

In this article...

- Potential risks of longer ward shifts on patients and staff outcomes
- Different aspects of shift work that may negatively affect patient and staff outcomes
- What the evidence allows us to conclude

Shift work in hospitals: what are the effects on patients and staff?

Key points

Many UK hospitals are moving to shifts of 12 hours or longer to reduce staffing costs

Long working hours are correlated with fatigue and decreased alertness

Some staff prefer 12-hour shifts, but the net effect on retention is uncertain

The evidence does not allow us to conclude that 12-hour shifts cause harm, but patient and staff wellbeing may decrease with longer working hours

Risks associated with shift work need to be carefully managed

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Abstract Hospitals work around the clock, which means that they need staff to work shifts. Concerns have been raised about the consequences of some shift patterns, in particular 12-hour shifts, for both patients and staff. This article provides an overview of the evidence on the effects, on patient and staff outcomes, of shift length and other factors such as overtime, weekly work hours, night work/rotating shifts and rest opportunities.

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NHS hospitals provide a 24-hour service, which means shift work is often a necessity. The efficient and effective deployment of staff to deliver this 24-hour service poses many challenges. Many UK hospitals are moving to shifts of 12 hours or longer to reduce costs while maintaining or even enhancing quality. This appears to allow them to achieve savings by moving from three to two shifts per day, reducing handovers, minimising overlap and extending night shifts, which often have lower staffing levels.

The introduction of 12-hour shifts has raised concerns: long working hours are correlated with fatigue and decreased levels of alertness, potentially resulting in more adverse events (Geiger-Brown et al, 2012; Barker and Nussbaum, 2011). However, shift length is only one of several factors to consider when organising shift work. This article provides an overview of the evidence on how patient and staff outcomes are affected by factors such as shift length, overtime, weekly work hours, night work, rotating shifts, and rest opportunities.

Data sources

We searched MEDLINE, CINAHL, PsycINFO, SCOPUS and the Cochrane Library using terms such as 'shift work/pattern/length', 'work schedule' linked with terms such as 'safety', 'error', 'satisfaction', 'burnout', 'quality', 'performance', 'efficiency', 'stress'. We identified extensive literature across many occupational groups; most studies were cross-sectional and a small number were intervention studies. We selected three recent reviews of shift work in nursing as core sources (Dall'Ora et al, 2016; Clendon and Gibbons, 2015; Harris et al, 2015).

Shift length

Large studies from Europe, the UK and the US report that when nurses work shifts of 12 hours or longer, they are more likely to report poor quality nursing care and reduced patient safety (Griffiths et al, 2014; Stimpfel and Aiken, 2013; Stimpfel et al, 2013).

There is evidence that 12-hour shifts are associated with increased error rates (Clendon and Gibbons, 2015) and increased levels of omitted nursing care (Griffiths et al, 2014), so any direct cost savings from a



two-shift system could be offset by a loss of productivity and adverse outcomes.

Studies correlating long shifts with increased fatigue and decreased alertness come from a wide range of industries (Dall'Ora et al, 2016). While performance deficits have been associated with all shifts longer than eight hours, it is not clear that there is a consistent linear decline (Griffiths et al, 2014). The effects of shift length may be job-specific (Dall'Ora et al, 2016).

Some nurses prefer 12-hour shifts because they benefit from more days off and increased flexibility (Stone et al, 2006). However, studies give a mixed picture: some have shown increased job satisfaction with longer shifts (Stone et al, 2006), but larger and more recent studies show lower job satisfaction, increased burnout and intention to leave the job (Dall'Ora et al, 2015; Stimpfel et al, 2012). Some nurses may be prepared to sacrifice job satisfaction for personal benefits (Dall'Ora et al, 2015). None of the reviews cited recent, good-quality evidence on actual turnover or sickness rates. Limited and dated evidence suggests that educational opportunities may be reduced under 12-hour shifts for both student nurses (Reid et al, 1991) and staff (McGettrick and O'Neill, 2006).

While there is clear evidence of risks associated with longer shifts, 12-hour shifts in particular, few studies considered multiple shift work factors concurrently. This means that results may be confounded or that factors not considered might mitigate adverse effects.

Overtime and weekly hours

Studies on overtime report an association between overtime working and impaired job performance in terms of increased likelihood of making errors, reduced cognitive function, and reporting of poor quality of care, poor patient safety and higher rates of missed care (Griffiths et al, 2014; Olds and Clarke, 2010; Rogers et al, 2004). One study reported that voluntary paid overtime was also associated with increased odds of making errors (Olds and Clarke, 2010). Working more than 40 weekly hours is associated with negatively affecting nurses' job satisfaction and performance, including reports of errors and harms to both patients and staff (Artazcoz et al, 2009). Long working hours of nurses have been associated with increased patient mortality (Trinkoff et al, 2011).

Night work

While night shifts are inevitable, night work done as part of a rotating shift

schedule has been associated with disrupted performance and safety indicators (Han et al, 2014; Niu et al, 2013) and working fixed night shifts can be associated with increased job dissatisfaction (Burch et al, 2009).

Rest opportunities

Opportunities to rest during and between shifts are important determinants of fatigue and alertness, although most of the evidence on this subject is from outside healthcare (Dall'Ora et al, 2016). More 'quick returns' after a shift (<11 hours between two shifts) appear to be associated with pathological fatigue in nurses (Flo et al, 2014). However, none of the studies captured the quality of the rest period in terms of the activities performed during breaks or days off.

Conclusions

Shift work is multifaceted. Much of the evidence relates to the effect of 12-hour nursing shifts; since the evidence comes from observational studies, it would be wrong to firmly conclude that 12-hour shifts cause harm. However, the evidence does establish that there may be risks to both patient and staff wellbeing that increase in parallel with increasing daily and weekly working hours. There may also be a reduced efficiency.

Research on the economic consequences of 12-hour shifts is lacking, even though cost saving is a key reason for their introduction. While some staff express a preference for 12-hour shifts, the net effect on retention is uncertain. Much like night shifts, long shifts may be necessary for operational reasons.

Risks associated with shift work need to be carefully managed and attention given to factors such as excess working hours and overtime, cumulative working hours with no rest days, missing breaks during shifts, and short breaks between shifts. Rosters need to be carefully managed and scrutinised. Staff should be enabled and encouraged to take planned breaks. Fixed shift patterns where the above risk factors are minimised may be an option to improve patient safety. **NT**

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