

National Safe Sustainable Staffing programme

Evidence Review - maternity safe staffing improvement resource

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Background

The Secretary of State for Health has requested, by spring 2016, a refresh of the National Quality Board (NQB) Safe Staffing Guidance for Nursing, Midwifery and Care Staff. The focus of the refreshed NQB safe staffing guidance is to ensure that the guidance will support NHS decision makers to improve efficiency while also delivering the best possible quality within available resources; the guidance will include messages on safely and sustainably managing staff reductions and gaps in staff availability, and will have a focus on deliverability.

The National Safe Sustainable Staffing Guidance programme of work is being led by NHS Improvement and is being overseen by Dr Mike Durkin, National Director Patient Safety, NHS England, and Ruth May, Nurse Director, Monitor.

The updated NQB staffing guidance will become a front end document for individual care setting staffing guidance to be developed and published to the system, which will be delivered in Phase two of the national Safe Sustainable Staffing Guidance programme during 2016. In terms of scope, 8 work streams have been established to deliver the setting specific guidance, and work stream Chairs have been identified as follows:–

- Urgent and Emergency Care
- Mental Health
- Learning Disability
- Primary and Community services
- Maternity Services
- Children's services
- Inpatient wards for adults in acute hospitals
- Neonatal services

The high level scope for the improvement resource is summarised below:

- build on the existing NICE safe staffing guidance for midwifery published in 2015 and will expand the scope beyond midwifery and be multidisciplinary in focus (midwives, obstetricians, anaesthetists, maternity support workers, AHPs, doulas).
- link directly to the national maternity review. It will bring the evidence together in a single resource to support practice.
- establish the evidence to support safe and effective staffing of maternity care, including the important NICE midwifery evidence assessment. The recent NHS review of maternity services (Better Births) showed there are opportunities for staffing to improve outcomes.
- include a review of current guidance and regulation to cover all aspects of the care of women and their families during pregnancy.
- look at support for medical directors, chief nurse/directors of nursing in NHS organisations implementing the principles.

Aim

- To provide a rapid appraisal of maternity academic papers, policy, literature and NICE published evidence on safe staffing (2015). The review to include review of evidence of associations between non-nursing groups and outcomes.

- To produce a written report that provides a synthesis of the available evidence for inclusion in an appendix in the setting-specific resource.

1) NICE safe staffing guidance for midwifery

The Committee considered the following reports which are available on the NICE website.

Evidence review 1: Decision support approaches and toolkits for identifying midwife staffing requirements.

Evidence review 2: Safe midwife staffing for maternity settings: The relationship between midwife staffing at a local level and maternal and neonatal outcomes, and factors affecting these requirements.

Evidence review 3: Safe midwife staffing for maternity settings: Economic evidence review. This report systematically reviewed and assessed the economic evidence for all of the review questions covered in evidence reviews 1 and 2.

Economic modelling report: The cost effectiveness of midwifery staffing and skill mix on maternity outcomes. This report includes a statistical analysis to determine if midwifery staffing is associated with outcomes using delivery records from Hospital Episode Statistics from 2003 to 2013 linked to staffing data from the Workforce Census. An economic analysis was also developed using the statistical analysis and workforce costs.

Report on field testing of the draft guideline: presented results of testing the use of the draft guideline with midwifery staff.

The Safe Staffing Advisory Committee identified a number of gaps in the available evidence.

Some quite strong and clear evidence which suggested that maternal clinical risk influences the relationship between midwifery staffing and outcomes. That is, for women with low clinical risk, higher levels of midwifery staffing led to better outcomes than in women with high clinical risk.

There is no evidence available that reports midwifery staffing and outcomes on an individual woman and baby level or shift level. Organisational level data is available, but this aggregate data does not allow exploration of different staffing ratios on outcomes.

There is limited evidence directly identifying the relationship between midwifery staffing and maternal or neonatal outcomes. Where data is available, there is a lack of evidence establishing links between midwifery staffing levels and skill mix and outcomes.

There is no evidence about organisational factors that might modify the relationship between midwifery staffing and outcomes.

There is limited evidence about staffing, environmental and management factors that might modify the relationship between midwifery staffing requirements and outcomes.

There is a lack of evidence focusing on outcomes related to midwifery staffing levels for preconception, antenatal or postnatal care.

There is a lack of evidence on the use of decision support approaches, frameworks,

methods or toolkits for identifying midwife staffing requirements and skill mix at a local level.

There is very limited economic evidence about safe midwifery staffing in maternity settings.

There is a lack of evidence about staffing ratios for midwives working in maternity settings.

Our searches have found no further published work relevant to the questions above.

Overview of the guidance

This guideline includes recommendations on: Organisational requirements, setting the midwifery establishment, assessing differences in the number and skill mix of midwives needed and the number of midwives available, monitoring and evaluating midwifery staffing requirements.

- Focuses on the pre-conception, antenatal, intrapartum and postnatal care provided by registered midwives in all maternity settings, including: at home, in the community, in day assessment units, in obstetric units, and in midwifery-led units (both alongside hospitals and free-standing).
- Does not cover national or regional level workforce planning or recruitment, or other care providers such as medical staff or maternity support workers.
- One-to-one midwife:woman ratio for care in established labour.
- The committee did not recommend staffing ratios for other areas of midwifery care because of the local variation and lack of evidence to support setting midwife staffing ratios for other areas of care.
- There is a lack of evidence regarding the effectiveness of existing toolkits and resources for calculating safe midwifery staffing.
- Identifies organisational and managerial factors that are required to support safe midwifery staffing, and makes recommendations for monitoring and taking escalation action if there are not enough midwives available to meet the midwifery needs of needs of women and babies in the service.

Staff ratios must consider

- uplift (which may include consideration of annual leave, maternity leave, paternity leave, study leave including mandatory training and continuing professional development, special leave, and sickness absence).
- time for midwives to give and receive supervision/training in line with professional guidance.
- ability to deal with fluctuations in demand (such as planned and unplanned admissions and transfers, and daily variations in midwifery requirements for intrapartum care).
- Use local records of predicted midwifery requirements and variations in demand for midwifery staff to help plan ahead and respond to anticipated changes (for example, local demographic changes and women's preferences for place of care).

Monitoring the adequacy of midwifery staffing establishment on a day to day basis resources include baseline assessment tools, Midwifery Red Flag events and safe midwifery staffing indicators are resources suggested to monitor and act upon (see Appendix).

2) Task shifting and skillmix

Effective deployment of the *right* staff doing the *right* thing at the *right* time in the *right* place is the key to improvementⁱ. Sandall et al (2011)ⁱⁱ reviewed the available evidence published between 1993 and 2010 about the relationship between staffing levels and deployment practices and safety of care for mothers and babies. It focused specifically on the intrapartum period, and found evidence about *effective deployment* of existing staff. Although much of the evidence is mixed, and some needs to be treated with caution, there are examples that demonstrate the potential to bring about productivity gains while maintaining – and in some cases improving – safety and women’s experience of birth.

There is potential for further task-shifting – eg, to nurses and support workers – within maternity services and some of these models of staff deployment warrant further exploration. Evidence shows that midwives can effectively perform some tasks that are usually performed by medical staff (such as routine examination of newborns) without compromising safety or quality of care. However, if midwives are to take on extended roles, consideration needs to be given to how their workload should be re-organised to create time for the additional responsibility.

Evidence of the financial implications of different staffing models is limited. Isolating the staffing component of maternity costs is complex. Much of the available data originates in different countries, making comparisons particularly difficult. Mode and place of birth, as well as length of stay, have implications for staffing requirements. However, few studies have isolated and costed the staffing component. There is limited evidence around the cost-effectiveness of task-shifting, although some models, such as use of nurses in maternity services, appear to offer cost savings.

Important questions persist, in both midwifery services and in other contexts, around safety and effectiveness of task shifting. Colvin et al (2013)ⁱⁱⁱ synthesised qualitative research published between on task-shifting to and from midwives to identify barriers and facilitators to successful implementation. Studies from low-, middle-, and high-income countries (LMICs and HICs) were included. Studies reporting on interventions addressing specific task-shifting initiatives between midwives and either other health workers or other birth attendants or community-based health volunteers. Around 2/3 studies were in HIC.

Tasks shifted to midwives included: High dependency care/managing chronic or critical illness in pregnant women, Midwife-led care where the midwife is responsible for overall care, Neonatal care to maintain a continuity of care with midwife, mother and child, Genetic screening and counselling, abortion services. Tasks shifted from midwives included: Emotional support during labour, Clerical/administrative work, some clinical management duties (like monitoring postpartum bleeding). This is the first review to report implementation factors associated with midwifery task shifting and optimisation. Though task shifting may serve as a powerful means to address the crisis in human resources for maternal and newborn health, it is also a complex intervention that generally requires careful planning, implementation and ongoing supervision and support to ensure optimal and safe impact.

3) Obstetric staffing models of consultant resident cover and the outcomes of intrapartum care

There has been a broad consensus among policy makers that the duration of periods without consultant presence on the labour ward should decrease. The policy stems from a series of studies that highlighted worse outcomes for babies born outside the normal weekdays. One aspect of this debate has been on the potential benefits of 24-h-per-day consultant cover for both quality of care and the training and supervision of junior doctors.

Knight et al 2015^{iv} reviewed evidence to compare the outcomes for women and babies where continuous resident consultant obstetric cover was provided compared to other models of consultant cover, within health care systems with mixed obstetric-midwifery models of care. This systematic review of research published between 2000 and 2015 identified only six studies. All studies were of low quality with a high risk of bias, principally because they were all observational studies and no attempt was made to adjust for differences in the characteristics of the women delivering on the labour ward during the two time periods, or consultant experience, and selective outcome reporting may have occurred. Any results must therefore be treated with extreme caution.

With this in mind, the only outcome which was reported in more than one study which was statistically significantly different was instrumental delivery. The risk of instrumental delivery was 14% higher in the on call consultant group compared with the resident consultant presence group. Only three other outcomes were reported a consistent manner in more than one study: emergency caesarean delivery, spontaneous vaginal delivery and neonatal unit admission. There was no statistically significant difference in any of these outcomes between groups. The systematic review conducted has not identified sufficient research evidence comparing outcomes between a model of care in which consultant obstetricians are resident for 24 hours on labour ward and other models of consultant cover to reach robust conclusions. Thus a clear conclusion of this systematic review is that it is essential to obtain such evidence to assess whether patient safety is improved by 24 hour consultant presence on labour ward, alongside which a robust cost-benefit analysis can be undertaken.

Knight et al 2016^v carried out a multicentre cohort study using data from 19 obstetric units in the United Kingdom in 2012/2013 to examine whether rates of obstetric intervention and outcome change “out-of-hours,” i.e., when consultants are not providing dedicated, on-site labour ward cover (55.8% of births). Women who delivered out-of-hours had slightly lower rates of intrapartum caesarean section and instrumental delivery than women who delivered at times of on-site labour ward cover. There was some evidence that the severe perineal tear rate was reduced in out-of-hours vaginal deliveries. There was no evidence of a statistically significant difference between out-of-hours and “in-hours” deliveries in the rate of babies with a low Apgar score at 5 min or low cord pH.

Key study limitations include the potential for bias by indication, the reliance upon an organisational measure of consultant presence, rather than patient level, and a non-random sample of maternity units. There was no difference in the rate of maternal and neonatal morbidity according to the presence of consultants on the labour ward, with the possible exception of a reduced rate of severe perineal tears in out-of-hours vaginal deliveries. Fewer women had operative deliveries out-of-hours. Taken together, the available evidence provides some reassurance that the current organisation of maternity care in the UK allows for good planning and risk management. However there is a need for more robust evidence on the quality of care afforded by different models of labour ward staffing. (Knight et al 2016).

Clinical standards published by the RCOG in 2016^{vi} suggest there is no single staffing model which is suitable for all UK units, and that it is no longer possible to make recommendations about hours of consultant presence on the labour ward based on number of deliveries or fixed levels for consultant labour ward presence for different sizes of units. This is due to due to a

lack of evidence to support the necessity for a model of 24-hour resident consultant presence on the labour ward in the interest of women's outcomes, and variability of service provision around the country in terms of workload complexity, geography and current middle grade staffing.

However, it is strongly recommended that all consultant-led maternity units should have a minimum labour ward consultant presence during working hours Monday to Friday, with the aim of extending this to every day of the week to provide the same quality of service over seven days, in line with the aims of NHS England's seven day service standards. The focus, however, should change from meeting arbitrary levels of consultant presence to ensuring there are appropriate numbers of staff, with the appropriate competencies, available at all times. Each unit should determine the workforce required to provide a sustainable, safe, high quality service for both obstetrics and gynaecology.

4) MDT staffing models and association with outcomes

Effective multidisciplinary teamwork is synonymous with high quality maternity care given the range of knowledge and skills – and thereby disciplines - required to provide holistic care to women during and after pregnancy. This is particularly important for the growing incidence of pregnancies complicated by pre-existing or pregnancy-related medical disorders, where coordination – and integration - between disciplines across maternity and medical boundaries is critical to avoid adverse outcomes for both mother and infant. Failures in team working and communication within and between maternity health professionals are repeatedly cited as key causes of preventable adverse maternal and infant outcomes, and numerous reports, including the recent National Maternity Review (2016) state the need for MDT working to improve safety, quality and experience of maternity services.

MDT working is recommended within NICE guidance for pregnant and postnatal women with pre-existing medical conditions in general and for women with specific conditions such as diabetes. However, guidance is lacking in relation to what this means in practice (e.g. how MDTs should be configured in terms of membership, and how team members should work together in relation to degree of integration with one another, and with women), and some guidance is incongruous. For diabetes, immediate referral to “joint antenatal and diabetes clinics” is recommended; however for epilepsy, NICE guidance states that “whilst joint epilepsy and obstetric clinics may be convenient for mothers and healthcare professionals there is insufficient evidence to recommend their routine use”. One consequence is that disparate models of MDT exist across the UK in terms of breadth of expertise, degree of integration between team members, and referral pathways into and out of the MDT ^{vii}. Updated searches found evidence is slowly accruing of the structure and resultant benefit of MDT approach to maternity care (particularly for areas with high risk/complications), but studies are generally poor quality (small samples, retrospective cohort designs at risk of bias particularly confounders due to improvements over time in treatment and management of the medical disorders the women have). In summary, we do not have sufficient evidence to support how MDT should operate in maternity care in order to confer benefits to mothers, infants and the health service. The inconsistencies in provision and lack of evidence of benefit highlights the need for primary research to investigate the relationship between MDT care and outcomes for women and infants, using methods that would enable identification of the elements of MDT care that should be provided regardless of context, and those that are specific to different contexts and populations. In particular this should focus on high risk pregnancies where women have pre-existing medical conditions due to their increased risk of maternal and infant adverse events, and on the whole pathway of care from pre-pregnancy counselling through to postnatal care.

This is in contrast to MDT working in other areas, for example cancer, where a mandatory MDT structure has been established (detailing the range and expertise in membership at local and tertiary levels, frequency of meetings, which patients to discuss and when etc). The introduction of MDTs in cancer has been associated with improved timeliness to, and quality of, decision making and clinical outcomes^{viii}.

5) Toolkits for identifying midwifery staffing requirements

Determining midwifery staff requirement can be challenging, and is influenced by the number of women and neonates requiring care, the type of care needed, and the amount of time taken to provide the required care; the knowledge and experience of the midwife; the setting in which care is taking place. National recommended midwifery staffing ratios are based largely on the Birthrate Plus (BR+) planning tool, which analyses workforce requirements in terms of what women need, but does not take into account the contribution of other staff apart from midwives^{ix}.

BR+ involves calculating the case mix of women using maternity services and retrospectively allocating them to one of five categories based on complexity during labour and birth. The variables used to classify women include interventions or other factors that signify increased complexity, posing additional demands on midwifery care. The complete staffing recommendations take account of time needed for management, variability of workload, holiday, sickness, and study leave. They also account for activities that midwives perform but could arguably be delegated to others. The advantage of BR+ is that it analyses workforce requirements in terms of what women need rather than what midwives do. The process involved in classifying a hospital's case mix is intuitive and simple to grasp, while the factors used to categorise individual women are easy to collect and measure, which makes the tool highly appealing to hospital managers and commissioners of services.

BR+ has been endorsed by the RCM and others as the recommended midwifery workforce planning tool for the United Kingdom. The tool is now also used in other countries; for example, a project to test its usefulness in Australia has been in progress in New South Wales for the past three years (www.health.nsw.gov.au/nursing/midwifery.asp). Current work is assessing a detailed methodology to assess the staffing for providing Continuity of Carer (CoC) in several scenarios, the impact upon the total clinical establishment and being able to provide adequate staffing for 'core' services outside of the CoC model(s).

An evidence review of papers between 1998 and 2014 for the NICE Guideline NG4 looked at the effectiveness of Birthrate Plus compared with other decision support methods, or professional judgement for identifying safe midwifery staffing requirements and midwifery skill mix for maternity services in England. Birthrate Plus is widely used throughout maternity services in England, but there is a lack of evidence about what outcomes it influences, and whether its use contributes to improved safety. It is also unknown whether other toolkits or methods for determining staffing requirements are better (or worse) than Birthrate Plus. Further research is therefore needed to explicitly link patient safety outcomes with staffing ratios based on BR+ analyses, and establish what method should be used for determining midwifery staff requirement in a variety of maternity settings in the UK.

Conclusion

Evidence updates on midwifery staffing, obstetric staffing, task shifting and outcome and

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decision tools found very little new evidence to guide decision making. Birthrate plus tools currently being developed for continuity models may provide a useful planning tool. Currently RCOG guidance and NICE resource tools provide a useful way to assess, and act upon staffing levels.

Core search terms / strategy

We reviewed material using a search strategy using a defined search syntax of MeSH and free-text terms applied across: Medline, Medline in Process, British Nursing Index, Health Management Information Consortium, Maternity and Infant Care, Cochrane Library, Campbell Collaboration, Cochrane Central Register of Controlled Trials (CENTRAL), EPOC specialised register of trials, Cochrane Economic Evaluations, CINHAL, Social Policy and Practice (SPP), Web of Knowledge, ASSIA and Google Scholar, EPPI Centre.

Our search was limited to updating previous review material to October 2016.

We used quality appraisal tools to assess relevance and quality (ie STROBE, PRISMA, CONSORT and SQUIRE).

Results & approach to selection

As a minimum, the supplier should produce an evidence review that can be presented as a short briefing paper (2 sides) summarising the scope & nature of available evidence.

In addition, where the supplier recommends, the sub-group may wish to include reference to other core evidence based material (or full research papers) that have been reviewed and their relevant emerging themes/findings.

The intention is that this summary will then be included in the appendix of the improvement resource. The presentation and style of the summary needs to be accessible to NHS provider boards, frontline clinical leaders, ward/team managers, who are the target audience for the safe staffing improvement resources. The supplier is not expected to contribute to the main body of text in the setting specific improvement resource.

Appendix

Box 4 Safe midwifery staffing indicators

Indicators are positive and negative events that should be reviewed when reviewing the midwifery staffing establishment, and should be agreed locally.

Outcome measures reported by women in maternity services

Data for the following indicators can be collected using the [Maternity Services Survey](#):

- Adequacy of communication with the midwifery team.
- Adequacy of meeting the mother's needs during labour and birth.
- Adequacy of meeting the mother's needs for breastfeeding support.
- Adequacy of meeting the mother's postnatal needs (postnatal depression and post-traumatic stress disorder) and being seen during the postnatal period by the midwifery team.

Outcome measures

- Booking appointment within 13 weeks of pregnancy (or sooner): record whether booking appointments take place within 13 weeks of pregnancy (or sooner). If the appointment is after 13 weeks of pregnancy the reason should also be recorded, in accordance with the [Maternity Services Data Set](#).
- Breastfeeding: local rates of breastfeeding initiation can be collected using NHS England's [Maternity and Breastfeeding data return](#).
- Antenatal and postnatal admissions, and readmissions within 28 days: record antenatal and postnatal admission and readmission details including discharge date. Data can be collected from the [Maternity Services Data Set](#).
- Incidence of genital tract trauma during the labour and delivery episode, including tears and episiotomy. Data can be collected from the [Maternity Services Data Set](#).
- Birth place of choice: record of birth setting on site code of intended place of delivery, planned versus actual. Data can be collected from the [Maternity Services Data Set](#).

Staff-reported measures

- Missed breaks: record the proportion of expected breaks that were unable to be taken by midwifery staff.

- Midwife overtime work: record the proportion of midwifery staff working extra hours (both paid and unpaid).
- Midwifery sickness: record the proportion of midwifery staff's unplanned absence.
- Staff morale: record the proportion of midwifery staff's job satisfaction. Data can be collected using the [NHS staff survey](#).

Midwifery staff establishment measures

Data can be collected for some of the following indicators from the NHS England and Care Quality Commission joint [guidance to NHS trusts on the delivery of the 'Hard Truths' commitments](#) on publishing staffing data regarding nursing, midwifery and care staff levels and more detailed data collection advice since provided by NHS England.

- Planned, required and available midwifery staff for each shift: record the total midwife hours for each shift that were planned in advance, were deemed to be required on the day of the shift, and that were actually available.
- The number of women in established labour and the number of midwifery staff available over a specified period, for example 24 hours.
- High levels and/or ongoing reliance on temporary midwifery staff: record the proportion of midwifery hours provided by bank and agency midwifery staff on maternity wards. (The agreed acceptable levels should be established locally.)
- Compliance with any mandatory training in accordance with local policy (this is an indicator of the adequacy of the size of the midwifery staff establishment).

Note: other safe midwifery staffing indicators may be agreed locally.

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Front sheet

Introduction

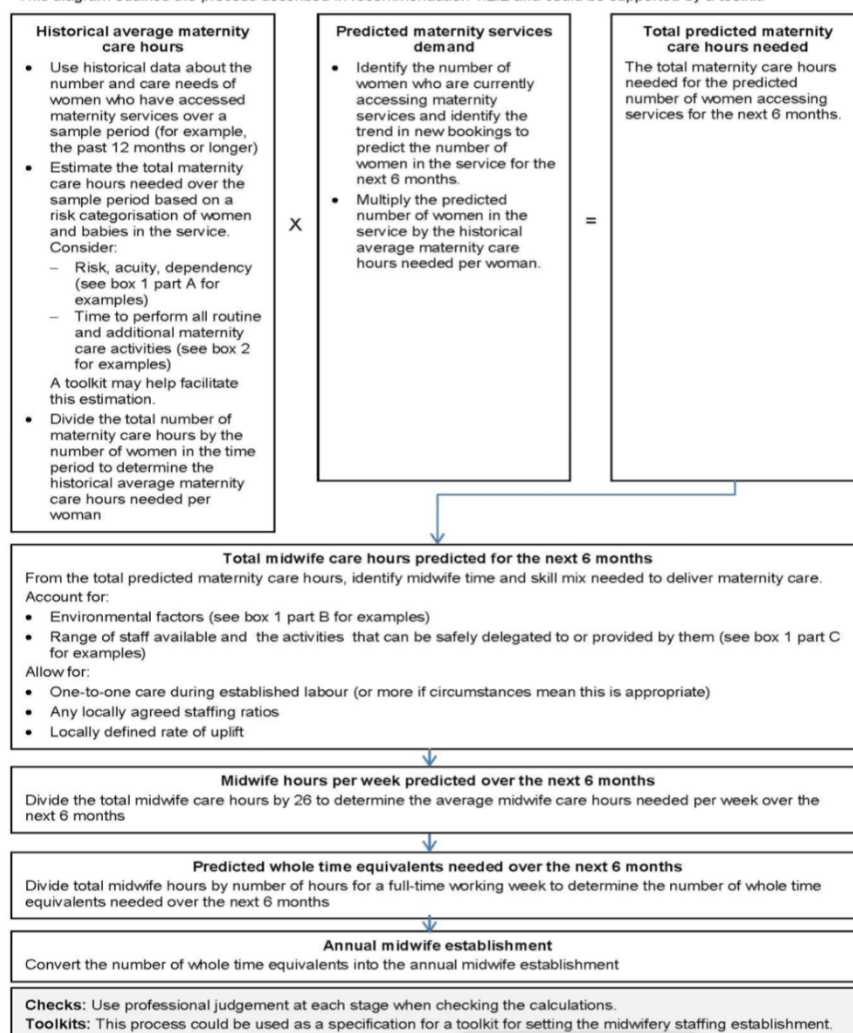
Data sheet

Fig 1, Boxes 1, 2, 3 and 4

Baseline assessment tool for Safe midwifery staffing for maternity settings (NICE safe staffing guideline NG4)

Figure 1: systematic process to calculate the midwifery staffing establishment

This diagram outlines the process described in recommendation 1.2.2 and could be supported by a toolkit.



Email



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Box 3 Midwifery red flag events

A midwifery red flag event is a warning sign that something may be wrong with midwifery staffing. If a midwifery red flag event occurs, the midwife in charge of the service should be notified. The midwife in charge should determine whether midwifery staffing is the cause, and the action that is needed.

- Delayed or cancelled time critical activity.
- Missed or delayed care (for example, delay of 60 minutes or more in washing and suturing).
- Missed medication during an admission to hospital or midwifery-led unit (for example, diabetes medication).
- Delay of more than 30 minutes in providing pain relief.
- Delay of 30 minutes or more between presentation and triage.
- Full clinical examination not carried out when presenting in labour.
- Delay of 2 hours or more between admission for induction and beginning of process.
- Delayed recognition of and action on abnormal vital signs (for example, sepsis or urine output).
- Any occasion when 1 midwife is not able to provide continuous one-to-one care and support to a woman during established labour.
- Other midwifery red flags may be agreed locally.

References

ⁱ Smith, A., & Dixon, A. (2007). The safety of maternity services in England. King's Fund. London.

ⁱⁱ Sandall, Jane, et al. "Staffing in maternity units." Getting the right people in the right place at the right time (2011), London, King's Fund.

ⁱⁱⁱ Colvin, Christopher J., et al. "A systematic review of qualitative evidence on barriers and facilitators to the implementation of task-shifting in midwifery services." *Midwifery* 29.10 (2013): 1211-1221.

^{iv} Knight M, Henderson J, Kurinczuk JJ. Evidence Review to Support the National Maternity Review 2015; Report 3: Systematic review and case studies to assess models of consultant resident cover and the outcomes of intrapartum care; and two international case studies of the delivery of maternity care. Oxford: National Perinatal Epidemiology Unit, University of Oxford; 2015. www.england.nhs.uk/wp-content/uploads/2015/07/npeu-report3-models-of-care-evidence-review.pdf

^v Knight HE, van der Meulen JH, Gurol-Urganci I, Smith GC, Kiran A, Thornton S, et al. (2016) Birth "Out-of-Hours": An Evaluation of Obstetric Practice and Outcome According to the Presence of Senior Obstetricians on the Labour Ward. *PLoS Med* 13(4): e1002000.

^{vi} RCOG (2016) Providing Quality Care for Women, Obstetrics and Gynaecology workforce, London, RCOG.

^{vii} Bick, D., Beake, S., Chappell, L., Ismail, K. M., McCance, D. R., Green, J. S., & Taylor, C. (2014). Management of pregnant and postnatal women with pre-existing diabetes or cardiac disease using multi-disciplinary team models of care: a systematic review. *BMC pregnancy and childbirth*, 14(1), 1.

^{viii} Taylor C, Munro AJ, Glynn-Jones R, Griffith C, Trevatt P, Richards M, Ramirez AJ. Multidisciplinary team working in cancer: what is the evidence?. *BMJ*. 2010 Mar 23;340:c951.

^{ix} Birthrate Plus (2010). 'Birthrate Plus: Workforce planning for midwifery services'. Birthrate Plus website. Available at: www.birthrateplus.co.uk (accessed on 5/11/16).