate from, GPs; home visits provided out of practice hours.<br>Primary care led home visits which are directed by, or originate from, GPs; home visits provided both within practice hours and out of practice hours.<br>No home visits. |
| Outcomes | - Mortality at end of follow-up (Dichotomous) CRITICAL<br>- Avoidable adverse events (for example, incorrect diagnosis, delay in diagnosis, delay in treatment or investigations) at end of follow-up (Dichotomous) CRITICAL<br>- Quality of life at end of follow-up (Continuous) CRITICAL<br>- ED attendance (consider admissions as a proxy in absence of ED attendance) at end of follow-up (Dichotomous) CRITICAL<br>- Patient and/or carer satisfaction at end of follow-up (Continuous) (CRITICAL)- Attendance at other health services at end of follow-up (Dichotomous) IMPORTANT<br>- Complaints and feedback at end of follow-up (Dichotomous) IMPORTANT |
| Study design | Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no relevant SRs or RCTs are identified. |
| Unit of randomisation | Patient<br>setting |
| Crossover study | Permitted |
| Minimum duration of study | Not defined |
| Other exclusions | Major trauma<br>Preventative visits |

| | |
|---|---|
| | Home visits that are not for an acute medical emergency<br>Regularly scheduled visits (planned)<br>Nurse-led visits<br>Studies published before 2005 |
| Population stratification | Home visit by your own practice team<br>Home visit by deputised practice team or out of hours |
| Reasons for stratification | Different practice teams |
| Sensitivity/other analysis | If studies have pre-specified in their protocols that results for any of these subgroup populations will be analysed separately, then they will be included in the subgroup analysis. |
| Subgroup analyses if there is heterogeneity | - Frail elderly (Frail elderly; Not frail elderly); Population may differ<br><br>- Rural or urban environment (Rural; Urban); Environment may differ |
| Search criteria | Databases: Medline, Embase, the Cochrane Library<br>Date limits for search: 2005<br>Language: English |

# Appendix B: Clinical article selection

**Figure 1: Flow chart of clinical article selection for the review of GP home visits**




# Appendix C: Forest plots

No relevant clinical studies were identified.

# Appendix D: Clinical evidence tables

No relevant clinical studies were identified.

# Appendix E: Economic evidence tables

No studies were included.

# Appendix F: GRADE tables

No relevant clinical studies were identified.

# Appendix G: Excluded clinical studies

**Table 3: Studies excluded from the clinical review**

| Study | Exclusion reason |
|---|---|
| Anon 2014[1] | No relevant intervention; preventative, regularly-scheduled home visits by cardiac surgery nurse practitioners |
| Balaban 1988[3] | Published before 2005; whole team involved in preventative intervention |
| Bandurchin 2011[4] | No relevant intervention; preventative, regularly-scheduled home visits by registered nurses |
| Beales 2009[5] | Not relevant study design; service description |
| Beck 2009[6] | No relevant intervention; scheduled visits with initial assessment by multidisciplinary team; visits done by nurse practitioner |
| Bishop 2005[7] | Not relevant study design; commentary |
| Blohm 2008[8] | Not relevant study design; commentary |
| Bouman 2008[11] | No relevant intervention; regular home visits by nurse, preventative |
| Bouman 2008A[10] | No relevant intervention; systematic review of preventative, regular, intensive home visits for the frail elderly |
| Bouman 2008D[9] | No relevant intervention; regular home visits by nurse, preventative |
| Burton 1995[13] | Published before 2005; not relevant intervention; preventative visits and effect on costs |
| Burton 1997[12] | Published before 2005; No relevant intervention; preventative visits to primary care physician |
| Buurman 2010[14] | No relevant intervention; study protocol of an RCT for regularly-scheduled nurse-led intervention post hospital discharge |
| Byles 2002[15] | Published before 2005; not relevant study design (qualitative study) |
| Byles 2004[16] | Published before 2005; No relevant intervention; scheduled health assessment |
| Campbell 2009B[17] | No relevant comparison (postal questionnaire on patient satisfaction with out-of-hours service) |
| Carpenter 1990[18] | Published before 2005; No relevant intervention; regular visits |
| Carr-Bains 2011[19] | No comparison; survey |
| Chang 2009[20] | No relevant intervention; scheduled visits by multidisciplinary team |

| | |
|---|---|
| Chime 2009[21] | Not relevant study design; commentary |
| Clarke 1992[22] | Published before 2005; No relevant intervention; social intervention for the elderly |
| Clayden 1984[23] | Published before 2005; not relevant study design; commentary |
| Comino 2007[24] | No relevant comparison (survey, interviews and analysis of administrative data) |
| Cooper 2007A[25] | Not relevant intervention; preventative home visits of a multidisciplinary team |
| Courtney 2009[27] | Not relevant intervention; exercise-based model of hospital and in-home regular follow-up care |
| Courtney 2011[26] | No relevant intervention; protocol of RCT of an exercise programme for frail elderly patients being discharged from hospital |
| Cunney 2012[28] | No relevant comparison (audit of out-of-hours calls received) |
| Dalby 2000[29] | Published before 2005; No relevant intervention; scheduled, preventative home visits by nurse |
| Dam 2013[30] | Paper not in English (Dutch) |
| Dorresteijn 2016[32] | Incorrect intervention-home-based, cognitive behavioural programme to manage concerns about falls in frail older people |
| De Jonge 2002[31] | Published before 2005; not relevant study design (commentary, no data) |
| Drennan 2014[33] | No relevant intervention; study protocol of an RCT looking at a community paramedic intervention |
| Dunn 1994[34] | Published before 2005; no relevant intervention; planned visits by health visitor post-discharge |
| Dunt 2005[35] | No relevant comparison (survey of service analysis) |
| Edwards 2009A[36] | No relevant comparison; survey |
| Eichler 2010[37] | No comparisons; costs of home visits only |
| Fabacher 1994[38] | Published before 2005; No relevant intervention; preventative, regularly-scheduled home visits |
| Fagerstrom 2009[39] | Literature review; not relevant (about preventative, regularly scheduled home visits rather than responses to acute need) |
| Farrell 2012[40] | Not relevant study design; commentary |
| Fleming 2011[41] | Not relevant study design; narrative review/commentary |
| Frese 2012[42] | No relevant intervention; preventative geriatric assessment in patients' homes by trained medical students |

| | |
|---|---|
| Giesen 2007[43] | No comparison (analysis of call data based on geographic distribution) |
| Giesen 2011[44] | Not relevant study design; narrative review |
| Gu 2016[45] | Incorrect intervention. Home visits by GPs or community nurses for delivering care to CHF patients. Study compared home visits with telephone support for CHF patients. Incorrect study design-prospective cohort study |
| Hall 1992[46] | Published before 2005; no relevant intervention; home visits by nurse to device a health promotion plan |
| Halter 2007[47] | No comparison; no relevant study design (survey) |
| Hay 1995[48] | Published before 2005; incorrect intervention and study design; survey on health concerns or risks |
| Hebert 2001[49] | Published before 2005; No relevant intervention; preventative trial for functional decline of the elderly |
| Hendriksen 1984[50] | Published before 2005; No relevant intervention; preventative, scheduled intervention |
| Hout 2010[51] | No relevant intervention; regular home visits by community nurse, preventative |
| Hughes 2000[52] | Published before 2005; No relevant intervention; regularly scheduled home visits |
| Hvenegaard 2009[53] | Not relevant setting (specialist secondary care home visits provided rather than by primary care) |
| Ingram 2009[54] | No relevant comparison, not relevant study design (survey) |
| Joyce 2008[55] | No comparison (analysis of rate of out-of-hours calls between 1997-2007) |
| Kao 2009[56] | Not relevant study design; narrative review |
| Kelly 2010[57] | No relevant comparison, not relevant study design (survey) |
| Kerkstra 1991[58] | Published before 2005; no relevant intervention; preventative home visits by community nurses |
| Kinnersley 2010[59] | No relevant comparison (GP versus A&E), not relevant study design (survey) |
| Lavoie-Vaughan 2005[60] | Not relevant study design (commentary) |
| Lemay 2014[61] | Incorrect study design (commentary) |
| Leveille 1998[62] | Published before 2005; no relevant intervention; prevention trial for chronically ill frail elderly |
| Lordan 2007[63] | No relevant comparison (analysis of out-of-hours data in regards to the type of services received for gastroenteritis) |

| | |
|---|---|
| Lykkegaard 2014[64] | No comparison at all; only relates GP home visits frequency to readmissions for COPD |
| Macinko 2010[65] | No relevant intervention; introduction of a health programme delivered by a multidisciplinary team at community based clinics |
| Marek 2006[66] | No relevant intervention; literature review of nurse-led home visit programmes |
| Mares 2013[67] | No relevant intervention; protocol of a systematic review of nurse-led cardiac rehabilitation programmes |
| Margas 2008[68] | No relevant comparison (analysis of service use) |
| Marsh 2005[69] | Not relevant study design; narrative review |
| Mattke 2015[70] | Incorrect intervention- clinical home visit programmes for medicare beneficiaries with designated chronic conditions (USA) |
| Mayor 2014[72] | Incorrect study design (commentary) |
| Mayo-Wilson 2006[71] | No relevant intervention; systematic review of preventative home visits |
| McEwan 1990[73] | Published before 2005; no relevant intervention; screening of the elderly programme conducted by nurses |
| McRae 2016[74] | No relevant outcomes |
| Millar 2006[75] | Not relevant study design; commentary |
| Mohammed 2012[76] | No relevant comparison (analysis of out-of-hours call lengths) |
| Monical 2013[77] | Not relevant study design; commentary |
| Mussi 2013[78] | No relevant intervention; regularly scheduled home visits following hospitalisation |
| Nagraj 2011[79] | Systematic literature review; not relevant topic (how primary care thinks they should be caring for the bereaved) |
| Neergaard 2009[80] | Survey with no outcomes relevant to the review protocol |
| Newbury 2001[81] | Published before 2005; no relevant intervention; preventative health assessment by nurse |
| North 2008[82] | No relevant intervention; preventative screenings at home by multidisciplinary team |
| Ornstein 2011[83] | No comparison (service description; no data) |
| Pathy 1992[84] | Published before 2005; no relevant intervention; health screening for the elderly |
| Peppas 2006[85] | No comparison (analysis of types of house calls) |

| | |
|---|---|
| Peterson 2012[86] | No relevant comparison (audit; types of physicians making house calls), no relevant outcomes |
| Philips 2010[87] | No relevant comparison (introduction of GP cooperative which offers both home visits and consultations in the surgery; data not separated by these) |
| Pivodic 2016[88] | Incorrect intervention- home care by GP for cancer patients in the last 3 months of life (end of life care). Inappropriate study design- survey |
| Ploeg 2005[89] | Systematic review; not relevant (about preventative, regularly scheduled home visits rather than responses to acute need) |
| Richards 2007[90] | Not relevant study design (qualitative study on users' experiences of out-of-hours) |
| Robichaud 2000[91] | Published before 2005; No relevant intervention; preventative programme |
| Rosenberg 2012[92] | No relevant intervention; geriatric home assessment programme, regular visits by nurse and physician |
| Rossdale 2007[93] | No relevant comparison (analysis of out-of-hours referrals by clinician characteristics) |
| Row 2006[94] | Not relevant study design; narrative review |
| Rytter 2010[95] | No relevant intervention; scheduled, planned home visits by GP and nurse |
| Sahlen 2008[96] | No relevant intervention; preventative intervention for healthy adults |
| Schraeder 2001[97] | Published before 2005; no relevant intervention; preventative intervention by multidisciplinary team |
| Schweitzer 2009[98] | No relevant comparison (analysis of type of phone calls) |
| Sinclair 2005[99] | No relevant intervention; regularly-scheduled nurse-led visits after hospital discharge |
| Sorensen 1988[100] | Published before 2005; no relevant intervention; epidemiological study assessing unmet medical and social needs of the frail elderly |
| Stall 2014[101] | Systematic review, but not relevant as pertains to MDT intervention rather than a response to an acute call |
| Stewart 2012[102] | No relevant comparison (audit of number of home visits requested by GP practice in Ireland) |
| Stuck 2000[103] | Published before 2005; No relevant intervention; in-home preventative visits with geriatric assessment |
| Terschuren 2007[104] | No relevant data, no relevant comparison (description of tele-monitoring service) |
| Thygesen 2015[105] | Incorrect intervention. Municipality based post-discharge follow-up by GP and municipality nurse among fragile elderly patients discharged from a hospital. |

| | |
|---|---|
| Tulloch 1979[106] | Published before 2005; no relevant intervention; screening programme |
| Turnbull 2011[107] | No comparison (analysis of out-of-hours call data; geographical distribution of calls) |
| Unwin 2011[109] | Literature review; no comparison |
| Ukawa 2015[108] | Letter to the editor on a study about home visits by a health care attendant for older people. |
| Van den Berg 2006[110] | No relevant comparison (comparison between 1987 to 2001 in diagnoses made in home visits) |
| Van den Berg 2009[111] | No relevant comparison, no relevant intervention |
| Van den Berg 2009A[113] | No relevant comparison, no relevant intervention |
| Van den Berg 2010[114] | No relevant comparison, no relevant intervention |
| Van den Berg 2012[112] | No relevant comparison, no relevant intervention |
| Van Haastregt 2000[115] | Published before 2005; no relevant intervention; scheduled home visits to prevent falls in the elderly |
| Van Haastregt 2002[116] | Published before 2005; no relevant intervention; preventative, regularly-scheduled home visits by community nurse |
| Van Rossum[117] | Published before 2005; no relevant intervention; preventative home visits by public health nurses |
| Vass 2004[118] | Published before 2005; no relevant intervention; preventative, structured, regularly-scheduled home visits |
| Vetter 1984[119] | Published before 2005; no relevant intervention; preventative trial with regularly scheduled visits by health visitor |
| Wagner 1994[120] | Published before 2005; no relevant intervention; prevention programme with one-time nurse home visit |
| Wajnberg 2010[121] | No relevant intervention; regularly-scheduled visits for home-based primary care programme |
| Wasson 1992[122] | Published before 2005; No relevant intervention; telephone versus face-to-face clinic contacts for follow-up by GPs |
| Wilkie 2013[123] | Not relevant study design; commentary |
| Yu2015[125] | Incorrect intervention. Nurse-led visits for patients with Chronic heart failure. |
| Wong 2008[124] | No relevant intervention; regular home visits by community nurse |
| Yamada 2003[2] | No relevant intervention; preventative, scheduled, home visits by public health nurses |

# Appendix H: Excluded economic studies

No studies were excluded.