

Appendix D: Time sheet data and our methodology

Time sheet data

Time period variation	<p>We analysed at least 3 years of time sheet data from the 3 audited hospitals. We looked at data for all staff except for doctors at Austin Health.</p> <p>This is because Austin Health could not give us doctors' time sheets. It gave us doctors' fortnightly payroll data instead.</p> <p>This limited our analysis of Austin Health doctors to weekly hours worked, not fortnightly schedules.</p> <p>Time sheet data we received spanned from 1 January 2019 to 31 December 2022. It varied slightly between hospitals:</p> <ul style="list-style-type: none">• Austin Health: 1 January 2019 to 31 December 2022• Barwon Health: 1 January 2019 to 15 August 2022• Central Gippsland Health: 12 January 2019 to 13 November 2022.
------------------------------	--

Methodology

Better-practice guidance	<p>In the absence of guidelines from the department, we used better-practice guidance from other sources to assess fatigue risks. This includes guidance from:</p> <ul style="list-style-type: none">• WorkSafe's Working Well in Wellington project• Queensland Health's <i>Fatigue risk management systems</i> implementation guideline• Former Industry and Investment New South Wales's <i>Fatigue Risk Management Chart</i>.
---------------------------------	---

Weekly hours worked	<p>We took the following steps to assess weekly hours worked:</p> <ul style="list-style-type: none">• We calculated the hours each employee worked per shift.• We organised this data by week and employee to see the hours each employee worked per week.• We identified the median hours worked of the entire population.
----------------------------	---

Fortnightly fatigue risk criteria

Figure D1 lists the 9 criteria we used to calculate employees’ risk of fatigue in a fortnight.

Figure D1: Criteria to assess fortnightly fatigue risk

Criterion	Medium risk	High risk
Hours worked: the total hours worked over a fortnight	96 to 109 hours	110 hours or more
Number of breaks: the number of days off over a fortnight	1 day off	0 days off
Length of breaks: the amount of time between shifts*	8 hours or less	6 hours or less
Rest after a night shift**: the amount of time off after a night shift	14 hours or less	12 hours or less
Consecutive shifts: the number of working days without a break	7 consecutive days	8 or more consecutive days
Consecutive night shifts: the number of night shifts without a break	4 or 5 consecutive days	6 or more consecutive days
Long shifts: the length of shifts	10–14 hours	14 hours or more
Split shifts: days where staff were rostered on for more than one shift	Medium risk only	
Last shift before break is not an early shift: rosters where staff did not have a day shift before 2 or more consecutive days off	Medium risk only	

Note: *We did not include shifts less than 1 hour in our analysis. **A night shift is typically defined as a shift that ends in the early morning hours. Source: VAGO based on Queensland Health’s *Fatigue risk management systems* implementation guideline.

Rating fatigue risk

We identified a fatigue risk event when a time sheet entry met any of the 9 criteria. We gave the event a severity score – 1 for medium risk and 2 for high risk. We then analysed fatigue risk per fortnight to examine how often staff had a low, medium or high risk of fatigue.

Analysing attrition

We took the following steps to analyse attrition rates:

- We separated employees into 3 groups – those who had left and those who had stayed.
- For those who had left, we examined their last 6 months of time sheets.
- We then randomly sampled 6 months’ worth of time sheets from employees who were still employed.
- We compared the fatigue risk levels of these 2 datasets.
- We applied a statistical test to the data to see if the difference in the average severity score was random or not.