

Shift work costs us all

The problem:

Society needs shift workers to function. Yet working nights does a number on the body, including heightening the risks of cardiovascular disease, diabetes, and cancer. Moreover, shift workers often end up fatigued on the job, increasing risks to themselves and others.

Shift workers experience a chronic form of jet lag: their brain doesn't know what time zone it's supposed to be in. And it doesn't get better the longer they're on the job: the most experienced nurses are often among the most poorly adapted to working night shifts.¹

The solution:

Shift work's problems are caused by a body that's at the wrong time. We're a timing solution engine. We track shift workers through their devices, and make timing recommendations, like when to get light, when to try to sleep, when to eat, when to take melatonin, and best times for exercise. These recommendations are customizable for the individual and designed to work around their night shift schedule.

Our app, *Shift*, is all about **when**. Following our recommendations helps shift workers sleep more, adjust faster before and after a shift, and feel better.

Higher risk, lower retention, and chronic illness

\$20 billion

Yearly cost of medical errors in the United States in 2008.²

8.8—37%

Turnover rates for nurses across the geographic U.S. and nursing specialties.³

\$82,000

Cost to replace a single nurse.⁴

38%

Physicians who are fatigued are 38% more likely to report making a major medical error.⁵

\$4.6 billion

Costs due to physician turnover and reduced clinical hours due to burnout each year in the United States.⁶

\$1.3 million

Excess annual health costs due to chronic illness caused by shift work at a company of 2,647 employees.⁷

References

- ¹ Karen L Gamble, Alison A Motsinger-Reif, Akiko Hida, Hugo M Borsetti, Stein V Servick, Christopher M Ciarleglio, Sam Robbins, Jennifer Hicks, Krista Carver, Nalo Hamilton, et al. Shift work in nurses: contribution of phenotypes and genotypes to adaptation. *PloS one*, 6(4):e18395, 2011.
- ² Charles Andel, Stephen L Davidow, Mark Hollander, and David A Moreno. The economics of health care quality and medical errors. *Journal of health care finance*, 39(1):39, 2012.
- ³ Lisa M Haddad, Pavan Annamaraju, and Tammy J Toney-Butler. Nursing shortage. *StatPearls [Internet]*, 2020.
- ⁴ Cheryl Bland Jones. Revisiting nurse turnover costs: Adjusting for inflation. *JONA: The Journal of Nursing Administration*, 38(1):11–18, 2008.
- ⁵ Daniel S Tawfik, Jochen Profit, Timothy I Morgenthaler, Daniel V Satele, Christine A Sinsky, Liselotte N Dyrbye, Michael A Tutty, Colin P West, and

Tait D Shanafelt. Physician burnout, well-being, and work unit safety grades in relationship to reported medical errors. *Mayo Clinic Proceedings*, 93(11):1571–1580, 2018.

- ⁶ Shasha Han, Tait D Shanafelt, Christine A Sinsky, Karim M Awad, Liselotte N Dyrbye, Lynne C Fiscus, Mickey Trockel, and Joel Goh. Estimating the attributable cost of physician burnout in the United States. *Annals of Internal Medicine*, 170(11):784–790, 2019.

- ⁷ Megan McHugh, Dustin D French, Mary M Kwasny, Claude R Maechling, and Jane L Holl. The impact of shift work and long work hours on employers' health care costs. *Journal of occupational and environmental medicine*, 62(12):1006, 2020.