National Institute for Health and Care Excellence

Final

Postnatal care

[C] Timing of first postnatal contact by midwife

NICE guideline NG194

Evidence review underpinning recommendation 1.1.14

April 2021

Final

These evidence reviews were developed by the National Guideline Alliance, part of the Royal College of Obstetricians and Gynaecologists

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Contents

Timing of first postnatal contact by midwife

Review question

This evidence report contains information on 2 reviews relating to timing of first postnatal contact by midwife.

- When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?
- When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Introduction

Midwives are required to visit mothers after they have returned home. The timing of this first visit is currently determined by local guidelines, convenience, workload and staff availability. The aim of this review is to determine the optimum timing for the first home visit.

Summary of the protocol

Please see Table 1 for a summary of the Population, Intervention, Comparison and Outcome (PICO) characteristics of this review.

Table 1: Summary of the protocol (PICO table)

Population	Pregnant women and women who have given birth to a healthy baby at term (or to healthy twins or triplets)
Intervention	Intervention 1. First postnatal contact by midwife within 24 hours transfer to community care Intervention 2. First postnatal contact by midwife between 24 and 48 hours following transfer to community care Intervention 3. First postnatal contact by midwife between 48 and 72 hours following transfer to community care Intervention 4. First postnatal contact by midwife beyond 72 hours following transfer to community care
Comparison	Interventions compared to each other
Outcomes	**Critical:** • maternal mortality within 1 year after the birth • maternal morbidity (for example postpartum haemorrhage, retained products of conception, infection, wound breakdown, perineal pain, postpartum psychosis) within 8 weeks after the birth • neonatal morbidity (including jaundice, dehydration, infections or feeding problems) within 8 weeks after the birth. **Important:** • proportion of unplanned attendance for woman or baby to health services or admission to hospital for problems within 8 weeks after the birth

	• proportion of women assessed by a healthcare professional as experiencing moderate to severe depression or anxiety at 6-8 weeks, 3 months and 6 months after the birth • proportion of women breastfeeding (exclusively or partially) at 6 weeks, 12 weeks and 6 months after the birth • proportion of women satisfied with their postnatal care.

For further details see the review protocol in appendix A.

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual 2014. Methods specific to this review question are described in the review protocol in appendix A.

Declarations of interest were recorded according to NICE's 2014 conflicts of interest policy until March 2018. From April 2018 until June 2019, declarations of interest were recorded according to NICE's 2018 conflicts of interest policy. From July 2019 onwards, the declarations of interest were recorded according to NICE's 2019 conflicts of interest policy. Those interests declared before July 2019 were reclassified according to NICE's 2019 conflicts of interest policy (see Register of Interests).

Clinical evidence

Included studies

Two cross-sectional studies were identified for this review (Ellberg 2008; Shakib 2015). One study (Ellberg 2008) compared postnatal routine neonatal examinations at 6-48 hours and 49-72 hours of birth. The other study (Shakib 2015) compared postnatal visits within or after 3 or 5 days of discharge, dependent on whether length of stay was ≤48 hours or >48 hours, respectively.

One study reported that all women had a singleton birth (Ellberg 2008) and 1 study did not report whether women had singleton or multiple births (Shakib 2015).

The included studies are summarised in Table 2.

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review with reasons for their exclusions are provided in appendix K.

Summary of clinical studies included in the evidence review

Summaries of the studies that were included in this review are presented in table 2.

Table 2: Summary of included studies

Study and setting	Population	Intervention/ comparison	Outcomes
Ellberg 2008 Cross-sectional study	N=198,898 n=186,378 cohort of interest for review	24-h care category[1]: routine neonatal examination at 6-48h versus 49-72h	• Readmission rate, within 28 days of birth

Study and setting	Population	Intervention/ comparison	Outcomes
Sweden	Healthy term-born infants	Home care category[2]: routine neonatal examination at 6-48h versus 49-72h	

Shakib 2015
 	
Cross-sectional study
 	
USA
	N=79,720
	
	Newborns with an estimated gestational age of ≥34 weeks
	
	6% of population were late preterm
		First postnatal visit within 3 or 5* days of discharge versus after 3 or 5* days of discharge	• Readmission rate:
			  • all causes (within 30 days of birth)
			  • jaundice (unspecified timeframe).

**3 days for postnatal length of stay ≤48 hours and 5 days for postnatal length of stay >48 hours*
[1]24-h care category: round the clock care in a maternity ward or transfer from a maternity ward to a family suite, both with optional length of stay for the woman.
[2]Home care category: early discharge programme with 6-72h post-delivery care that includes home visits and/or daily phone call consultations as well as a final check up with counselling and neonatal examination.

See appendix D for full evidence tables. No meta-analysis was undertaken for this review (and so there are no forest plots in Appendix E).

Quality assessment of clinical outcomes included in the evidence review

See clinical evidence profiles in appendix F.

Economic evidence

Included studies

A single economic search was undertaken for all topics included in the scope of this guideline and additional economic searches were conducted that used search terms specific to this review question combined with a search filter for economic evaluations but no economic studies were identified which were applicable to these review questions. See the literature search strategy in appendix B and economic study selection flow chart in appendix G.

Excluded studies

No economic studies were reviewed at full text and excluded from this review.

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation.

Evidence statements

Clinical evidence statements

Comparison 1: First postnatal contact by midwife 6-48 hours versus 49-72 hours after birth

Critical outcomes

Maternal mortality within 1 year after the birth

No evidence was identified for this outcome.

Maternal morbidity within 8 weeks after the birth

No evidence was identified for this outcome.

Neonatal morbidity within 8 weeks after the birth

No evidence was identified for this outcome.

Important outcomes

Admission to hospital defined as neonatal readmission rate, within 28 days of birth: 24-hour care

- Very low quality evidence from 1 cross-sectional study (n=61,804) found no clinically important difference in the neonatal readmission rate within 28 days of birth, between those receiving a routine neonatal examination at 6-48 hours compared to 49-72 hours in the 24-hour care category (see Table 2 for definition).

Admission to hospital defined as neonatal readmission rate, within 28 days of birth: home care

- Very low quality evidence from 1 cross-sectional study (n=124,574) found no clinically important difference in the neonatal readmission rate within 28 days of birth, between those receiving a routine neonatal examination at 6-48 hours compared to 49-72 hours after birth in the home care category (see Table 2 for definition).

Proportion of women assessed by a healthcare professional as experiencing moderate or severe depression or anxiety at 6-8 weeks, 3 months and 6 months after birth

No evidence was identified for this outcome.

Proportion of women breastfeeding (exclusively or partially) at 6 weeks, 12 weeks and 6 months after the birth

No evidence was identified for this outcome.

Proportion of women satisfied with their postnatal care

No evidence was identified for this outcome.

Comparison 2: First postnatal contact by midwife within 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) versus after 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) of discharge

Critical outcomes

Maternal mortality within 1 year after the birth

No evidence was identified for this outcome.

Maternal morbidity within 8 weeks after the birth

No evidence was identified for this outcome.

Neonatal morbidity within 8 weeks after the birth

No evidence was identified for this outcome.

Important outcomes

Admission to hospital defined as 30-day readmission rate

- Very low quality evidence from 1 study (n=79,720) found no clinically important difference in neonatal readmission rate, defined as 30-day readmission rates between those receiving a well-child visit within 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) versus after 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) of discharge. Similarly, no clinically important difference was shown when the analysis was stratified according to length of postnatal stay (≤48 hours and >48 hours).

Admission to hospital defined as readmission rate for jaundice (timeframe unspecified)

- Very low quality evidence from 1 cross-sectional study (n=79,720) found a clinically important reduction in neonatal readmission rate, defined as readmission rate for jaundice (unspecified timeframe) between those receiving a well-child visit within 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) versus after 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) of discharge. Similarly, a clinically important reduction was shown when the analysis was stratified according to length of postnatal stay (≤48 hours and >48 hours).

Proportion of women assessed by a healthcare professional as experiencing moderate or severe depression or anxiety at 6-8 weeks, 3 months and 6 months after birth

No evidence was identified for this outcome.

Proportion of women breastfeeding (exclusively or partially) at 6 weeks, 12 weeks and 6 months after the birth

No evidence was identified for this outcome.

Proportion of women satisfied with their postnatal care

No evidence was identified for this outcome.

Economic evidence statements

No economic evidence was identified which was applicable to this review question.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

The committee rated maternal mortality, maternal morbidity, and neonatal morbidity as critical outcomes as midwives are often the first healthcare professionals that mothers and babies see after discharge from hospital and are vital in identifying acute postnatal and neonatal adverse outcomes. The identification of the above outcomes by the midwife are even more important given shorter postnatal hospital stays, thus the committee were interested in the impact of the timing of the visit on these critical outcomes.

The committee were interested in unplanned attendance or admission rates to hospital for mother and/or baby as an important outcome, as an early visit by a midwife may identify complications promptly and avoid admission to hospital. The proportion of women experiencing moderate to severe depression or anxiety assessed by a healthcare professional as at 6 to 8 weeks, 3 months and 6 months after the birth was selected as an important outcome, because mental health problems are known to impact many women in the postnatal period and the committee wanted to see if an early visit from a midwife could

have an impact on this. A postnatal visit by a midwife will usually be the first visit the woman will have with a healthcare professional for breastfeeding support after discharge from hospital or after a home birth, therefore the committee were interested in whether the timing of the first midwife visit would impact on breastfeeding outcomes and prioritised the proportion of women breastfeeding as an important outcome. The proportion of women satisfied with their postnatal care was rated as an important outcome, because the committee wanted to see if an early first midwife visit would improve the overall postnatal care experience for the woman.

No evidence was identified for any critical outcomes, and the only evidence identified for the important outcomes was readmission rates.

The quality of the evidence

The quality of the evidence from the cross-sectional studies was very low with limited data on readmission rates only. The risk of bias was high with a high risk of selection bias, insufficient details on the examinations being conducted and insufficient details on confounding identified.

Both studies (Ellberg 2008, Shakib 2015) were downgraded for indirectness as they had limited details on healthcare professionals conducting the postnatal visit and it was difficult to elicit whether a midwife conducted the assessment. Furthermore, one of the studies (Ellberg 2008) described the postnatal assessment as a neonatal assessment, which made it difficult to elucidate whether this was a first postnatal visit by a midwife.

The timing of the postnatal visits in the studies did not fit with the pre-specified timings in the protocol, but were included as there were no studies identified that fit the pre-specified timings. The committee also agreed that the timeframes in the studies were relevant.

Some outcomes were downgraded due to imprecision of the effect estimate.

Benefits and harms

Due to the indirectness and overall low quality of the evidence, the recommendations were drafted by the committee through consensus using their experience and expertise rather than the clinical evidence. The committee raised particular concern about one study (Ellberg 2008), where the visit described as a neonatal examination was completely different to the first postnatal visit by a midwife in the UK, thus no conclusions could be drawn from the data. Furthermore, the committee highlighted that the setting of the first postnatal visit in both studies was most likely a clinic rather than home, whereas in the UK the first postnatal visit is usually at home. The committee also highlighted that the healthcare professional conducting the first postnatal assessment in the second study (Shakib 2015) was most likely to be a health visitor rather than a midwife given the postnatal care framework within the US.

Based on their expertise, the committee agreed that the first postnatal contact by a midwife should usually take place within 36 hours after transfer of care from the place of birth to the home setting. Currently, there is no guidance or agreement on when the first visit should take place, however it is usually between 24 to 48 hours after transfer to home care, but in some cases it might take place within a few hours after the transfer. The committee emphasised the importance of not leaving the first postnatal visit by midwives too long. They agreed there should be no more than one night at home before being assessed by a midwife in order to help establish good habits in relation to sleeping, feeding and the psychological wellbeing of the mother. The committee agreed these considerations were paramount given the often short postnatal hospital stay.

The committee discussed that there may be circumstances where the mother has had a longer postnatal hospital stay and the first postnatal visit by a midwife could potentially be pushed slightly later to coincide with the newborn blood spot screening on day 5, for

example. However, the committee agreed that ordinarily mothers with a longer postnatal hospital stay indicates that there were concerns for the mother and or baby that required close monitoring, therefore a longer postnatal stay is not usually a sufficient justification for a delayed first postnatal visit by a midwife.

The committee agreed that the first postnatal contact by a midwife should be a face to face visit, usually at home. This was judged to be important because many of the assessments that a midwife should conduct at the first contact would need to be in person, thus the benefit of a visit, rather than a telephone contact, would be a more comprehensive assessment. The committee agreed that the content of the first visit by a midwife should be aligned with the recommendations drafted from the content of postnatal care contacts in evidence review F. The committee emphasised that although it is important to standardise the location of the first postnatal visit by a midwife to be at home, individual circumstances and the mother's preference should also be taken into account. The committee discussed that every mother's experience is different and so too are their needs thus there is a benefit in taking their preferences into consideration. For example, a mother having her third baby may prefer to attend the first postnatal visit by a midwife at a clinic rather than staying at home waiting for the midwife whereas others may be daunted by the prospect of leaving the house at this stage. The benefit of having the visit at home is that the midwife can make a more comprehensive assessment of the circumstances and wellbeing of the woman and the baby.

The potential disadvantage of the recommendations is the additional resources for example time and staffing required, as currently there are some areas in which the first visit is conducted over the phone or via a maternity support worker, rather than midwife, visiting the woman's home. Nonetheless, the committee agreed that overall the anticipated benefits of these recommendations outweighed the potential harms and that there should be no major cost implications.

A research recommendation was made on the timing of first contact by midwife given the limited evidence identified. The committee agreed to combine a research recommendation on length of postpartum stay in evidence review A and timing of first contact by midwife to understand whether the timing of transfer to home care and the first midwife visit are likely to cause unplanned health contacts.

Cost effectiveness and resource use

No economic evidence on the cost effectiveness of the timing of the first postnatal contact by midwives after transfer from place of birth to community care was identified. When drafting recommendations, the committee agreed that the timing of the first midwife visit should not affect the total number of midwife contacts with women and their babies, and therefore the recommendations should have no major impact on the total cost of midwifery visits postnatally.

There's a potential resource implication relating to time and staffing, as in current practice in some areas the first visit is conducted over the phone or via a maternity support worker, rather than by a midwife at the woman's home. However, having the first postnatal contact as a face to face visit by a midwife at home reflects current practice in most settings and therefore is not expected to have important resource implications. The committee drafted the recommendation to ensure that current practice remains as it is, and the first home visit is not replaced, for example, by a telephone contact; this is because the first contact of the midwife with the woman and baby is vital in identifying acute postnatal and neonatal adverse outcomes and many of the required assessments need to be in person rather than over the phone. The committee considered the potential resource implications relating to possible adjustments in timing and location of the visit according to the woman's individual circumstances and preferences, but agreed that the benefits for the woman, when her individual circumstances and preferences are taken into account, outweigh the costs

associated with such adjustments as contacts are likely to be more productive and fewer contacts are expected to be missed or rearranged.

Other factors the committee took into account

The committee noted during protocol development that certain subgroups of women may require special consideration due to their potential vulnerability:

- young women (19 years or under)
- women with physical or cognitive disabilities
- women with severe mental health illness
- women who have difficulty accessing postnatal care services.

A stratified analysis was therefore predefined in the protocol based on these subgroups. However, considering the lack of evidence for these sub-groups, the committee agreed not to make separate recommendations and that the recommendations they did make should apply universally.

References

Ellberg 2008

Ellberg, L., Hogberg, U., Lundman, B., Kallen, K., Hakkansson, S., Lindh, V. Maternity care options influence readmission of newborns. Acta Paediatrica 97: 579-83, 2008

Shakib 2015

Shakib, J., Buchi, K., Smith, E., Korgenski, K., Young, PC. Timing of initial well-child visit and readmissions of newborns. Pediatrics 135 (3): 469-74, 2015

Appendices

Appendix A – Review protocol

Review protocol for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?
When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Table 3: Review protocol

Field (based on PRISMA-P)	Content
Review question	When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)? When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?
Type of review question	Intervention
Objective of the review	The aim of this review is to determine when the first postnatal contact by midwives after transfer from place of birth to community care should be made.
Eligibility criteria – population	Pregnant women and women who have given birth to a healthy baby at term (or to healthy twins or triplets).
Eligibility criteria – intervention	Intervention 1. First postnatal contact by midwife within 24 hours following transfer to community care Intervention 2. First postnatal contact by midwife between 24 and 48 hours following transfer to community care Intervention 3. First postnatal contact by midwife between 48 and 72 hours following transfer to community care Intervention 4. First postnatal contact by midwife beyond 72 hours following transfer to community care. First postnatal contact is defined as home visit, or telehealth contact (by telephone or other means), or planned clinic visit. If studies mention the time of a telehealth contact, please note the following specifications: If the call includes clinical assessment, then the time of contact is relevant for this review. Timing of a non-clinical administrative planning contact is not of interest. Calls from a non-clinical person using a clinical assessment checklist should be included.
Eligibility criteria – comparator	Interventions compared to each other
Outcomes and prioritisation	**Critical outcomes:** • maternal mortality within 1 year after the birth (any statistically significant change)

Field (based on PRISMA-P)	Content
	• maternal morbidity (for example postpartum haemorrhage, retained products of conception, infection, wound breakdown, perineal pain, postpartum psychosis) within 8 weeks after the birth (default MIDs) • neonatal morbidity (including jaundice, dehydration, infections or feeding problems) within 8 weeks after the birth (default MIDs). **Important outcomes:** • proportion of unplanned attendance for woman or baby to health services or admission to hospital for problems within 8 weeks after the birth (default MIDs) • proportion of women assessed by a healthcare professional as experiencing moderate to severe depression or anxiety at 6 to 8 weeks, 3 months and 6 months after the birth (default MIDs) • proportion of women breastfeeding (exclusively or partially) at 6 weeks, 12 weeks and 6 months after the birth (any statistically significant change) • proportion of women satisfied with their postnatal care (default MIDs).
Eligibility criteria – study design	Published full text papers only Systematic reviews of RCTs RCTs Only if RCTs unavailable to inform decision making: prospective or retrospective comparative cohort studies with at least 100 mother-infant pairs in each arm Prospective study designs will be prioritised over retrospective study designs Conference abstracts will not be considered
Other inclusion exclusion criteria	Studies from low- and middle-income countries, as defined by the World Bank, will be excluded, as the configuration of antenatal and postnatal services in these countries might not be representative of that in the UK. Date: prioritise papers published from 2000, and only go back to 1990 if no evidence is found. Practice has changed since 2000 and anything published before this is unlikely to be relevant.
Proposed sensitivity/sub-group analysis, or meta-regression	Groups that will be reviewed and analysed separately: • young women (19 years or under) • women with physical or cognitive disabilities • women with severe mental health illness • women who have difficulty accessing postnatal care services. In the presence of heterogeneity, the following subgroups will be considered for sensitivity analysis: • singletons, twins and triplets • primiparous versus multiparous women • mode of birth (non-instrumental vaginal birth/instrumental vaginal birth/caesarean section) • women with pre-existing conditions, complications in pregnancy, or complications experienced in the intrapartum period, including complications associated with caesarean section or instrumental delivery and home visits versus telehealth contacts versus clinic visits • number of subsequent visits following first visit

Field (based on PRISMA-P)	Content
	• different content of visit • women who gave birth at home versus women who gave birth outside the home • different lengths of stay prior to first contact (for example, early discharge <24 hours will be presented separately from discharge <5 days) • for breastfeeding outcome only: women who chose to not breastfeed before the first planned contact versus women who chose to breastfeed • women for whom English is not a first language. Statistical heterogeneity will be assessed by visually examining the forest plots and by calculating the I^2 inconsistency statistic (with an I^2 value of more than 50% indicating considerable heterogeneity) Potential confounders: • age • BMI • characteristics defining subgroups above.
Selection process – duplicate screening/selection/analysis	Review questions selected as high priorities for health economic analysis (and those selected as medium priorities and where health economic analysis could influence recommendations) will be subject to dual weeding and study selection; any discrepancies above 10% of the dual weeded resources will be resolved through discussion between the first and second reviewers or by reference to a third person. This review question was not prioritised for health economic analysis therefore no formal dual weeding, study selection (inclusion/exclusion) or data extraction into evidence tables will be undertaken. (However, internal (NGA) quality assurance processes will include consideration of the outcomes of weeding, study selection and data extraction and the committee will review the results of study selection and data extraction).
Data management (software)	Pairwise meta-analyses will be performed using Cochrane Review Manager (RevMan5). 'GRADEpro' will be used to assess the quality of evidence for each outcome.
Information sources – databases and dates	The following databases will be searched: • CCRCT • CDSR • CINAHL • DARE • Embase • EMCare • HTA Database • MEDLINE and MEDLINE IN-PROCESS Searches will be restricted by: • Date limitations: 1990 to17th December 2019 • English language Other searches:

Field (based on PRISMA-P)	Content
	• Inclusion lists of systematic reviews
Identify if an update	This guideline will update the NICE guideline on postnatal care up to 8 weeks after birth (CG37). All reviews are being conducted afresh. The CG37 (2006) did not include recommendations on this topic.
Author contacts	https://www.nice.org.uk/guidance/indevelopment/gid-ng10070
Highlight if amendment to previous protocol	For details please see section 4.5 of Developing NICE guidelines: the manual 2014
Search strategy – for one database	For details please see appendix B.
Data collection process – forms/duplicate	A standardised evidence table format will be used, and published as appendix D (clinical evidence tables) or H (economic evidence tables).
Data items – define all variables to be collected	For details please see evidence tables in appendix D (clinical evidence tables) or H (economic evidence tables).
Methods for assessing bias at outcome/study level	Standard study checklists were used to critically appraise individual studies. For details please see section 6.2 of Developing NICE guidelines: the manual The risk of bias across all available evidence was evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group http://www.gradeworkinggroup.org/
Criteria for quantitative synthesis (where suitable)	For details please see section 6.4 of Developing NICE guidelines: the manual
Methods for analysis – combining studies and exploring (in)consistency	For a full description of methods see Supplement 1.
Meta-bias assessment – publication bias, selective reporting bias	For details please see section 6.2 of Developing NICE guidelines: the manual.
Assessment of confidence in cumulative evidence	For details please see sections 6.4 and 9.1 of Developing NICE guidelines: the manual
Rationale/context – Current management	For details please see the introduction to the evidence review.
Describe contributions of authors and guarantor	A multidisciplinary committee developed the guideline. The committee was convened by the National Guideline Alliance and chaired by Dr Morris David Jewell in line with section 3 of Developing NICE guidelines: the manual. Staff from the National Guideline Alliance undertook systematic literature searches, appraised the evidence, conducted meta-analysis and cost-effectiveness analysis where appropriate, and drafted the guideline in collaboration with the committee. For a full description of methods see Supplement 1.
Sources of funding/support	The National Guideline Alliance is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists
Name of sponsor	The National Guideline Alliance is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists
Roles of sponsor	NICE funds the National Guideline Alliance to develop guidelines for those working in the NHS, public health, and social care in England
PROSPERO registration number	This protocol has not been registered in PROSPERO

BMI: body mass index; CDSR: Cochrane Database of Systematic Reviews; CINAHL: Cumulative Index of Nursing and Allied Health Literature; CCRT:: Cochrane Central Register of Controlled Trials; DARE: Database of Abstracts of Reviews of Effects; GRADE: Grading of Recommendations Assessment, Development and Evaluation; HTA: Health Technology Assessment; MID: minimally important difference; NGA: National Guideline Alliance; NHS EED: National Health Service Economic Evaluation Database; NICE: National Institute for Health and Care Excellence; RCT: randomised controlled trial

Appendix B – Literature search strategies

Literature search strategies for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Clinical search

The search for this topic was last run on 17th December 2019.

Database: Emcare, Embase, Medline, Medline Ahead of Print and In-Process & Other Non-Indexed Citations – OVID [Multifile]

#	Search
1	(birth attendan* or midwif* or midwiv* or mid wif* or mid wive*).hw,ti,ab.
2	hospital discharge/ or patient care/ or patient transport/ or communit*.hw.
3	2 use emczd, emcr
4	patient transfer/ or patient discharge/ or continuity of patient care/ or communit*.hw.
5	4 use ppez
6	(communit* or (continuity adj2 care) or ((depart* or leav*) adj2 (hospital* or ward*)) or discharg* or transfer* or ((hand or pass) adj on) or home*1 or house* or “early visit*”).ti,ab.
7	or/3,5-6
8	computer/ or computer network/ or home visit/ or internet/ or online system/ or exp computer assisted therapy/ or e-mail/ or social media/ or exp telehealth/ or exp telemetry/ or telecommunication/ or telephone/ or text messaging/
9	8 use emczd, emcr
10	computers/ or computer assisted instruction/ or computer communication networks/ or electronic mail/ or house calls/ or exp internet/ or social media/ or therapy, computer assisted/ or telecommunications/ or exp telemedicine/ or exp telemetry/ or exp telephone/
11	10 use ppez
12	(computer* or distance based or digital or dvd or internet or multimedia or online or phone* or sms or technology or telecommunicat* or tele communicat* or telephone or telehealth or tele health or texting or video* or web).ti,ab.
13	or/9,11-12
14	(communicat* or relation or relations*).hw. or (communicat* or ((early or first or initial) adj2 (contact* or speak* or talk* or visit*)) or intercommunicat* or interpersonal or inter personal or relations*).ti,ab.
15	1 and 7 and (or/13-14)
16	15
17	limit 16 to english language
18	limit 17 to yr="1990 - 2019"

Database: CDSR, CCRCT [Wiley]

#	Search
#1	(“birth attendan*” or midwif* or midwiv* or “mid wif*” or “mid wiv*”):ti,ab,kw

#	Search
#2	mesh descriptor: [patient transfer] this term only
#3	mesh descriptor: [patient discharge] this term only
#4	mesh descriptor: [continuity of patient care] this term only
#5	(communit*):kw
#6	((communit* or (continuity near/2 care) or ((depart* or leav*) near/2 (hospital* or ward*)) or discharg* or transfer* or ((hand or pass) near/1 on*) or home* or house*)):kw
#7	#2 or #3 or #4 or #5 or #6
#8	mesh descriptor: [computers] this term only
#9	mesh descriptor: [computer-assisted instruction] this term only
#10	mesh descriptor: [computer communication networks] this term only
#11	mesh descriptor: [house calls] this term only
#12	mesh descriptor: [internet] explode all trees
#13	mesh descriptor: [drug therapy, computer-assisted] this term only
#14	mesh descriptor: [telecommunications] this term only
#15	mesh descriptor: [electronic mail] this term only
#16	mesh descriptor: [social media] this term only
#17	mesh descriptor: [telemetry+] this term only
#18	mesh descriptor: [telephone+] this term only
#19	mesh descriptor: [telemedicine] explode all trees
#20	((computer* or “distance based” or digital or dvd or internet or multimedia or online or phone* or sms or technology or telecommunicat* or “tele communicat*” or telephone or telehealth or ”tele health” or texting or video* or web)):kw
#21	#8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20
#22	(communicat* or relation or relations*):kw
#23	((communicat* or ((early or first or initial) near/2 (contact* or speak* or talk* or visit*)) or intercommunicat* or interpersonal or “inter personal” or relations*)):kw
#24	#22 or #23
#25	#1 and #7 and (#21 or #24) with cochrane library publication date between jan 1990 and dec 2019

Database: CINAHL [ProQUEST]

#	Search
s25	#1 and #7 and (#21 or #24) publication year: 1990-2019
s24	s22 or s23
s23	tx (communicat* or ((first or initial) n2 (contact* or speak* or talk*)) or intercommunicat* or interpersonal or “inter personal” or relations*)
s22	mw communicat* or relation or relations*
s21	s8 or s9 or s10 or s11 or s12 or s13 or s14 or s15 or s16 or s17 or s18 or s19 or s20
s20	tx (computer* or “distance based” or digital or dvd or internet or multimedia or online or phone* or sms or technology or telecommunicat* or “tele communicat*” or telephone or telehealth or ”tele health” or texting or video* or web)
s19	(mh “telephone+”)
s18	(mh “telemetry+”)
s17	(mh “social media”)

#	Search
s16	(mh “electronic email”)
s15	(mh "telemedicine+")
s14	(mh "telecommunications")
s13	(mh "therapy, computer assisted")
s12	(mh "internet")
s11	(mh "home visits")
s10	(mh "computer communication networks")
s9	(mh "computer assisted instruction")
s8	(mh "computers and computerization")
s7	#2 or #3 or #4 or #5 or #6
s6	tx (communit* or (continuity n2 care) or ((depart* or leav*) n2 (hospital* or ward*)) or discharg* or transfer* or ((hand or pass) n1 on*) or home* or house*)
s5	mw communit*
s4	(mh "continuity of patient care")
s3	(mh "patient discharge+")
s2	(mh "transfer, discharge")
s1	tx ((“birth attendan*” or midwif* or midwiv* or “mid wif*” or “mid wiv*”)) or mw ((midwif* or midwiv*))

Database: DARE, HTA (global) [CRD Web]

#	Search
1	mesh descriptor postpartum period in dare,hta
2	mesh descriptor peripartum period in dare,hta
3	mesh descriptor postnatal care in dare,hta
4	(nullipara* or peri natal* or perinatal* or postbirth or post birth or postdelivery or post delivery or postnatal* or post natal* or postpartum* or post partum* or primipara* or puerpera* or puerperium* or ((after or follow*) near2 birth*)) in dare, hta
5	#1 or #2 or #3 or #4
6	mesh descriptor breast feeding explode all trees in dare,hta
7	mesh descriptor lactation in dare,hta
8	(breastfeed* or breast feed* or breastfed* or breastfeed* or breast fed or breastmilk or breast milk or expressed milk* or lactat* or (nursing next (baby or infant* or mother* or neonate* or newborn*))) in dare, hta
9	#6 or #7 or #8
10	mesh descriptor bottle feeding in dare,hta
11	mesh descriptor infant formula in dare,hta
12	(((bottle or formula or synthetic) near2 (artificial or fed or feed* or infant* or milk*)) or (artificial next (formula or milk)) or bottlefed or bottlefeed or cup feeding or (milk near2 (substitut* or supplement*)) or ((infant or milk or water or glucose or dextrose or formula) next supplement) or formula supplement* or supplement feed or milk feed or ((baby or babies or infant* or neonate* or newborn*) next (formula* or milk)) or formulafeed or formulated or (milk near2 powder*) or hydrolyzed formula* or (((feeding or baby or infant) next bottle*) or infant feeding or bottle nipple* or milk pump*)) in dare, hta
13	#10 or #11 or #12

#	Search
14	#5 or #9 or #13

Health economic search

The search for this topic was last run on 5th December 2019.

Database: Emcare, Embase, Medline, Medline Ahead of Print and In-Process & Other Non-Indexed Citations – OVID [Multifile]

#	Search
1	(birth attendan* or midwif* or midwiv* or mid wif* or mid wive*).hw,ti,ab.
2	hospital discharge/ or patient care/ or patient transport/ or communit*.hw.
3	2 use emczd, emcr
4	patient transfer/ or patient discharge/ or continuity of patient care/ or communit*.hw.
5	4 use ppez
6	(communit* or (continuity adj2 care) or ((depart* or leav*) adj2 (hospital* or ward*)) or discharg* or transfer* or ((hand or pass) adj on) or home*1 or house* or “early visit*”).ti,ab.
7	or/3,5-6
8	computer/ or computer network/ or home visit/ or internet/ or online system/ or exp computer assisted therapy/ or e-mail/ or social media/ or exp telehealth/ or exp telemetry/ or telecommunication/ or telephone/ or text messaging/
9	8 use emczd, emcr
10	computers/ or computer assisted instruction/ or computer communication networks/ or electronic mail/ or house calls/ or exp internet/ or social media/ or therapy, computer assisted/ or telecommunications/ or exp telemedicine/ or exp telemetry/ or exp telephone/
11	10 use ppez
12	(computer* or distance based or digital or dvd or internet or multimedia or online or phone* or sms or technology or telecommunicat* or tele communicat* or telephone or telehealth or tele health or texting or video* or web).ti,ab.
13	or/9,11-12
14	(communicat* or relation or relations*).hw. or (communicat* or ((early or first or initial) adj2 (contact* or speak* or talk* or visit*)) or intercommunicat* or interpersonal or inter personal or relations*).ti,ab.
15	1 and 7 and (or/13-14)
16	15
17	budget/ or exp economic evaluation/ or exp fee/ or funding/ or exp health care cost/ or health economics/
18	17 use emczd, emcr
19	exp budgets/ or exp "costs and cost analysis"/ or economics/ or exp economics, hospital/ or exp economics, medical/ or economics, nursing/ or economics, pharmaceutical/ or exp "fees and charges"/ or value of life/
20	19 use ppez
21	budget*.ti,ab. or cost*.ti. or (economic* or pharmaco?economic*).ti. or (price* or pricing*).ti,ab. or (cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or

#	Search
	estimat* or variable*)).ab. or (financ* or fee or fees).ti,ab. or (value adj2 (money or monetary)).ti,ab.
22	or/18,20-21
23	economic model/ or quality adjusted life year/ or "quality of life index"/
24	(cost-benefit analysis.sh. and (cost-effectiveness ratio* and (perspective* or life expectanc*)).tw.)
25	((quality of life or qol).tw. and cost benefit analysis.sh.)
26	or/23-25 use emczd, emcr
27	models, economic/ or quality-adjusted life years/
28	(cost-benefit analysis.sh. and (cost-effectiveness ratio* and (perspective* or life expectanc*)).tw.)
29	((quality of life or qol).tw. and cost-benefit analysis.sh.)
30	or/27-29 use ppez
31	(eq-5d* or eq5d* or eq-5* or eq5* or euroqual* or euro qual* or euroqual 5d* or euro qual 5d* or euro qol* or euroqol*or euro quol* or euroquol* or euro quol5d* or euroquol5d* or eur qol* or eurqol* or eur qol5d* or eurqol5d* or eur?qul* or eur?qul5d* or euro* quality of life or european qol).tw.
32	(euro* adj3 (5 d* or 5d* or 5 dimension* or 5dimension* or 5 domain* or 5domain*)).tw.
33	(hui or hui2 or hui3).tw.
34	(illness state* or health state*).tw.
35	(multiattibute* or multi attribute*).tw.
36	(qaly* or qal or qald* or qale* or qtime* or qwb* or daly).tw.
37	(quality adjusted or quality adjusted life year*).tw.
38	(sf36 or sf 36 or sf thirty six or sf thirtysix).tw.
39	sickness impact profile.sh.
40	(time trade off*1 or time tradeoff*1 or tto or timetradeoff*1).tw.
41	(utilit* adj3 (score*1 or valu* or health* or cost* or measur* or disease* or mean or gain or gains or index*)).tw.
42	utilities.tw.
43	((qol or hrqol or quality of life).tw. or *quality of life/) and ((qol or hrqol* or quality of life) adj2 (change*1 or declin* or decreas* or deteriorat* or effect or effects or high* or impact*1 or impacted or improve* or increas* or low* or reduc* or score or scores or worse)).ab.
44	quality of life.sh. and ((health-related quality of life or (health adj3 status) or ((quality of life or qol) adj3 (chang* or improv*)) or ((quality of life or qol) adj (measure*1 or score*1))).tw. or (quality of life or qol).ti. or ec.fs.)
45	or/26,30-44
46	or/22,45
47	16 and 46
48	limit 47 to english language
49	(animals/ not humans/) or exp animals, laboratory/ or exp animal experimentation/ or exp models, animal/ or exp rodentia/
50	49 use ppez
51	(animal/ not human/) or nonhuman/ or exp animal experiment/ or exp experimental animal/ or animal model/ or exp rodent/
52	51 use emczd, emcr

#	Search
53	(rat or rats or mouse or mice).ti.
54	or/50,52-53
55	48 not 54
56	limit 55 to yr="1990 - 2019"

Database: Emcare, Embase, Medline, Medline Ahead of Print and In-Process & Other Non-Indexed Citations (global) – OVID [Multifile]

#	Search
1	puerperium/ or perinatal period/ or postnatal care/
2	1 use emczd, emcr
3	postpartum period/ or peripartum period/ or postnatal care/
4	3 use ppez
5	(nullipara* or peri natal* or perinatal* or postbirth or post birth or postdelivery or post delivery or postnatal* or post natal* or postpartum* or post partum* or primipara* or puerpera* or puerperium* or ((after or follow*) adj2 birth*)).ti,ab.
6	or/2,4-5
7	breast feeding/ or breast feeding education/ or lactation/
8	7 use emczd, emcr
9	exp breast feeding/ or lactation/
10	9 use ppez
11	(breastfeed* or breast feed* or breastfed* or breastfeed* or breast fed or breastmilk or breast milk or expressed milk* or lactat* or (nursing adj (baby or infant* or mother* or neonate* or newborn*))).ti,ab.
12	or/8,10-11
13	artificial food/ or bottle feeding/ or infant feeding/
14	13 use emczd, emcr
15	bottle feeding/ or infant formula/
16	15 use ppez
17	(((bottle or formula or synthetic) adj2 (artificial or fed or feed* or infant* or milk*)) or (artificial adj (formula or milk)) or bottlefed or bottlefeed or cup feeding or (milk adj2 (substitut* or supplement*)) or ((infant or milk or water or glucose or dextrose or formula) adj supplement) or formula supplement* or supplement feed or milk feed or ((baby or babies or infant* or neonate* or newborn*) adj (formula* or milk)) or formulafeed or formulated or (milk adj2 powder*) or hydrolyzed formula* or (((feeding or baby or infant) adj bottle*) or infant feeding or bottle nipple* or milk pump*)).ti,ab.
18	or/14,16-17
19	or/6,12,18
20	budget/ or exp economic evaluation/ or exp fee/ or funding/ or exp health care cost/ or health economics/
21	20 use emczd, emcr
22	exp budgets/ or exp "costs and cost analysis"/ or economics/ or exp economics, hospital/ or exp economics, medical/ or economics, nursing/ or economics, pharmaceutical/ or exp "fees and charges"/ or value of life/
23	22 use ppez
24	budget*.ti,ab. or cost*.ti. or (economic* or pharmaco?economic*).ti. or (price* or pricing*).ti,ab. or (cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or

#	Search
	estimat* or variable*)).ab. or (financ* or fee or fees).ti,ab. or (value adj2 (money or monetary)).ti,ab.
25	or/21,23-24
26	economic model/ or quality adjusted life year/ or "quality of life index"/
27	(cost-benefit analysis.sh. and (cost-effectiveness ratio* and (perspective* or life expectanc*)).tw.)
28	((quality of life or qol).tw. and cost benefit analysis.sh.)
29	or/26-28 use emczd, emcr
30	models, economic/ or quality-adjusted life years/
31	(cost-benefit analysis.sh. and (cost-effectiveness ratio* and (perspective* or life expectanc*)).tw.)
32	((quality of life or qol).tw. and cost-benefit analysis.sh.)
33	or/30-32 use ppez
34	(eq-5d* or eq5d* or eq-5* or eq5* or euroqual* or euro qual* or euroqual 5d* or euro qual 5d* or euro qol* or euroqol*or euro quol* or euroquol* or euro quol5d* or euroquol5d* or eur qol* or eurqol* or eur qol5d* or eurqol5d* or eur?qul* or eur?qul5d* or euro* quality of life or european qol).tw.
35	(euro* adj3 (5 d* or 5d* or 5 dimension* or 5dimension* or 5 domain* or 5domain*)).tw.
36	(hui or hui2 or hui3).tw.
37	(illness state* or health state*).tw.
38	(multiattibute* or multi attribute*).tw.
39	(qaly* or qal or qald* or qale* or qtime* or qwb* or daly).tw.
40	(quality adjusted or quality adjusted life year*).tw.
41	(sf36 or sf 36 or sf thirty six or sf thirtysix).tw.
42	sickness impact profile.sh.
43	(time trade off*1 or time tradeoff*1 or tto or timetradeoff*1).tw.
44	(utilit* adj3 (score*1 or valu* or health* or cost* or measur* or disease* or mean or gain or gains or index*)).tw.
45	utilities.tw.
46	((qol or hrqol or quality of life).tw. or *quality of life/) and ((qol or hrqol* or quality of life) adj2 (change*1 or declin* or decreas* or deteriorat* or effect or effects or high* or impact*1 or impacted or improve* or increas* or low* or reduc* or score or scores or worse)).ab.
47	quality of life.sh. and ((health-related quality of life or (health adj3 status) or ((quality of life or qol) adj3 (chang* or improv*)) or ((quality of life or qol) adj (measure*1 or score*1))).tw. or (quality of life or qol).ti. or ec.fs.)
48	or/29,33-47
49	or/25,48
50	19 and 50
51	limit 50 to english language
52	(animals/ not humans/) or exp animals, laboratory/ or exp animal experimentation/ or exp models, animal/ or exp rodentia/
53	52 use ppez
54	(animal/ not human/) or nonhuman/ or exp animal experiment/ or exp experimental animal/ or animal model/ or exp rodent/
55	54 use emczd, emcr

#	Search
56	(rat or rats or mouse or mice).ti.
57	or/53,55-56
58	51 not 57

Database: HTA, NHS EED (global) [CRD Web]

#	Search
1	mesh descriptor postpartum period in hta, nhs eed
2	mesh descriptor peripartum period in hta, nhs eed
3	mesh descriptor postnatal care hta, nhs eed
4	(nullipara* or peri natal* or perinatal* or postbirth or post birth or postdelivery or post delivery or postnatal* or post natal* or postpartum* or post partum* or primipara* or puerpera* or puerperium* or ((after or follow*) near2 birth*)) hta, nhs eed
5	#1 or #2 or #3 or #4
6	mesh descriptor breast feeding explode all trees hta, nhs eed
7	mesh descriptor lactation hta, nhs eed
8	(breastfeed* or breast feed* or breastfed* or breastfeed* or breast fed or breastmilk or breast milk or expressed milk* or lactat* or (nursing next (baby or infant* or mother* or neonate* or newborn*))) hta, nhs eed
9	#6 or #7 or #8
10	mesh descriptor bottle feeding hta, nhs eed
11	mesh descriptor infant formula hta, nhs eed
12	(((bottle or formula or synthetic) near2 (artificial or fed or feed* or infant* or milk*)) or (artificial next (formula or milk)) or bottlefed or bottlefeed or cup feeding or (milk near2 (substitut* or supplement*)) or ((infant or milk or water or glucose or dextrose or formula) next supplement) or formula supplement* or supplement feed or milk feed or ((baby or babies or infant* or neonate* or newborn*) next (formula* or milk)) or formulafeed or formulated or (milk near2 powder*) or hydrolyzed formula* or (((feeding or baby or infant) next bottle*) or infant feeding or bottle nipple* or milk pump*)) hta, nhs eed
13	#10 or #11 or #12
14	#5 or #9 or #13

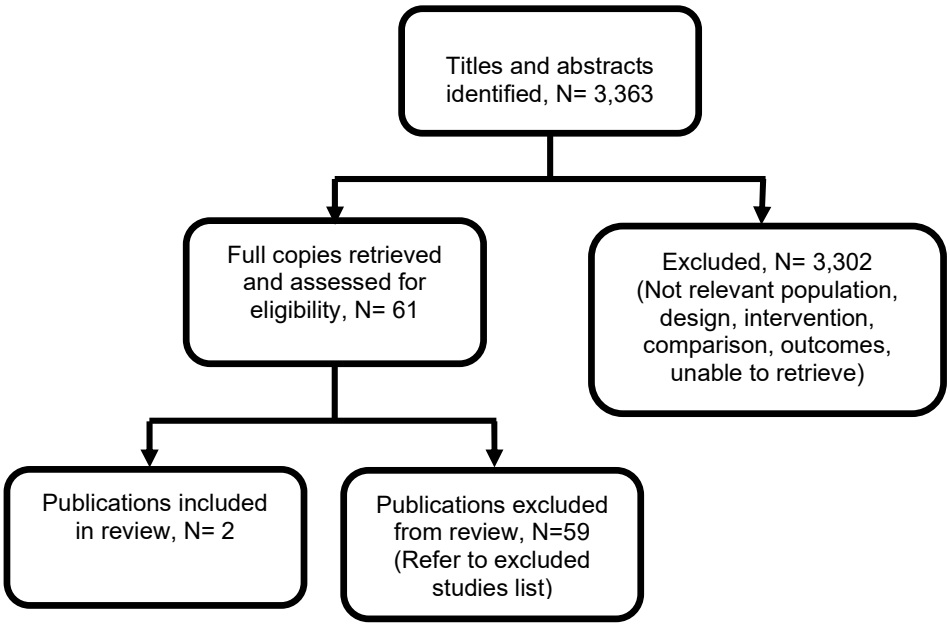
Appendix C – Clinical evidence study selection

Clinical study selection for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Figure 1: Study selection flow chart



Appendix D – Clinical evidence tables

Clinical evidence tables for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Table 4: Clinical evidence table

Study details	Participants	Interventions	Methods	Outcomes and Results	Critical Appraisal
Full citation Ellberg, L., Hogberg, U., Lundman, B., Kallen, K., Hakansson, S., Lindh, V., Maternity care options influence readmission of newborns, Acta Paediatrica, 97, 579-83, 2008 **Ref Id** 971466 **Country/ies where the study was carried out** Sweden **Study type** Cross-sectional observation study **Aim of the study**	**Sample size** N=198,898 (total population) n=186,378 cohort of interest for review: n=61,804 24-h care n=124,574 home care **Characteristics** <u>Mothers</u> Age (mean in years, *range in parentheses*) - 29.4 (13-52) Length of stay (mean in days, *range in parentheses*) - 2.3 (0-27) Primipara - 37.6% <u>Infants</u> Birth weight (mean in grams, *range in parentheses*) - 3637 (2800-4800) Birth length (mean in cm, *range in parentheses*) - 50.8 (45-60)	**Interventions** 1. 24-h care and neonatal examination at 49-72h 2. Home care programme and neonatal examination at 49-72h 3. 24-h care and neonatal examination at 6-48h 4. Home care programme and neonatal examination at 6-48h 24-h care category: round the clock care in a maternity ward or transfer from a maternity ward to a family suite, both with optional length of stay for the woman. Home care category: early discharge programme with 6-72h post-delivery care that includes home visits and/or daily phone	**Details** <u>Statistical analyses</u> The statistical analyses were conducted using SPSS for windows, version 13.0, and differences were considered statistically significant at $p<0.05$. To test differences in outcomes between groups by chi-squared test and for odds ratio (OR), bivariate logistic regression was applied and adjusted for parity. For prevalence and ORs, a 95%	**Results** **Outcomes: Neonatal readmission rate, within 28 days of birth** 24-h care and neonatal examination at 49-72h after birth - 292/17014 Home care programme and neonatal examination at 49-72h after birth - 488/26389 24-h care and neonatal examination at 6-48h after birth - 885/44790	. **Limitations** Quality of study risk of bias assessed using JBI critical appraisal checklist for analytical cross sectional studies 1. Were the criteria for inclusion in the sample clearly defined? Yes 2. Were the study subjects and the setting described in detail? Yes 3. Was the exposure measured in a valid and reliable way? No, details of hospital care, home care, whether the neonatal examination was

Study details	Participants	Interventions	Methods	Outcomes and Results	Critical Appraisal
To analyse morbidity and mortality in healthy newborn infants in relation to various routines of post-natal follow-up. **Study dates** 1999-2002 **Source of funding** Research and development funding from the Vasterbotten County Council, Umea, Sweden	Apgar score, 1 min (*range in parentheses*) - 8.86 (0-10) Apgar score, 5 min (*range in parentheses*) - 9.85 (4-10) Apgar score, 10 min (*range in parentheses*) - 9.96 (7-10) Gestational age (mean in weeks, *range in parentheses*) - 39.7 (37-42) **Inclusion criteria** Healthy term-born infants **Exclusion criteria** Gestational age <37 and >42 weeks Birth weight <2800 g or >4800 g Apgar score <4 at 5 min, or <7 at 10 min Multiple delivery Delivery by forceps, vacuum extractor or caesarean section Infant small for date Infant readmitted because of a disease diagnosed in the maternity ward Death of infant before discharge from maternity care	call consultations as well as a final check up with counselling and neonatal examination.	confidence interval (CI) was calculated. The study was designed (n= 84,000 infants) with 80% statistical power to prove 20% differences with calculated 3% outcome (readmitted infants)	Home care programme and neonatal examination at 6-48h after birth - 2198/98185	the first and neonatal examination were limited. In particular, details of the healthcare professional and site for conducting the neonatal examination were lacking 4. Were objective, standard criteria used for measurement of the condition? Yes 5. Were confounding factors identified? Unclear, only parity specified 6. Were strategies to deal with confounding factors stated? Yes, bivariate logistic regression 7. Were the outcomes measured in a valid and reliable way? Yes 8. Was the appropriate statistical analysis used? Yes
Full citation Shakib, J., Buchi, K., Smith, E., Korgenski, K., Young, P. C., Timing of initial well-child visit and	**Sample size** N= 79,720 (total population) n= 50, 606 hospital stay ≤48h n= 29,114 hospital stay >48h	**Interventions** 1. Postnatal visit within 3 or 5 days (with ≤48h stay or >48h stay,	**Details** <u>Statistical analyses</u> X^2 to compare the overall readmission	**Results** **Outcomes: Neonatal 30-day readmission rates**	**Limitations** Quality of study risk of bias assessed using JBI critical appraisal checklist for

Study details	Participants	Interventions	Methods	Outcomes and Results	Critical Appraisal
readmissions of newborns, Pediatrics, 135, 469-74, 2015 **Ref Id** 1085107 **Country/ies where the study was carried out** USA **Study type** Cross-sectional observational study **Aim of the study** Determine 1) the frequency of early visits and to 2) to compare readmission rates for those who had an early visit compared with those who didn't **Study dates** January 1, 2001 and December 31, 2011 **Source of funding** None reported	**Characteristics** Well baby nursery stay ≤48h - 50, 606 (63%) Well baby nursery stay >48h - 29, 114 (37%) Caesarean delivery - 15,232 (19%) Firstborn child - 25, 116 (32%) Late preterm (EGA 34-36 6/7 weeks) - 4767 (6%) Jaundice during WBN stay - 17, 213 (22%) Feeding problem during WBN stay - 3244 (4%) **Inclusion criteria** Discharged alive from a well baby nursery, Intermountain Healthcare hospital, insured by Select Health, estimated gestation age between 34 and 42 weeks, and either no NICU stay or stay of <24 hours. **Exclusion criteria** NICU stay of ≥24 hours	respectively) of discharge 2. Postnatal visit after 3 or 5 days (with ≤48h stay or >48h stay, respectively) of discharge	rates and the rates for the 5 most common reasons for readmission for newborns who had a visit within the recommended time frames with those who first visit was later. Logistic regression to calculate the crude ORs for readmission if an early visit had or had not occurred. To adjust for the possible confounding effects of other cofounding effects of other factors that might influence the likelihood of readmission, a multivariate logistic regression model to calculate adjusted ORs for readmission. All variables in the model that were available that were available in the data set and that could potentially affect the likelihood of readmission: year of delivery, EGA, whether the baby was the mothers firstborn,	**per 1000 for newborns overall and with a visit within 3 days (LOS ≤48h) or within 5 days (LOS >48h)** Visit within 3/5 days versus visit after 3/5 days (total population): Adjusted OR* (95% CI) 0.84 (0.72 to 0.99) Visit within 3/5 days versus visit after 3/5 days (≤48h stay): Adjusted OR* (95% CI) 0.84 (0.7 to 1.02) Visit within 3/5 days versus visit after 3/5 days (>48h stay): Adjusted OR* (95% CI) 0.88 (0.7 to 1.1) **Adjusted for delivery year, EGA, mothers firstborn, jaundice during hospitalisation, and feeding problem during hospitalisation*	analytical cross sectional studies 1. Were the criteria for inclusion in the sample clearly defined? Yes 2. Were the study subjects and the setting described in detail? Yes 3. Was the exposure measured in a valid and reliable way? Unclear, details of well child visit in terms of assessment and personnel undertaking the assessment were limited. 4. Were objective, standard criteria used for measurement of the condition? Yes 5. Were confounding factors identified? Yes 6. Were strategies to deal with confounding factors stated? Yes 7. Were the outcomes measured in a valid and reliable way? Yes 8. Was the appropriate

Study details	Participants	Interventions	Methods	Outcomes and Results	Critical Appraisal
			length of stay of the birth hospitalisation, and the presence of jaundice or feeding problem in the well baby nursery	**Outcome: Readmission rates per 1000 for jaundice overall and for newborns with a visit within 3 days (LOS ≤48h) or within 5 days (LOS >48h)** Visit within 3/5 days versus visit after 3/5 days (total population): Adjusted OR* (95% CI) 0.47 (0.32 to 0.7) Visit within 3/5 days versus visit after 3/5 days (≤48h stay): Adjusted OR* (95% CI) 0.45 (0.28 to 0.73) Visit within 3/5 days versus visit after 3/5 days (>48h stay): Adjusted OR* (95% CI) 0.52 (0.27 to 0.96) **Adjusted for delivery year, EGA, mothers firstborn, and jaundice during hospitalisation*	statistical analysis used? Yes

CI: confidence interval; EGA: estimated gestational age; JBI: Joanna Briggs Institute; LOS: length of stay; NICU: neonatal intensive care unit; OR: odds ratio; well-baby nursery: nursery is intended for term and near term infants who are sufficiently stable for rooming-in with their mothers.

Appendix E – Forest plots

Forest plots for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

No meta-analysis was conducted for these review questions and so there are no forest plots.

Appendix F – GRADE tables

GRADE tables for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Table 5: Clinical evidence profile for comparison 1. First postnatal contact by midwife 6-48 hours versus 49-72 hours after birth

Quality assessment							No of patients		Effect			
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Postnatal neonatal examination at 6-48h	Postnatal neonatal examination at 49-72h	Relative (95% CI)	Absolute	Quality	Importance
Admission to hospital defined as neonatal readmission rate, within 28 days of birth - 24-h hospital care												
1 (Ellberg 2008)	observational studies	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	885/44790 (2%)	292/17014 (1.7%)	aOR 1.15 (1.01 to 1.32)	3 more per 1000 (from 0 more to 5 more)	VERY LOW	IMPORTANT
Admission to hospital defined as neonatal readmission rate, within 28 days of birth - Home care												
1 (Ellberg 2008)	observational studies	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	2198/98185 (2.2%)	488/26389 (1.8%)	aOR 1.22 (1.1 to 1.34)	4 more per 1000 (from 2 more to 6 more)	VERY LOW	IMPORTANT

aOR: adjusted odds ratio; CI: confidence interval; RR: risk ratio

[1] Evidence was downgraded by 1 as there is a serious risk of bias due to the cross-sectional study design (selection bias) and insufficient details on the neonatal examination conducted and confounding factors identified

[2] Evidence was downgraded by 1 as it is unclear from the methods the healthcare professional conducting the assessment

[3] Evidence was downgraded by 1 due to serious imprecision, 95% CI crosses 1 MID

Table 6: Clinical evidence profile for comparison 2. First postnatal contact by midwife within 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) versus after 3 days (length of stay ≤48 hours) or 5 days (length of stay >48 hours) of discharge

Quality assessment							No of patients		Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**First postnatal visit ≤3/5 days**	**First postnatal visit >3/5 days**	**Relative (95% CI)**	**Absolute**	**Quality**	**Importance**
Admission to hospital defined as 30-day readmission rate among all babies												
1 (Shakib 2015)	cross-sectional study	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	213/13558 (1.57%)	1217/66162 (1.84%)	aOR 0.84 (0.72 to 0.99)	3 fewer per 1000 (from 5 fewer to 0)	VERY LOW	IMPORTANT
Admission to hospital defined as 30-day readmission rate among babies with a postnatal stay ≤48h												
1 (Shakib 2015)	cross-sectional study	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	120/7638 (1.57%)	804/42,968 (1.87%)	aOR 0.84 (0.7 to 1.02)	3 fewer per 1000 (from 6 fewer to 0)	VERY LOW	IMPORTANT
Admission to hospital defined as 30 day readmission rate among babies with a postnatal stay >48h stay												
1 (Shakib 2015)	cross-sectional study	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	99/5920 (1.66%)	408/23194 (1.76%)	aOR 0.88 (0.7 to 1.1)	2 fewer per 1000 (from 5 fewer to 2 more)	VERY LOW	IMPORTANT
Admission to hospital defined as readmission rate for jaundice (time frame unspecified) among all babies												
1 (Shakib 2015)	cross-sectional study	serious[1]	no serious inconsistency	serious[2]	no serious imprecision	none	31/13558 (0.23%)	278/66159 (0.42%)	aOR 0.47 (0.32 to 0.7)	2 fewer per 1000 (from 3 fewer to 1 fewer)	VERY LOW	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	First postnatal visit ≤3/5 days	First postnatal visit >3/5 days	Relative (95% CI)	Absolute		
Admission to hospital defined as readmission rate for jaundice (time frame unspecified) among babies with a postnatal stay ≤48h												
1 (Shakib 2015)	cross-sectional study	serious[1]	no serious inconsistency	serious[2]	no serious imprecision	none	191/7638 (0.25%)	211/42968 (0.49%)	aOR 0.45 (0.28 to 0.73)	3 fewer per 1000 (from 4 fewer to 1 fewer)	VERY LOW	CRITICAL
Admission to hospital defined as readmission rate for jaundice (time frame unspecified) among babies with a postnatal stay >48h												
1 (Shakib 2015)	cross-sectional study	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	118/5920 (0.2%)	742/23194 (0.32%)	aOR 0.52 (0.27 to 0.96)	2 fewer per 1000 (from 2 fewer to 0)	VERY LOW	CRITICAL

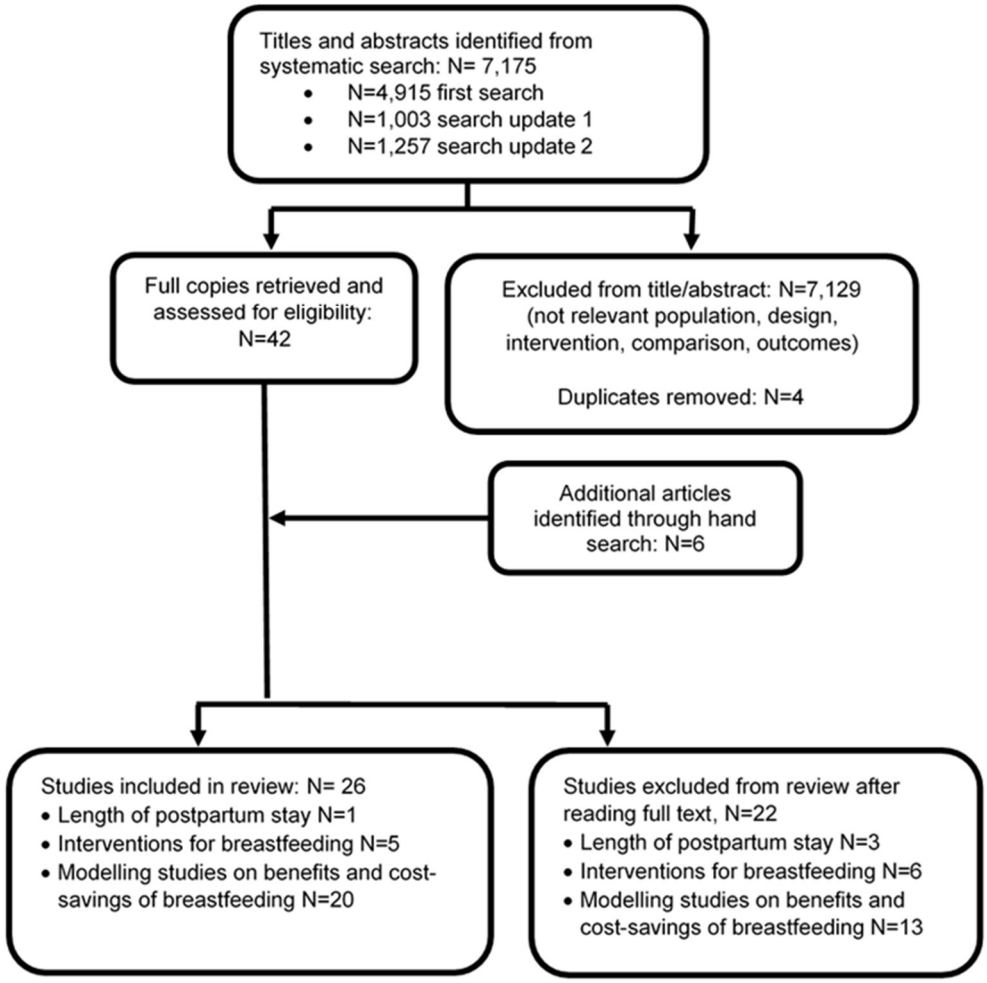
aOR: adjusted odds ratio CI: confidence interval;
[1] Evidence was downgraded by 1 as there is a serious risk of bias due to the cross-sectional study design (selection bias) and insufficient details of well-child visit conducted
[2] Evidence was downgraded by 1 as it is unclear from the methods the healthcare professional conducting the assessment
[3] Evidence was downgraded by 1 due to serious imprecision, 95% CI crosses 1 MID

Appendix G – Economic evidence study selection

Economic evidence study selection for review questions:
When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?
When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

A global health economics search was undertaken for all areas covered in the guideline. Figure 2 shows the flow diagram of the selection process for economic evaluations of postnatal care interventions, including modelling studies on the benefits and cost-savings of breastfeeding.

Figure 2. Flow diagram of selection process for economic evaluations of postnatal care interventions and modelling studies on the benefits and cost-savings of breastfeeding



Appendix H – Economic evidence tables

Economic evidence tables for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

No economic evidence was identified which was applicable to these review questions.

Appendix I – Economic evidence profiles

Economic evidence profiles for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

No economic evidence was identified which was applicable to these review questions.

Appendix J – Economic analysis

Economic analysis for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

No economic analysis was conducted for these review questions.

Appendix K – Excluded studies

Excluded clinical and economic studies for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?
When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Clinical studies

Table 7: Excluded studies

Study	Reason for exclusion
Aksu,H., Kucuk,M., Duzgun,G., The effect of postnatal breastfeeding education/support offered at home 3 days after delivery on breastfeeding duration and knowledge: a randomized trial, Journal of Maternal-Fetal and Neonatal Medicine, 24, 354-361, 2011	Comparison not of interest for review: 1 postnatal visit versus no postnatal visit.
Anonymous,, Postpartum care visits--11 states and New York City, 2004, Mmwr, Morbidity and mortality weekly report. 56, 1312-1316, 2007	Study design not of interest for review: non comparative study.
Apgar, B. S., Serlin, D., Kaufman, A., The postpartum visit: Is six weeks too late?, American Family Physician, 72, 2005	Study design not of interest for review: non-comparative study.
Askelsdottir, B., Jonge, W. L. D., Edman, G., Wiklund, I., Home care after early discharge: Impact on healthy mothers and newborns, Midwifery, 29, 927-934, 2013	Comparison not of interest for review: early discharge plus postnatal visit 2-3 times during first week versus standard discharge and 1 postnatal visit at 2-5 days.
Bang, K. S., Huh, B. Y., Kwon, M. K., The Effect of a Postpartum Nursing Intervention Program for Immigrant Mothers, Child health nurs res, 20, 11-19, 2014	Paper published in Korean.
Baqui, A. H., Ahmed, S., El Arifeen, S., Darmstadt, G. L., Rosecrans, A. M., Mannan, I., Rahman, S. M., Begum, N., Mahmud, A. B., Seraji, H. R., Williams, E. K., Winch, P. J., Santosham, M., Black, R. E., Effect of timing of first postnatal care home visit on neonatal mortality in Bangladesh: a observational cohort study, BMJ (Clinical research ed.), 339, b2826, 2009	Country of study classified as low/middle income: Bangladesh.
Barimani, M., Oxelmark, L., Johansson, S. E., Langius-Eklof, A., Hylander, I., Professional support and emergency visits during the first 2 weeks postpartum, Scandinavian Journal of Caring Sciences, 28, 57-65, 2014	Study design not of interest for review: non comparative study.
Barlow, A., Mullany, B., Neault, N., Goklish, N., Billy, T., Hastings, R., Lorenzo, S., Kee, C., Lake, K., Redmond, C., Carter, A., Walkup, J. T., Paraprofessional-delivered home-visiting intervention for American Indian teen mothers and children: 3-year outcomes from a randomized controlled trial, American Journal of Psychiatry, 172, 154-62, 2015	Intervention not of interest for review: specific package focusing on antenatal and postnatal care.

Study	Reason for exclusion
Barlow,A., Mullany,B., Neault,N., Compton,S., Carter,A., Hastings,R., Billy,T., Coho-Mescal,V., Lorenzo,S., Walkup,J.T., Effect of a paraprofessional home-visiting intervention on American Indian teen mothers' and infants' behavioral risks: a randomized controlled trial, American Journal of Psychiatry, 170, 83-93, 2013	Intervention not of interest for review: specific package focusing on antenatal and postnatal care.
Barlow,A., Varipatis-Baker,E., Speakman,K., Ginsburg,G., Friberg,I., Goklish,N., Cowboy,B., Fields,P., Hastings,R., Pan,W., Reid,R., Santosham,M., Walkup,J., Home-visiting intervention to improve child care among American Indian adolescent mothers: a randomized trial, Archives of Pediatrics and Adolescent Medicine, 160, 1101-1107, 2006	Intervention not of interest for review: specific package focusing on antenatal and postnatal care.
Barlow,J., Davis,H., McIntosh,E., Jarrett,P., Mockford,C., Stewart-Brown,S., Role of home visiting in improving parenting and health in families at risk of abuse and neglect: results of a multicentre randomised controlled trial and economic evaluation, Archives of Disease in Childhood, 92, 229-233, 2007	Intervention not of interest for review: intensive 18-week health visiting programme.
Christie, J., Bunting, B., The effect of health visitors' postpartum home visit frequency on first-time mothers: Cluster randomised trial, International journal of nursing studies, 48, 689-702, 2011	Comparison not of interest for review: 6 versus 1 health visitor visit (in addition to midwifery care).
Dana, S. N., Wambach, K. A., Patient satisfaction with an early discharge home visit program, Journal of obstetric, gynecologic, and neonatal nursing : JOGNN / NAACOG, 32, 190-198, 2003	Study design not of interest for review: non comparative study.
Danbjorg, D. B., Wagner, L., Kristensen, B. R., Clemensen, J., Intervention among new parents followed up by an interview study exploring their experiences of telemedicine after early postnatal discharge, Midwifery, 31, 574-581, 2015	Intervention not of interest for review: 7 day access to an application with chat, knowledge base, and message features between parents and the hospital after discharge.
Dennis, C. L., Kingston, D., A systematic review of telephone support for women during pregnancy and the early postpartum period, JOGNN - Journal of Obstetric, Gynecologic, & Neonatal Nursing, 37, 301-14, 2008	Comparison not of interest for review: different levels of telehealth plus standard care versus standard care
Dodge, K. A., Goodman, W. B., Murphy, R. A., O'Donnell, K., Sato, J., Randomized controlled trial of universal postnatal nurse home visiting: impact on emergency care, Pediatrics, 132 Suppl 2, S140-6, 2013	Comparison not of interest for review: 3-7 postnatal contacts 3-12 weeks postnatally versus standard of care.
Dukhovny, D., Dennis, C. L., Hodnett, E., Weston, J., Stewart, D. E., Mao, W., Zupancic, J. A., Prospective economic evaluation of a peer support intervention for prevention of postpartum depression among high-risk women in Ontario, Canada, American Journal of Perinatology, 30, 631-42, 2013	Comparison not of interest for review: telephone based volunteer peer support versus usual care.
Efrat, M. W., Esparza, S., Mendelson, S. G., Lane, C. J., The effect of lactation educators implementing a telephone-based intervention	Comparison not of interest for review: prenatal and postnatal phone based

Study	Reason for exclusion
among low-income Hispanics: A randomised trial, Health Education Journal, 74, 424-441, 2015	breastfeeding intervention versus standard care.
Ellberg, L., Hogberg, U., Lundman, B., Lindholm, L., Satisfying parents' preferences with regard to various models of postnatal care is cost-minimizing, Acta Obstetricia et Gynecologica Scandinavica, 85, 175-181, 2006	No outcomes of interest for review.
Escobar, G. J., Braveman, P. A., Ackerson, L., Odouli, R., Coleman-Phox, K., Capra, A. M., Wong, C., Lieu, T. A., A randomized comparison of home visits and hospital-based group follow-up visits after early postpartum discharge, Pediatrics, 108, 719-727, 2001	Comparison not of interest for review: postnatal home visit programme versus usual hospital follow up.
Fallon, A. B., Hegney, D., O'Brien, M., Brodribb, W., Crepinsek, M., Doolan, J., An evaluation of a telephone-based postnatal support intervention for infant feeding in a regional Australian city, Birth (Berkeley, Calif.), 32, 291-298, 2005	Comparison not of interest for review: postnatal telephone based breast feeding support service plus standard care versus standard care.
Gagnon, A. J., Dougherty, G., Jimenez, V., Leduc, N., Randomized trial of postpartum care after hospital discharge, Pediatrics, 109, 1074-80, 2002	Comparison not of interest for review: postnatal hospital follow-up package versus postnatal community follow-up package.
Goulet,L., D'Amour,D., Pineault,R., Type and timing of services following postnatal discharge: do they make a difference?, Women and Health, 45, 19-39, 2007	Comparator not of interest for review: mixture of no follow-up or later follow-up.
Hannan,J., APN telephone follow up to low-income first time mothers, Journal of Clinical Nursing, 22, 262-270, 2013	Comparison not of interest for review: routine post discharge care plus advance practice nurse telephone calls on days 3,7,14,21,28 and week 8 versus standard post discharge care.
Henderson, J., Redshaw, M., Change over time in women's views and experiences of maternity care in England, 1995-2014: A comparison using survey data, Midwifery, 44, 35-40, 2017	Study design not of interest for review: non comparative study.
Horowitz, J. A., Murphy, C. A., Gregory, K., Wojcik, J., Pulcini, J., Solon, L., Nurse Home Visits Improve Maternal/Infant Interaction and Decrease Severity of Postpartum Depression, Jognn-Journal of Obstetric Gynecologic and Neonatal Nursing, 42, 287-300, 2013	Comparison not of interest for review: comparison of postnatal care packages (no information on timing)
Jirojwong, S., Rossi, D., Walker, S., Ritchie, B., What were the outcomes of home follow-up visits after postpartum hospital discharge?, Australian Journal of Advanced Nursing, 23, 22-30, 2005	Comparison not of interest for review: postnatal care of hospital A versus hospital B.
Kronborg, H., Maimburg, R. D., Vaeth, M., Antenatal training to improve breast feeding: a randomised trial, Midwifery, 28, 784-790, 2012	Intervention not of interest for review: antenatal training programme.
Kronborg, H., Sievertsen, H. H., Wust, M., Care around birth, infant and mother health and maternal health investments - Evidence from a nurse strike, Social Science and Medicine, 150, 201-211, 2016	Study design not of interest: non comparative study.
Kronborg, H., Vaeth, M., Kristensen, I., The effect of early postpartum home visits by health visitors: a	Study design not of interest: non comparative study.

Study	Reason for exclusion
natural experiment, Public Health Nursing, 29, 289-301, 2012	
Kronborg, H., Vaeth, M., Olsen, J., Iversen, L., Harder, I., Effect of early postnatal breastfeeding support: A cluster-randomized community based trial, Acta Paediatrica, International Journal of Paediatrics, 96, 1064-1070, 2007	Comparison not of interest for review: 1-3 postnatal visits versus usual care (no information on timing).
Laliberte, C., Dunn, S., Pound, C., Sourial, N., Yasseen, A. S., Millar, D., White, R. R., Walker, M., Lacaze-Masmonteil, T., A randomized controlled trial of innovative postpartum care model for mother-baby dyads, PLoS ONE, 11 (2) (no pagination), 2016	Intervention not of interest for review: postpartum care model (no information on timing).
Lansky, A., Barfield, W. D., Marchi, K. S., Egerter, S. A., Galbraith, A. A., Braveman, P. A., Early postnatal care among healthy newborns in 19 states: Pregnancy Risk Assessment Monitoring System, 2000, Maternal and child health journal, 10, 277-284, 2006	Comparison not of interest for review: early discharge plus early follow up versus early discharge alone.
Larsen, A., Cheyip, M., Aynalem, G., Dinh, T. H., Jackson, D., Ngandu, N., Chirinda, W., Mogashoa, M., Kindra, G., Lombard, C., Goga, A., Uptake and predictors of early postnatal follow-up care amongst mother-baby pairs in South Africa: Results from three population-based surveys, 2010-2013, Journal of global health, 7, 021001, 2017	No outcomes of interest for review.
Lavender, T., Richens, Y., Milan, S. J., Smyth, R. M. D., Dowswell, T., Telephone support for women during pregnancy and the first six weeks postpartum, Cochrane Database of Systematic Reviews, 2013 (7) (no pagination), 2013	Comparison not of interest for review: postnatal telephone support plus usual care versus usual care.
Lemyre, B., Jefferies, A. L., O'Flaherty, P., Facilitating discharge from hospital of the healthy term infant, Paediatrics and Child Health (Canada), 23, 515-522, 2018	Study design not of interest for review: Clinical Guideline.
Leonard, L. G., Breastfeeding higher order multiples: enhancing support during the postpartum hospitalization period, Journal of Human Lactation, 18, 386-392, 2002	Study design not of interest for review: editorial review.
Lieu, T. A., Braveman, P. A., Escobar, G. J., Fischer, A. F., Jensvold, N. G., Capra, A. M., A randomized comparison of home and clinic follow-up visits after early postpartum hospital discharge, Pediatrics, 105, 1058-1065, 2000	Comparison not of interest for review: home visit versus clinic visit.
MacArthur, C., Winter, H. R., Bick, D. E., Knowles, H., Lilford, R., Henderson, C., Effects of redesigned community postnatal care on womens' health 4 months after birth: a cluster randomised trial, Lancet, 359, 378â 385, 2002	Intervention not of interest for review: no information on timing of postnatal visits.
MacArthur, C., Winter, H. R., Bick, D. E., Lilford, R. J., Lancashire, R. J., Knowles, H., Braunholtz, D. A., Henderson, C., Belfield, C., Gee, H., Redesigning postnatal care: A randomised controlled trial of protocol-based midwifery-led care	Intervention not of interest for review: no information on timing of postnatal visits.

Study	Reason for exclusion
focused on individual women's physical and psychological health needs, Health Technology Assessment, 7, 2003	
Madlon-Kay,D.J., DeFor,T.A., Maternal postpartum health care utilization and the effect of Minnesota early discharge legislation, Journal of the American Board of Family Practice, 18, 307-311, 2005	Comparison not of interest for review: early follow-up (within 1 week) versus none.
Mannan, I., Rahman, S. M., Sania, A., Seraji, H. R., Arifeen, S. E., Winch, P. J., Darmstadt, G. L., Baqui, A., Can early postpartum home visits by trained community health workers improve breastfeeding of newborns?, Journal of Perinatology, 28, 632-640, 2008	Country of study classified as low/middle income: Bangladesh.
McDonald, S. J., Henderson, J. J., Faulkner, S., Evans, S. F., Hagan, R., Effect of an extended midwifery postnatal support programme on the duration of breast feeding: A randomised controlled trial, Midwifery, 26, 88-100, 2010	Comparison not of interest for review: extended midwifery support versus standard midwifery support.
McGinnis, S., Lee, E., Kirkland, K., Miranda-Julian, C., Greene, R., Let's Talk About Breastfeeding: The Importance of Delivering a Message in a Home Visiting Program, American journal of health promotion : AJHP, 32, 989-996, 2018	Intervention not of interest for review: health visiting programme.
Meara, E., Kotagal, U. R., Atherton, H. D., Lieu, T. A., Impact of early newborn discharge legislation and early follow-up visits on infant outcomes in a state Medicaid population, Pediatrics, 113, 1619-1627, 2004	Comparison not of interest for review: early follow-up visit within 4 days of discharge versus later follow-up or no follow-up.
Milani, H. S., Amiri, P., Mohsey, M., Monfared, E. D., Vaziri, S. M., Malekkhahi, A., Salmani, F., Effect of health care as the "home visiting" on postpartum depression: A controlled clinical trial, International Journal of Preventive Medicine, 8 (no pagination), 2017	Comparison not of interest for review: postnatal home visitation programme versus standard of care.
Mirmolaei, S. T., Valizadeh, M. A., Mahmoodi, M., Tavakol, Z., Comparison of effects of home visits and routine postpartum care on the healthy behaviors of Iranian low-risk mothers, International Journal of Preventive Medicine, 5, 61-68, 2014	Comparison not of interest for review: postnatal home visitation programme versus standard of care.
Morrell,C.J., Spiby,H., Stewart,P., Walters,S., Morgan,A., Costs and effectiveness of community postnatal support workers: randomised controlled trial, BMJ, 321, 593-598, 2000	Comparison not of interest for review: 10 postnatal visits in the first months versus usual care.
O'Donnell, H. C., Trachtman, R. A., Islam, S., Racine, A. D., Factors associated with timing of first outpatient visit after newborn hospital discharge, Academic Pediatrics, 14, 77-83, 2014	No outcomes of interest for review.
Paul, I. M., Beiler, J. S., Schaefer, E. W., Hollenbeak, C. S., Alleman, N., Sturgis, S. A., Yu, S. M., Camacho, F. T., Weisman, C. S., A randomized trial of single home nursing visits versus office-based care after nursery/maternity discharge: the Nurses for Infants Through Teaching and Assessment After the Nursery	Comparison not of interest for review: home versus office postnatal follow up model.

Study	Reason for exclusion
(NITTANY) Study, Archives of pediatrics & adolescent medicine, 166, 263-70, 2012	
Rankin, K. M., Haider, S., Caskey, R., Chakraborty, A., Roesch, P., Handler, A., Healthcare Utilization in the Postpartum Period Among Illinois Women with Medicaid Paid Claims for Delivery, 2009-2010, Maternal and child health journal, 20, 144-153, 2016	No outcomes of interest for review.
Robling, M., Bekkers, M. J., Bell, K., Butler, C. C., Cannings-John, R., Channon, S., Martin, B. C., Gregory, J. W., Hood, K., Kemp, A., Kenkre, J., Montgomery, A. A., Moody, G., Owen-Jones, E., Pickett, K., Richardson, G., Roberts, Z. E. S., Ronaldson, S., Sanders, J., Stamuli, E., Torgerson, D., Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): a pragmatic randomised controlled trial, Lancet, 387, 146-155, 2016	Intervention not of interest for review: antenatal and postnatal care package.
Salazar, I., Sainz, J. A., Garcia, E., Marrugal, V., Garrido, R., Influence of early postpartum home visits on the detection and clinical course of postpartum depression, Progresos de obstetricia y ginecologia, 54, 65â 70, 2011	Paper published in Spanish.
Shorey, S., Ng, Y. P. M., Ng, E. D., Siew, A. L., Morelius, E., Yoong, J., Gandhi, M., Effectiveness of a Technology-Based Supportive Educational Parenting Program on Parental Outcomes (Part 1): Randomized Controlled Trial, Journal of medical Internet research, 21, e10816, 2019	Intervention not of interest for review: technology-based supportive educational parenting program.
Steel O'Connor, K. O., Mowat, D. L., Scott, H. M., Carr, P. A., Dorland, J. L., Young Tai, K. F. W., A randomized trial of two public health nurse follow-up programs after early obstetrical discharge: An examination of breastfeeding rates, maternal confidence and utilization and costs of health services, Canadian Journal of Public Health, 94, 98-103, 2003	Comparison not of interest for review: home visit versus screening telephone call.
Tandon, S. D., Ward, E. A., Hamil, J. L., Jimenez, C., Carter, M., Perinatal depression prevention through home visitation: a cluster randomized trial of mothers and babies 1-on-1, Journal of behavioral medicine, 41, 641-652, 2018	Comparison not of interest for review: one-to-one postnatal x 6 home visits versus usual care.
Yonemoto, N., Dowswell, T., Nagai, S., Mori, R., Schedules for home visits in the early postpartum period, Cochrane Database of Systematic Reviews, CD009326, 2013	No included studies with comparisons of interest for the review: no studies comparing different timing schedules of postnatal visits.
Yonemoto, N., Dowswell, T., Nagai, S., Mori, R., Schedules for home visits in the early postpartum period, Cochrane Database of Systematic Reviews, 8, CD009326, 2017	No included studies with comparisons of interest for the review: no studies comparing different timing schedules of postnatal visits.
Yonemoto, N., Dowswell, T., Nagai, S., Mori, R., Schedules for home visits in the early postpartum period, Database of Abstracts of Reviews of Effects, 5-99, 2014	No included studies with comparisons of interest for the review: no studies comparing different timing schedules of postnatal visits.

Economic studies

No economic evidence was identified for this review.

Appendix L – Research recommendations

Research recommendations for review questions:

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (single births)?

When should the first postnatal contact by midwives be made after transfer from place of birth to community care (twins or triplets)?

Research question

How does the length of postpartum stay and the timing of the first midwife visit after discharge affect unplanned or emergency health contacts for women and babies?

Why this is important

The review on the length of postpartum stay found no overall identifiable disadvantages for mothers or babies from early postnatal discharge and some advantages in terms of maternal satisfaction with care. However, no data were located about the impact of earlier discharge on unplanned, out-of-hours or emergency health contacts by women or babies. There was also a lack of data from another review about the impact of the timing of first postnatal contact by midwives on these unplanned admissions or attendances. The committee were in agreement about the relatively high financial and personal impact to families and healthcare providers of such unplanned contacts so they recommended that future research should take account of the association between early discharge and the impact on health services and the extent to which the first midwife visit interacts with this.

Table 3: Research recommendation rationale

Research question	How does the length of postpartum stay and the timing of the first midwife visit after discharge affect unplanned or emergency health contacts for women and babies?
Why is this needed	
Importance to 'patients' or the population	Whilst some women will have a personal preference for the length of their postnatal hospital stay, and obstetric or neonatal problems will be important determinants for some women and babies, the advantages and disadvantages of early discharge are unclear. The review found some evidence in favour of early postpartum discharge based on breastfeeding and dissatisfaction outcomes. However, there are no data about the impact of early discharge on health service outcomes, such as unplanned attendance or emergency admissions for either women or babies. It is possible that these negative outcomes outweigh the potential benefits. Furthermore, the timing of the first midwife visit following discharge may mitigate these negative outcomes but supporting evidence is lacking. It is therefore important to understand the impact of both early hospital discharge and early midwife visits on outcomes for the women, their babies and families.
Relevance to NICE guidance	There is currently insufficient evidence about the timing of postpartum discharge so the committee recommended that discharge timing is based on the clinical and psychological needs of women and babies and the woman's preferences. Due to the low quality and indirectness of the evidence the committee drafted recommendations about the timing of the

Research question	How does the length of postpartum stay and the timing of the first midwife visit after discharge affect unplanned or emergency health contacts for women and babies?
	first midwife visit on the basis of informal consensus. Understanding whether the timing of postpartum discharge and the first midwife visit are likely to cause unplanned health contacts will support the development of stronger, more specific future recommendations and enable clinicians to plan appropriately timed discharge and reduce adverse outcomes.
Relevance to the NHS	The timing of postpartum discharge and the timing of the first midwife visit may affect health service outcomes but this is currently unclear from the evidence. If the associations could be established through a prospective, observational study, this could lead to a change in practice and significant cost-savings for the NHS as well as an improvement in women's satisfaction with their care in the postnatal period.
National priorities	Making the best use of NHS resources and improving outcomes for women and babies is a national priority.
Current evidence base	There is currently some evidence in favour of early discharge, based on breastfeeding and dissatisfaction outcomes, however, evidence is lacking on how this impacts unplanned attendance and readmission rates. The evidence base for the timing of the first midwife contact is lacking.
Equality	It is important that the duration of postnatal hospital stay takes account of the needs and wishes of the woman and baby – those living in disadvantaged conditions my benefit from a longer hospital stay, whilst women with other caring responsibilities (e.g. older children or other dependents) may benefit from earlier discharge if adequately supported.
Feasibility	Since the proposed study design is observational the research would not require significant infrastructure.
Other comments	

Table 4: Research recommendation modified PICO table

Criterion	Explanation
Population	Women and their babies during the first 2 months after birth
Intervention (exposure)	Primary: Timing of discharge Secondary: Timing of first midwife visit
Comparator	Different timing of discharge Different timing of first midwife visit
Co-variables	• Timing of first midwife visit (for primary exposure) • Timing of discharge (for secondary exposure) • Obstetric complications • Mode of birth • Maternal characteristics • Gestational age of the baby • Birth weight of the baby
Outcomes	• Unplanned attendance in primary care for woman and/ or baby • Unplanned attendance in secondary care • Hospital readmissions for woman and/ or baby

Criterion	Explanation
	• Costs and cost-effectiveness • Morbidity (in woman, in baby) • Mortality (in woman, in baby)
Context	Postnatal period
Study design	Prospective cohort study
Additional information	In the absence of robust data, the committee drew on their own expert knowledge to recommend that the first midwife visit to should occur 12-36 after birth. Therefore, the 12-36 hour timing for the first midwife visit should be incorporated in the design of the research, namely in the secondary exposure and comparator.