

# The association of nurses' shift characteristics and sickness absence

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# Disclaimer

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# Background



- Characteristics of shift work (e.g. shift length, night work) are believed to affect nurses' wellbeing (Dall'Ora et al, 2015; Stimpfel et al, 2012)
- Shift work characteristics that impact nurses' wellbeing have never been studied together (Dall'Ora et al, 2016)
- Previous studies used self reported measures and have failed to take into account shifts prior to adverse outcomes (i.e. cross-sectional studies)

# Study Aim

- To investigate the association between shift work characteristics in acute hospital wards and nurses' sickness absence
- Sickness absence → valid indicator of wellbeing, when wellbeing is understood in terms of physical and social functioning (Kivimaki et al. 2003)



From *kvgo.nl*

# Study setting

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- Large acute care general hospital trust (approximately 800 beds) in the Wessex area.
- All adult acute inpatient general wards (n = 32)
- Excluded: maternity services, paediatric units; intensive care units; emergency department; ambulatories; day units; theatres; discharge lounges
- Study dates: 1 April 2012 – 31 March 2015

# Methods

- Retrospective observational study using routinely collected data on ward nurses' shifts patterns and nurses' sickness absence
- Data source: Electronic Rostering system, directly linked to payroll  
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Bank shifts dataset (NHS P)
- The two datasets were linked to have a complete picture of shifts that nurses worked in the hospital
- Info on: type of shifts worked (e.g. E, L, N, LD); hours worked; shifts' dates, start and end time; missed shifts due to sickness absence; name of the ward and band for all nursing staff employed by the hospital

# Data analysis



- Nurses' ids were pseudoanonymised
- Hierarchical generalised linear mixed models were used to measure the association between nurses' shift characteristics and sickness absence
- Sickness absence: sickness episode (i.e. sickness spell)
- Calculated for the 7 days prior to a sickness episode: number of long shifts ( $\geq 12$  h); number of bank shifts; number of night shifts; number of worked shifts; total number of hours worked

# Results



- We accessed 543,719 shifts, worked by 1997 staff members (1312 RNs and 685 HCAs). Of these shifts, 33,415 (6.1%) were bank shifts.
- There were 8066 sickness episodes. 345 staff members never called in sick
- Absence length ranged from 1 day to 496 days



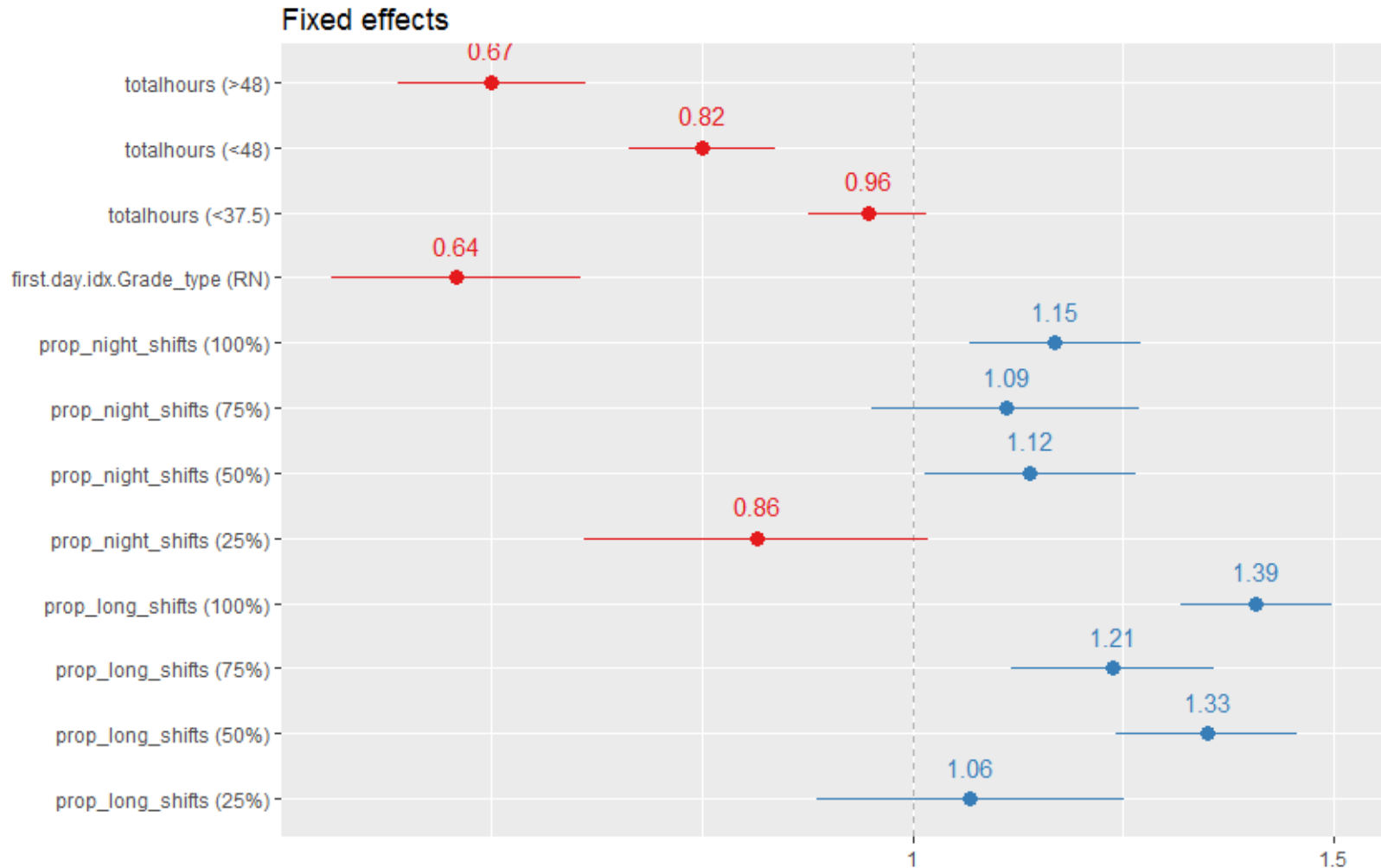
# Association of shift characteristics and sickness absence

Model variables	OR	95% CI
<b>Scheduled shift ≤ 8 h (reference category)</b>		
>8-<12 h	0.99	0.92-1.08
≥12 h	1.20*	1.13-1.28
<b>Number of long shifts over past 7 days</b>	1.06*	1.04-1.08
<b>Number of bank shifts over past 7 days</b>	0.70*	0.66-0.75
<b>Number of worked shifts over past 7 days</b>	0.89*	0.88-0.91
<b>Grade (RN)</b>	0.63*	0.56-0.71

Generalised linear mixed model; random effects: ward and nurse id

\* If both sides of the 95% CI of the OR are greater than 1, or both sides are less than 1, the result is considered significant

# Association of shift characteristics and sickness absence (with proportions)



# Discussion

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- Working  $\geq 12$  h shifts is associated with an increased likelihood of calling in sick. Nurses may prefer them, but at what cost?



- Consequences for patients: shifts covered by agency nurses (safe?)
- Consequences for nurses: decreased wellbeing
- Consequences for the NHS: higher costs → Sickness absence costs £2.4 bn a year to the NHS

# Discussion (2)

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- Bank shifts: caution, findings do not mean that working bank shifts is associated with less sickness → healthy worker effect
- HCAs were 40% more likely to call in sick. Resorting to HCAs because of reduced staffing costs may yield the opposite result!

# Limitations

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- Unable to capture important nurse variables: age, gender, years in shift work, non-work commitments (e.g. childcare, care of relatives)
- Single site: results may be population specific
- Unable to establish causation

# Conclusions

- 12 h shifts are here to stay, but how should they be implemented?
- Future studies should take into account nurses' demographics, years in shift work and should explore further outcomes

## About a Nurse



*"No, your mom isn't rehearsing for the next 'Night of the Living Dead' movie. She always looks like that after working four 12-hour shifts."*

From: allnurses.com

# References



Dall'Ora C, Ball J, Recio-Saucedo A and Griffiths P (2016) Characteristics of shift work and their impact on employee performance and wellbeing: A literature review. *International Journal of Nursing Studies*; 57: 12-27

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# Any questions?



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