

Is it shift length or working practices that most effect the wellbeing of midwives and their ability to safely deliver care?

Short title: Shift length and working practices

Jackie Dent, Senior Midwifery Lecturer

Department of Health and Social Work, University of Hertfordshire, Hatfield

Corresponding author: Jackie Dent, j.dent2@herts.ac.uk, 01707 285925

Key Words: Staffing - Long shifts - Shift length – Midwives - Working patterns

Abstract

Midwives continue to experience high levels of work-related stress. Challenges in staffing and demands on services may contribute, but there are also indications that shift length or working practices may also be a factor, especially if midwives regularly work beyond their contracted hours or miss rest breaks. In the nursing literature, longer shifts have been associated with higher levels of fatigue, yet this has also been found in nurses working 8-hour shifts, due to the high number of consecutive shifts worked, suggesting that working practices also contribute to fatigue. Longer shifts have also been linked to poorer quality of care, yet this only appears significant when shifts exceed 12-hours. There are mixed views on job satisfaction which may be due to personal preferences or the availability of flexible working. However, the findings of many studies are often limited by poor quality designs and cannot easily be applied to midwifery settings, where there continues to be a lack of research in this area. Further research is required to understand the impact of shift length and working practices on the wellbeing of midwives and their ability to safely delivery care.

In 2016, the results from the NHS Staff Survey revealed that midwives reported the highest levels of work-related stress, more than any other NHS staff group (National NHS Staff Survey Co-ordination Centre, 2016). Two years on, ambulance technicians narrowly took the top spot with 51% of staff reporting this (National NHS Staff Survey Co-ordination Centre, 2018a), yet the reported levels of worked-related stress among midwives remains unchanged between the two surveys, at just under half. Interestingly, there are a number of parallels between the two staff groups: both the ambulance and maternity services face challenges in staff shortages, retention of staff, the rising complexity of care needs and often the unpredictable demand on services (Chief Nursing Officers, 2010; Royal College of Midwives (RCM), 2016; National Audit Office (NAO), 2017; NHS Digital, 2017; Office for National Statistics, 2018). Both services also provide 24-hour care, leading to a need for shift work, and while there may be a variety of shifts in operation, both use the longer 12-hour shifts (RCM, 2015; NAO, 2017).

NHS Staff Surveys provide an insight into the experiences of staff working for the NHS in England but are unable to report on the potential reasons associated with work-related stress. An individual's tolerance to shiftwork may vary, but longer shifts have been associated with greater levels of fatigue; negative effects on health and cognitive functioning; poorer performance; and increased safety concerns, especially if additional hours are worked (Health and Safety Executive (HSE), 2006; Keckland and Axelsson, 2016). However, 12-hour shifts offer the advantage of compressing the working week, as fewer shifts need to be worked, meaning that they are often a cited among nurses as a positive factor that supports the work-life balance (McGettrick and O'Neill, 2006; Ball and Pike, 2009; Chen et al, 2014; Griffiths et al, 2014). Longer shift lengths have also been promoted as a method to improve service continuity and lower costs by reducing overlap between shifts (McGettrick and O'Neill, 2006; Chen et al, 2014). Despite this, the evidence within nursing settings remains conflicting and as there is a lack of evidence on the effects of 12-hour shifts on midwives, there is a potential dilemma for employers.

As part of the ongoing national strategy for nurses, midwives and care staff to drive forward improvements in the delivery of high quality, compassionate care, NHS England (2014) called for specific research into the impact of working 12-hour shifts in order to support the evidence base around optimal staffing practices. However, despite the recognition that midwives have a key role in the implementation of the national strategy (Department of Health, 2012), the focus of the recommended research was aimed at health care assistants, nurses and patients, perhaps due to the lack of studies in midwifery settings. In 2015, the National Nursing Unit (Ball et al, 2015) published the findings of their review into the impact of 12-hour shifts for nurses working in general acute hospital wards. The results revealed mixed views on job satisfaction, with an overall trend of longer shifts being viewed negatively, particularly due to fatigue. However, it was acknowledged that many of the studies had design limitations and low external validity, which questions the generalisability of the findings, particularly to midwifery settings.

The evidence on 12-hour shifts in nursing

Job satisfaction and morale

There have been mixed findings on job satisfaction and morale. Stone et al (2006) found that there was a higher level of job satisfaction seen in nurses working 12-hour shifts and that they were over 10 times more likely to be satisfied with their shift schedules than those working 8-hour shifts. This mirrors the findings of McGettrick and O'Neill (2006), although their research found that this only applied to staff working full-time. Staff working part-time felt demotivated and deskilled as a result of fewer days at work. In contrast, a more recent study (Dall'Ora et al, 2015) found that job dissatisfaction was up to 40% more likely in nurses working more than 12-hours. They were also more likely to report dissatisfaction with the flexibility of their work schedule and almost 30% were more likely to want to leave. Other less positive findings of 12-hour shifts have been related to the ability of staff to participate in teaching, mentoring,

educational or professional development activities (Freer and Murphy-Black, 1995; Richardson et al, 2003; McGettrick and O'Neill, 2006; Dwyer et al, 2007).

Quality of Care

There does not appear to be a significant negative effect on the quality of care or number of errors when comparing 8-hour or 12-hour shifts, unless staff work more than 12-hours, whether scheduled or unscheduled (Rogers et al, 2004; Scott et al, 2006; Griffiths et al, 2014). Although, Todd et al (1989) found a lower quality of care under 12-hour shifts, there was no significant difference between 8-hour and 12-hour shifts in meeting physical needs of patients. Reid et al (1993) found mixed results in the level of direct patient care between the two shift lengths, depending on the ward reviewed. It is of note that at the time of these studies (Todd et al, 1989; Reid et al, 1993) 12-hour shifts were recently imposed on staff by management and were not generally well received, which may have led to greater dissatisfaction with working conditions. None of the studies considered the length or frequency of breaks on the longer shifts or travel to work time, which, when coupled with working longer than contracted hours, would undoubtedly affect inter-shift recovery and arguably influence performance. A systematic review (Estabrooks et al, 2009) could not conclude that there was any robust evidence to indicate poorer patient care between 8- or 12-hour shifts.

Fatigue and exhaustion

Studies examining the symptoms of fatigue, sleepiness or concentration levels of nurses working either 8-hour or 12-hour shifts (Mills et al, 1983; Fields and Loveridge, 1988; Geiger-Brown et al, 2012) often appear to show an increase in these symptoms in the longer shifts; however, with the exception of increased drowsiness and physical symptoms of tiredness (Mill et al 1983), they were not significant on analysis. Emotional exhaustion is not uncommon among nurses, regardless of shift length, yet it appears more prevalent in those working more

than 10-hour shifts (Dall'Ora et al, 2015). Similarly, incremental increases in burnout scores have been found as shift length increases, with nurses working shifts of 13 hours or more being two and a half times as likely to report burnout than nurses working 8-9 hour shifts (Witoski Stimpfel et al, 2012). Studies evaluating staff views on newly implemented 12-hour shifts in the UK found mixed views on the level of tiredness and fatigue related to shift length. Initially, Bloodworth et al (2001) found no difference in levels of fatigue between those working 8-hour shifts compared to those on 12-hour shifts, although the follow-up study (Lea and Bloodworth, 2003) appeared to show more staff reporting tiredness on long days. In their study, McGettrick and O'Neill (2006) acknowledged that 12-hour shifts can contribute to higher levels of fatigue, but they were still seen as favourable by staff, most likely related to a significant reduction in the number of consecutive shifts. Indeed, two studies that compared the opinions of staff working 8- and 12-hour shift systems (Freer and Murphy-Black; 1995; Gillespie and Curzio, 1996) found a higher reported level of tiredness, fatigue or lethargy in those working the shorter shifts. Freer and Murphy-Black (1996) do not report on the shift pattern of those continuing to work shorter shifts, but as others have reported as many as ten consecutive 8-hour shifts (Gillespie and Curzio, 1996; McGettrick and O'Neill, 2007; Richardson et al, 2007), it could be argued that it is perhaps not the shift length, but the shift pattern and ability to take rest breaks that contribute to tiredness and fatigue. When staff have been able to schedule their own shifts (thereby determining the number of consecutive shifts worked) and have been able to take a range of rest breaks during the shift, no high levels of fatigue have been found (Hazzard et al, 2013).

Summary of evidence

There are a number of design flaws in many of the studies, some of which have been highlighted. In order to fully understand the impact of 12-hour shifts it is not sufficient to rely on a simple comparison of shift length as a single indicator as there are numerous variables that need to be considered (Ferguson and Dawson, 2012). Future research should therefore

control for workforce diversity, including the age and experience of the midwife; work patterns, such as part-time working, consecutive shifts or forward rotations (e.g. from day to night shift), and the effect of missed rest breaks or reduced rest intervals between shifts.

Laws and guidance

Working beyond contracted hours and missed rest breaks

The RCM (2017) provides evidence of low morale (*Box 1*) and suggests that midwifery units are reliant on the goodwill of midwives to keep services running. Three-quarters of midwifery respondents in the 2017 NHS staff survey reported working contracted hours of 30 or more per week but working additional unpaid hours was common, with 62% working up to 5 hours a week unpaid (National NHS Staff Survey Co-ordination Centre, 2018b). The reasons for unpaid working are not explored but given that just 21% of midwives agreed that staffing was sufficient to enable them to do their job properly (National NHS Staff Survey Co-ordination Centre, 2018b), it seems a likely reason. Knock-on effects include midwives not being able to leave on time at the end of their contracted shifts or missing rest breaks, which is supported by the findings of the past three years annual surveys of Heads of Midwifery (RCM, 2015; 2016; 2017). Longer, 12-hour shifts are thought to exacerbate the problem due to the length of break required or the loss of shift overlap when shorter shifts are worked (RCM, 2015; 2016a), yet the prevalence of 12-hour shifts in maternity settings is unknown.

The NHS staff survey does not provide data on shift length in general, but a proxy measure might be obtained from the nursing profession. In 2005, it was estimated that just under a third of nurses (31%) working on hospital wards worked 12-hour shifts, rising to just over half (52%) in 2009 (Ball et al, 2015). Yet Griffiths et al (2014) reported mixed results in shift lengths of nurses in England between June 2009 and June 2010, with around one-third of shifts lasting 12-hours or more. This difference may be due to the working environment of the population surveyed or may suggest regional variations in shift length across the UK. However, Unison (2015) suggest a significant rise in the number of staff contracted to work shifts of 12 or more

hours since 2013 but, mirroring the findings above, more than half of staff working these shifts were not able to take some or any of the breaks to which they were entitled. Given the increase in prevalence of 12-hour shifts, this could mean an excessively long and potentially unsafe working day for nurses and midwives.

Box 1. Morale and motivation
<ul style="list-style-type: none">• ‘I am scared of falling out of love with midwifery like many midwives I work with’ (Student Midwife, England)• ‘Every day someone on our staff is crying, in an adult workforce this cannot be acceptable’. (Midwife, Scotland)• ‘I love being a midwife and I love caring for families. I don’t love shifts permanently short staffed, I don’t love working for over twelve hours with no break ... our goodwill will not last indefinitely.’ (Midwife, England).
Source: Royal College of Midwives (2017)

European Working Time Directive

There are potential patient safety issues if health professionals work long hours and suffer from stress and exhaustion. Employers have a legal duty to protect the health and safety of workers. The law concerning working hours, rest periods and rest breaks in the UK is governed by the Working Time Regulations [1998] and the Working Time (Amendment) Regulations [2003]. These regulations implement the European Working Time Directive (WTD) [2003/88/EC]. The WTD is designed to protect people from excessive working hours and a lack of rest periods, but there is no specific reference to the maximum length of shift, only that workers are entitled to a daily rest period of 11 consecutive hours. If midwives and nurses are working beyond their contracted hours on a 12-hour shift, they may forgo the minimum rest period when working consecutive shifts, especially when taking into account any additional travel to/from

work time. Interestingly, the WTD may even have prompted wider implementation of 12-hour shifts, as the traditional 8-hour shifts would not necessarily meet the requirements of the WTD minimum rest periods if a late shift finishing at 11pm was followed by an early shift (starting at 6am, for example).

Although the Working Time Regulations [1998] provide for a minimum 20-minute daily rest break for adults working more than 6 hours, collective or workforce agreements allow employers to modify or exclude this regulation, although they still have a duty to protect the health and safety of their employees. Given the high rates of missed rest breaks, however, it could be argued that the application of this provision is inconsistently applied within the NHS. Unexpected high activity levels within maternity units or emergency situations may affect an employer's ability to secure such rest breaks and in circumstances, rest breaks may be postponed, but not withdrawn.

Some industries, such as the road transport industry, are exempt from the Working Time Regulations, yet there are strict work and rest rules that govern the number of hours a person can drive a goods vehicle or passenger-carrying vehicle within the UK (Department for Transport, 2017), due to the increased risk of errors and the effect of fatigue on safety (Jackson et al, 2011). These rules require drivers to take an uninterrupted rest break of 45 minutes after driving for a maximum period of 4.5 hours (Department for Transport, 2017). It could be argued that the same safeguards should be robustly applied within the NHS, especially for those working long shifts (Ball et al, 2015).

Guidance on safe midwifery staffing

The high prevalence of missed rest breaks and unpaid overtime indicated in staff surveys would suggest an issue with workforce numbers. In February 2015, the National Institute for Health and Care Excellence (NICE) published its guidance on safe midwifery staffing for

maternity settings; however, the only recommendation relating to specific staffing ratios was for women in established labour who should receive one-to-one care. NICE (2015) cited variations in local arrangements for the deployment of staff and a lack of evidence on optimal staffing ratios for other areas of care as reasons why no recommendations could be made.

The National Maternity and Perinatal Audit Project Team (2017) published the first clinical report on the evaluation of midwifery and neonatal services across England, Wales and Scotland. This audit highlighted the depth of variations in models of care and in midwifery staffing across antenatal and postnatal areas, which varied from 2 to 16 beds per rostered midwife on a day shift (median=7). The ability to provide one-to-one care in labour was monitored in 84% of sites, with just over half (54%) able to achieve this.

In January 2018, the National Quality Board (NQB) published further guidance on staffing for maternity services. The NQB (2018) endorsed the NICE (2015) recommendations, including the annual and mid-point review of staffing at board level and regular review of 'red flag events', such as delayed cared or missed medication, which could indicate problems with staffing. Safe midwifery staffing indicators included staff-reported measures of missed breaks and the amount of additional work undertaken beyond contracted hours (paid or unpaid), measured through local data collection. The availability of these data may provide a more accurate representation of midwifery working practices and highlight any health and safety issues. NICE (2015) guidance is not mandatory, although midwives do have a professional duty to report any concerns regarding quality or safety issues, including inadequate or unsafe staffing and ability to work within the agreed national standards on staffing (Nursing and Midwifery Council, 2015; 2016; 2017). The manner in which midwives might escalate concerns may require refinement, for example, raising a verbal concern may seem appropriate, but it would depend on whether this is formally recorded. Given that the National Maternity and Perinatal Audit (2017) reported poor data quality in the majority of Trusts in England and Wales, it is unclear whether adequate systems and personnel are in place to formally capture any of the staff

reported measures. Robust escalation processes are expected to be in place for all 'red flag' events (NQB, 2018), but this must surely include the staff reported measures too.

Conclusion

The levels of work-related stress among midwives remain high. Although the reasons for which are unclear, it is likely to be multifactorial and include the ongoing challenges in ensuring sufficient staffing, the rising complexity of care needs, and the unpredictable demand on services. Shift length and working patterns may also play a part, especially if midwives regularly work beyond their contracted hours or miss rest breaks. The evidence on 12-hour shifts in nursing is largely drawn from studies outside of the UK and many suffer from design flaws or potential bias. Even so, the application to midwifery settings is debatable, due to differences in care populations and working environments.

There is a gap in the evidence on the effect of shift length on midwives working in hospital settings, so further research is required. As part of a PhD project, a phased approach in gathering these data is planned. The first phase, which is shortly to be launched, involves an online survey of all Heads of Midwifery across the UK, which aims to determine the most prevalent shift length and collate data on working practices in midwifery hospital settings, including data related to NICE (2015) safe staffing indicators. The second phase will involve a further national survey of all midwives working in hospital settings, aiming to assess wellbeing, job satisfaction, levels of burnout and ability to safely deliver care. Until data are available on shift length or working patterns within midwifery settings, the potential effect on midwives' midwives and their ability to safely deliver care will remain poorly understood.

Declaration of interests: *The authors have no conflicts of interests to declare*

Key phrases

- Maternity services continue to face challenges in staffing and demands on services which may contribute to the high levels of work-related stress found in midwives, yet the impact of shift length and working patterns on midwives is poorly understood
- Fatigue and burnout are associated with longer shifts but the shift pattern and ability to take rest breaks may also be contributing factors so future studies should control for these variables
- The majority of midwives regularly work beyond their contracted hours, unpaid, every week, and often miss rest breaks. NHS Trust Boards need to ensure sufficient staffing and the consistent application of the legal requirement to provide a minimum 20-minute daily rest break to support safe working environments.
- National guidance on maternity services staffing requires robust escalation processes for 'red flag' events, but this should also routinely include staff reported measures of missed rest breaks and working beyond contracted hours
- There is a lack of evidence on the impact of shift length and working practices for midwives working in hospital settings so further research is required.

- Ball J, Pike G. Past imperfect, future tense: results from the RCN employment survey. London: RCN; 2009
- Ball J, Maben J, Murrells T, Dat T, Griffiths P. 12-hours shifts: prevalence, views and impact. London: National Nursing Research Unit, King's College London; 2015.
- Bloodworth C, Lea A, Lane S et al. Challenging the myth of the 12-hour shift: a pilot evaluation. *Nurs Stand*. 2001;15(29), 33-36
- Chen J, Davis KG, Daraiseh NM, Pan W, Davis LD. Fatigue and recovery in 12-hour dayshift hospital nurses. *J Nurs Manag*. 2014; 22(5), 593–603. doi: 10.1111/jonm.12062
- Chief Nursing Officers of England, Northern Ireland, Scotland and Wales. *Midwifery 2020: delivering expectations*. London: Department of Health and Social Care; 2010
- Dall'Ora C, Griffiths P, Ball J, Simon M, Aiken LH. Association of 12 h shifts and nurses' job satisfaction, burnout and intention to leave: findings from a cross-sectional study of 12 European countries. *BMJ Open*. 2015;5,e008331. <http://dx.doi.org/10.1136/bmjopen-2015-008331>
- Department for Transport. European Union (EU) rules on drivers' hours and working time: simplified guidance. London: The Stationery Office; 2017.
- Department of Health. *Compassion in practice. Nursing, Midwifery and Care Staff: Our vision and strategy*. London: DH; 2012.
- Dwyer T, Jamieson L, Moxham L, Austen D, Smith K. Evaluation of the 12-hour shift trial in a regional intensive care unit. *J Nurs Manag*. 2007;15(7), 711-20
- Estabrooks CA, Cummings GG, Olivo SA, Squires JE, Giblin C, Simpson N. Effects of shift length on quality of patient care and health provider outcomes: systematic review. *Qual Saf Health Care*. 2009;18(3), 181-8. doi: 10.1136/qshc.2007.024232
- Ferguson SA, Dawson D. 12-h or 8-h shifts? It depends. *Sleep Med Rev*. 2012;16(6), 519-28. doi: 10.1016/j.smr.2011.11.001
- Fields WL, Loveridge C. Critical thinking and fatigue: how do nurses on 8- & 12-hour shifts compare? *Nurs Econ*. 1988;6(4), 189-95

Freer Y, Murphy-Black T. Work rotas and performance levels: evaluating the effects of twelve hour shifts against eight hour shifts on a neonatal intensive care unit. *J Neonatal Nurs.* 1995;1(4), 5-9

Geiger-Brown J, Rogers, VE, Trinkoff, AM, Kane RL, Bausell RB, Scharf SM. Sleep, sleepiness, fatigue and performance of 12-hour shift nurses. *Chronobiol. Int.* 2012;29(2), 211-19. doi: 10.3109/07420528.2011.645752

Gillespie A, Curzio J. A comparison of a 12-hour and eight-hour shift system. *Nurs Times.* 1996;92(39), 36-9

Griffiths P, Dall'Ora C, Simon M et al. Nurses' shift length and overtime working in 12 European countries. The association with perceived quality of care and patient safety. *Med Care.* 2014;52(11), 975-81. doi: 10.1097/MLR.000000000000233

Hazzard B, Johnson K, Dordunoo D, Klein T, Russell B, Walkowiak P. Work- and nonwork-related factors associated with PACU nurses' fatigue. *J Perianesth Nurs.* 2013;28(4), 201-9. <https://dx.doi.org/10.1016/j.jopan.2012.06.010>

Health and Safety Executive. The development of a fatigue/risk index for shiftworkers. Norwich: HMSO; 2006

Jackson P, Hilditch C, Holmes A, Reed N, Merat N, Smith L. Fatigue and road safety: a critical analysis of recent evidence. London: Department for Transport, 2011

Keckland G, Axelsson J. Health consequences of shift work and insufficient sleep. *BMJ.* 2016;355:i5210. <https://doi.org/10.1136/bmj.i5210>

Lea A, Bloodworth C. Modernising the 12-hour shift. *Nurs Stand.* 2003;17(19), 33-6

McGettrick KS, O'Neill MA. Critical care nurses – perceptions of 12-h shifts. *Nurs Crit Care.* 2006;11(4), 188-97

Mills ME, Arnold B, Wood CM. Core-12: a controlled study of the impact of 12-hour scheduling. *Nurs Res.* 1983;32(6), 356-61

National Audit Office. NHS ambulance services: report by the comptroller and auditor general. 2017. <https://www.nao.org.uk/report/nhs-ambulance-services/> (accessed 27 August 2018)

National NHS Staff Survey Co-ordination Centre. Staff survey 2015 detailed spreadsheets: key findings. 2016. <http://www.nhsstaffsurveys.com/Page/1019/Latest-Results/Staff-Survey-2015-Detailed-Spreadsheets/> (accessed 19 April 2016)

National NHS Staff Survey Co-ordination Centre. Staff Survey 2017 detailed spreadsheets: key findings. 2018a. <http://www.nhsstaffsurveys.com/Page/1064/Latest-Results/2017-Results/> (accessed 23 August 2018)

National NHS Staff Survey Co-ordination Centre. NHS staff survey 2017 detailed spreadsheets: question level data. 2018b. <http://www.nhsstaffsurveys.com/Page/1064/Latest-Results/2017-Results/> (accessed 23 August 2018)

National Institute for Health and Care Excellence. Safe midwifery staffing for maternity settings [NG4]. London: NICE; 2015

National Maternity and Perinatal Audit Project Team. National maternity and perinatal audit: organisational report 2017. London: RCOG; 2017

National Quality Board. Safe, sustainable and productive staff: an improvement resource for maternity services. 2018. https://improvement.nhs.uk/documents/1353/Safe_Staffing_Maternity_final_2.pdf (accessed 27 August 2018)

NHS Digital. NHS vacancy statistics England: February 2015 – September 2016, provisional experimental statistics. 2017. <http://www.content.digital.nhs.uk/catalogue/PUB23154> (accessed 23 August 2018)

NHS England. Compassion in practice: two years on. 2014. <https://www.england.nhs.uk/wp-content/uploads/2014/12/nhs-cip-2yo.pdf> (accessed 2 June 2016).

Nursing and Midwifery Council. The Code: Professional standards of practice and behaviour for nurses and midwives. London: NMC; 2015

Nursing and Midwifery Council. NMC briefing: appropriate staffing in health and care settings. 2016. <https://www.nmc.org.uk/about-us/policy/position-statements/safe-staffing-guidelines/> (accessed 31 August 2018)

- Nursing and Midwifery Council. Raising and escalating concerns: Guidance for nurses and midwives. London: NMC; 2017
- Office for National Statistics. Births in England and Wales: 2017. 2018.
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthsummarytablesenglandandwales/2017> (accessed 20 August 2018)
- Reid N, Robinson G, Todd C. The quantity of nursing care on wards working 8- and 12-hour shifts. *Int J of Nurs Stud*. 1993;30(5), 403-13
- Richardson A, Dabner N, Curtis S. Twelve-hour shift on ITU: a nursing evaluation. *Nurs Crit Care*. 2003;8(3), 103-8
- Richardson A, Turnock C, Harris L, Finley A, Carson S. A study examining the impact of 12-hour shifts on critical care staff. *J Nurs Manag*. 2007;15(8), 838-846. doi: 10.1111/j.1365-2934.2007.00767.x
- Rogers AE, Hwang W, Scott LD, Aiken LH, Dinges DE. The working hours of hospital staff nurses and patient safety: both errors and near errors are more likely to occur when hospital staff nurses work twelve or more hours at a stretch. *Health Aff*. 2004;23(4), 202-12. doi: 10.1377/hlthaff.23.4.202
- Royal College of Midwives. The Royal College of Midwives submission to the NHS pay review body. London: RCM; 2015
- Royal College of Midwives. Evidence to the NHS pay review body. London: RCM; 2016
- Royal College of Midwives. Evidence to the NHS pay review body. London: RCM; 2017
- Scott LD, Rogers AE, Hwang W-T, Zhang Y. Effects of critical care nurses' work hours on vigilance and patients' safety. *Am J Crit Care*. 2006;15(1), 30-7
- Stone PW, Du Y, Cowell R et al. Comparison of nurse, system and quality patient care outcomes in 8-hour and 12-hour shifts. *Med Care*. 2006;44(12), 1099-106
- Todd C, Reid N, Robinson G. The quality of nursing care of wards working eight and twelve hour shifts: a repeated measures study using the MONITOR index of quality of care. *Int J of Nurs Stud*. 1989;26(4), 359-68

Unison. Unison's staffing levels survey 2015. Red alert: unsafe staffing levels rising. London: Unison; 2015

Witkoski Stimpfel A, Sloane DM, Aiken, LH. The longer shifts for hospital nurses, the higher levels of burnout and patient dissatisfaction. *Health Aff.* 2012;31(11), 2501-9. doi: 10.1377/hlthaff.2011.1377