

The Association Between Nurse Shift
Patterns and Nurse-Nurse and Nurse-
Physician Collaboration in Acute Care
Hospital Units

March, 13, 2019





Acknowledgement

Sigma Theta Tau International Honor Society of Nursing (STTI) for funding this study (Funding ID: 10361)

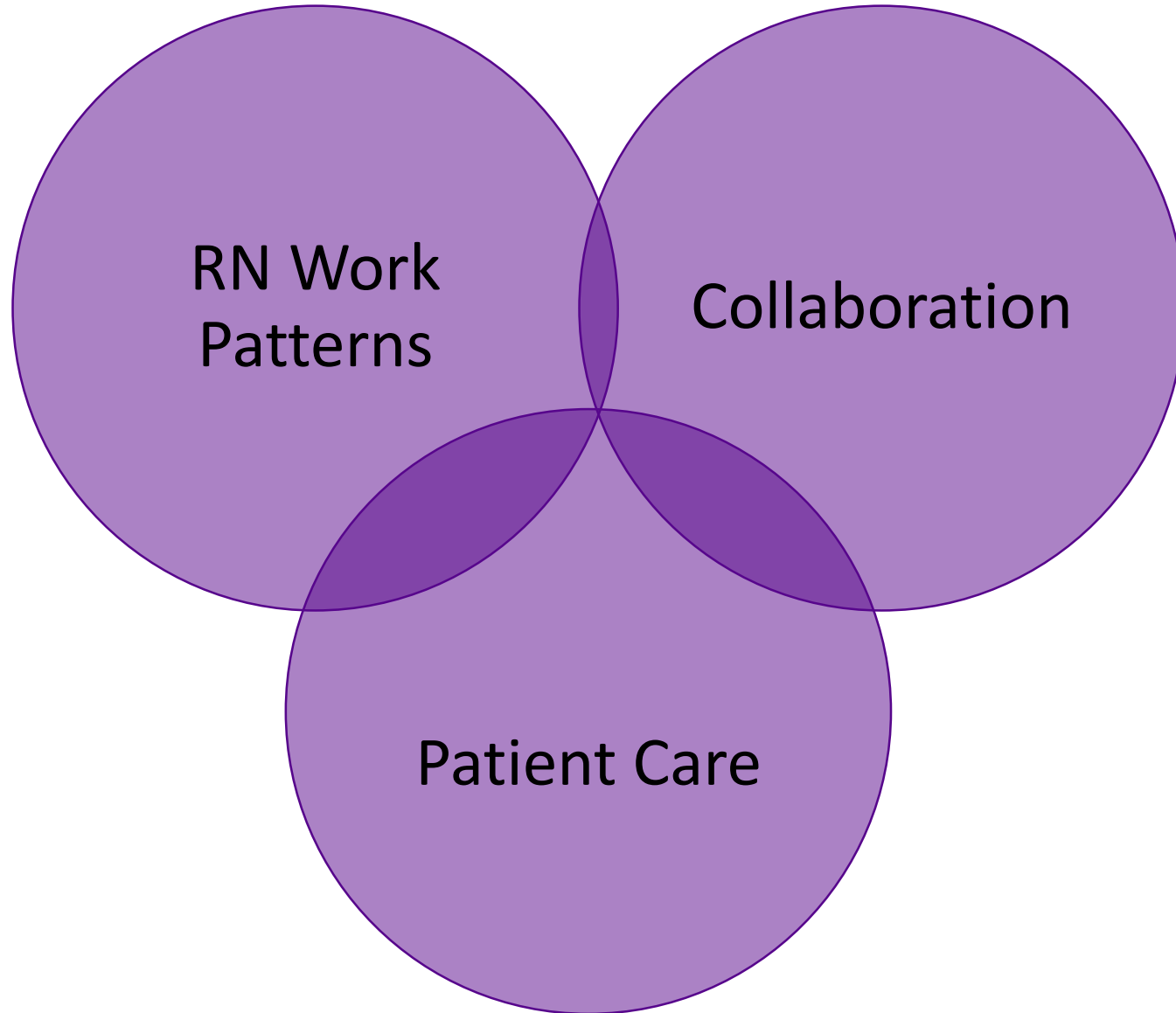
Press Ganey Inc. for access to the NDNQI data

Kronos Incorporated for organizing this webinar

Dr. Emily Cramer for assisting us in obtaining the NDNQI data

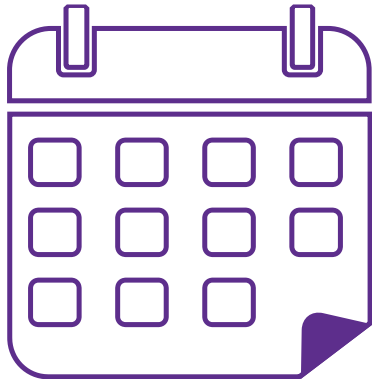
Disclosure:

Neither STTI or Press Ganey were involved in any stage of the study





Hospital Nurses Work Patterns



12-hour shifts are dominant

Shift over-runs are common

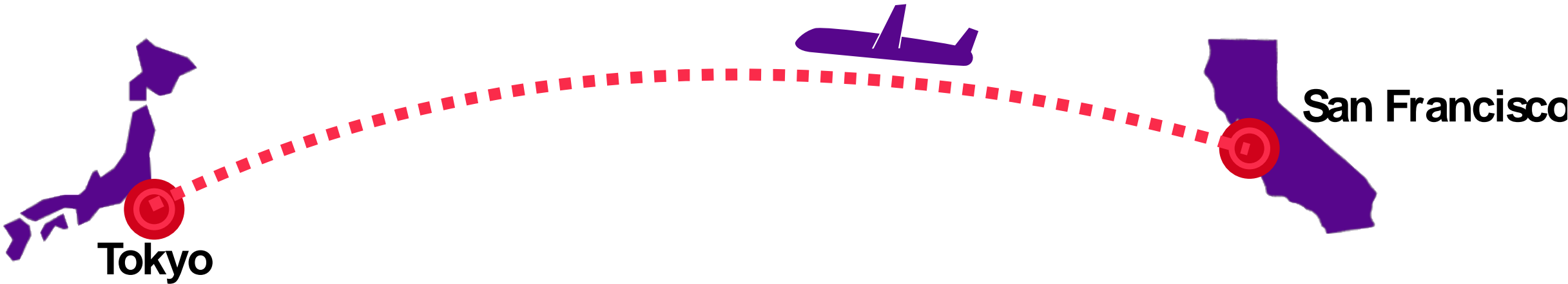
Voluntary and mandatory overtime vary

24/7 care requires night shift and rotating shift schedules





So what?





Collaboration




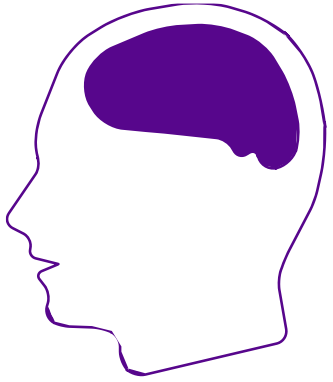
an interactional process in which different parties in a team share objectives, responsibility, decision making, and power, in order to accomplish team goals¹

Critical component of patient safety and patient-centered care



Conceptual Framework

Shift work, work stress, and overtime can all lead to sleep loss for nurses,^{2,3,4}  collaboration becomes more difficult because of impaired emotional, social, and cognitive processing





The purpose

To examine the impact of nurse shift patterns on nurses' collaboration with nurses and physicians in US acute care hospital units using the RN Survey from the National Database of Nursing Quality Indicators (NDNQI).

Research Methods

Data source:

Registered Nurse (RN) Survey from the National Database of Nursing Quality Indicators

Study population:

Responses from 24,013 RNs:

Analytical sample: 957 adult units from 168 hospitals





Methods

Measures (unit level):

Collaboration:

- Nurse-nurse collaboration by nurse-nurse interaction scale

- Nurse-physician collaboration by nurse-physician interaction scale

Nurse shift

- Nurse shift length on a unit

- Overtime (hours) on a unit

- Proportion of nurses worked overtime on a unit

- Proportion of nurses perceived an increase in overtime on a unit over the past year

Methods

Plan for data analyses:

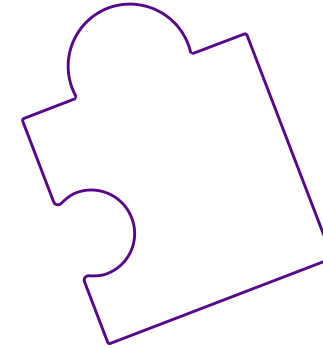
Standard descriptive analyses

ANOVA

Multilevel linear regression

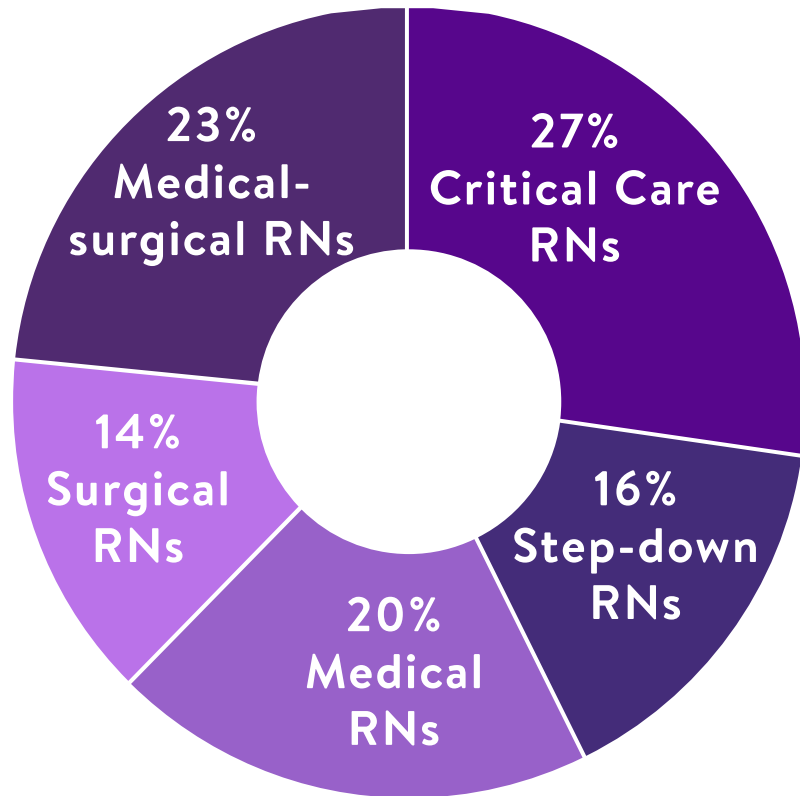
Controlling for unit and hospital characteristics: e.g., patient-to-nurse ratio, unit type, hospital ownership

Adjusted for clustering of units with hospitals



Results

Characteristics of Nurse Respondents (n=24,013)



Age: 37.6 ± 11.3 years

Years as RN: 10.0 ± 9.7 years

Years on current unit: 5.7 ± 6.3 years

Female: 89.1%

White: 68.6%

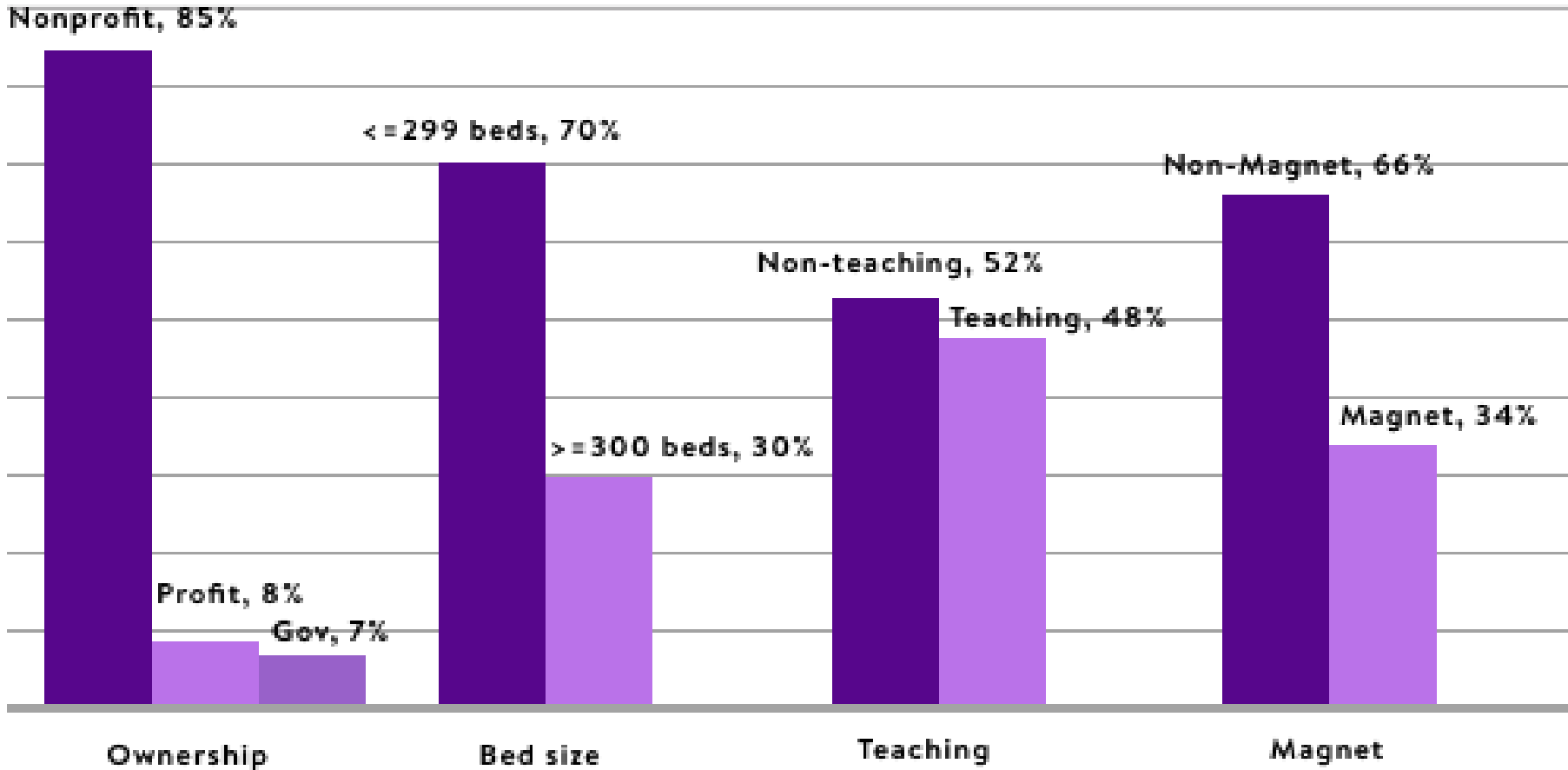
BSN: 68%

Specialty certified: 64.2%

Full-time: 83.9%

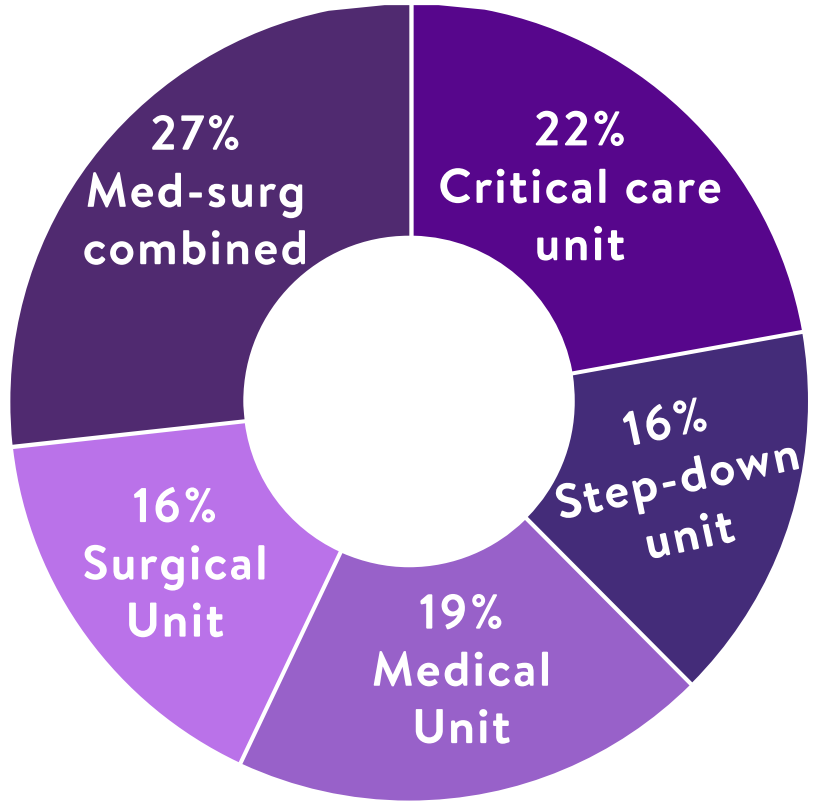
Results

Characteristics of study hospitals (n=168)



Results

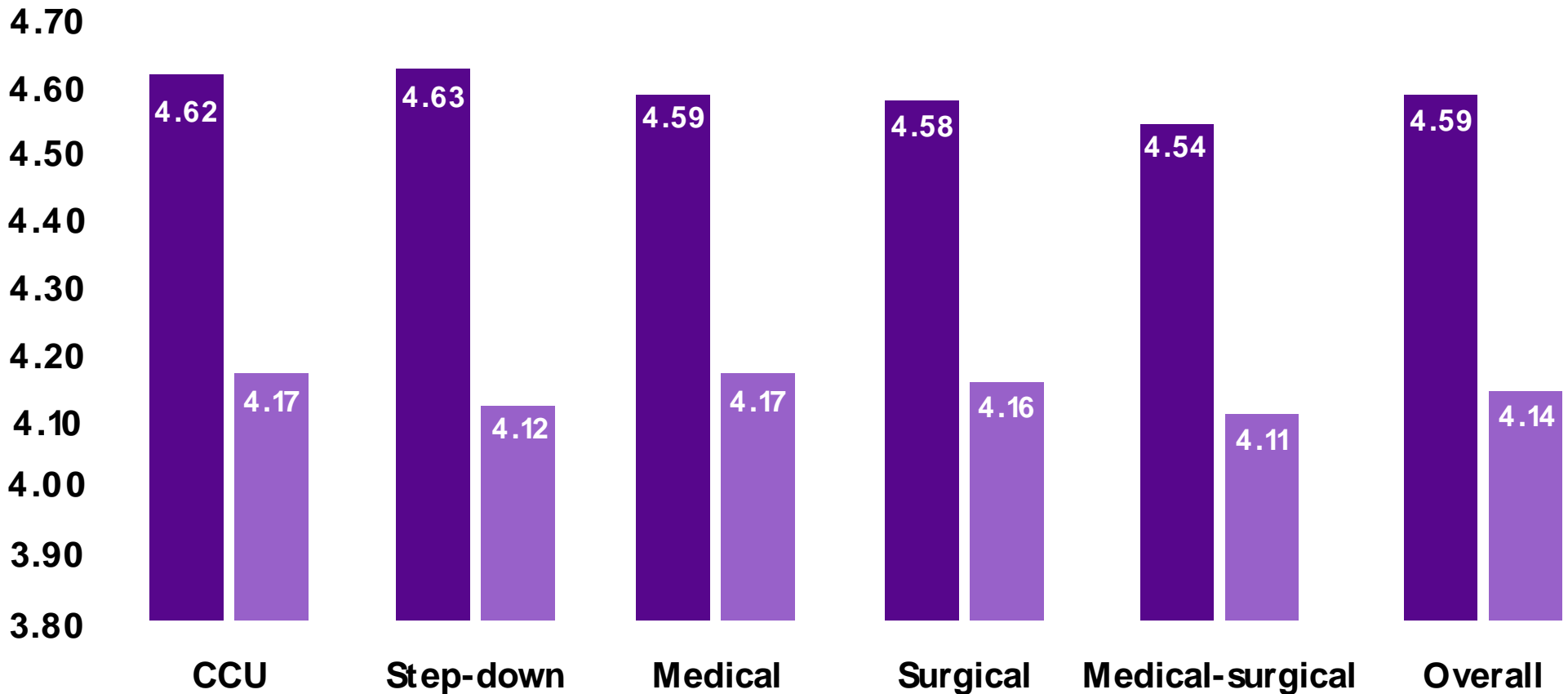
Study units, n=957



Unit nurse staffing: 5.01 ± 1.70 patients per nurse

Results

Collaboration by unit type



Results

Nurse Shift by Unit Type						
	Overall	Critical care	Step-down	Medical	Surgical	Med-surg
Shift length (hours)*	11.88(0.97)	12.17(0.47)	12.17(0.55)	11.71(1.15)	11.76(1.08)	11.65(1.14)
Overtime (hours)*	0.37(0.35)	0.30(0.29)	0.32(0.35)	0.40(0.35)	0.47(0.33)	0.38(0.38)
Proportion of nurses worked overtime*	0.33(0.20)	0.28(0.18)	0.31(0.20)	0.34(0.20)	0.38(0.21)	0.34(0.21)
Proportion of nurses perceived an increase in overtime in the past year	0.35(0.26)	0.38(0.26)	0.38(0.27)	0.34(0.27)	0.36(0.27)	0.32(0.24)

*p<0.05

Results

Association between unit nurse shift pattern and collaboration

	Nurse- Nurse Interaction		Nurse-Physician Interaction	
	Coef.	95% CI	Coef.	95% CI
Shift length (hours)	-0.01	-0.04 - 0.02	-0.01	-0.06 - 0.05
Overtime (hours)	-0.17***	-0.24 - -0.11	-0.13	-0.26 - 0.00
Proportion of nurses worked overtime				
2 nd Quartile	-0.02	-0.08 - 0.04	0.08	-0.04 - 0.19
3 rd Quartile	-0.07*	-0.13 - -0.01	-0.03	-0.16 - 0.10
4 th Quartile	-0.12**	-0.19 - -0.05	-0.02	-0.16 - 0.12
Proportion of nurses perceived an increase in overtime in the past year				
2 nd Quartile	-0.01	-0.06 - 0.04	-0.06	-0.18 - 0.06
3 rd Quartile	-0.07**	-0.13 - -0.02	-0.05	-0.18 - 0.08
4 th Quartile	-0.15***	-0.21 - -0.09	-0.31***	-0.44 - -0.18

*p<0.05, **p<0.01, ***p<0.001

Discussion

Summary of findings

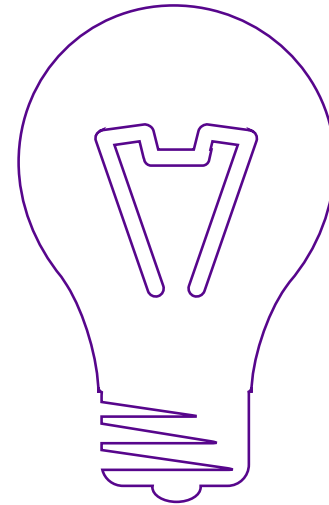
12 hour shifts dominant & shift over runs common

Overtime significantly associated with collaboration

Next steps

Link to patient outcomes

Expand to more hospitals and settings





Strategies for Front Line Staff

Limit number of consecutive shifts and voluntary overtime

Rotate in a forward pattern (if rotating shifts)

Get adequate rest before and between shifts

Use caffeine strategically

Wear blue light blocking sunglasses on the way home and blue light blocking app for smartphones (night shift) and use an app to reduce blue light from smart phone, tablet (night shift)

Maintain a healthy sleep environment (quiet/white noise, dark, cool, no electronics)

Seek supportive work environments that allow breaks, limit overtime & excessive consecutive shifts, have adequate staffing



Strategies for Managers

Monitor schedules for excessive number of shifts/flips between days/night

Use technology to help manage schedules and staffing

Create a culture of safety where staff can say 'no' to overtime

Provide professional development on sleep hygiene, managing shift work, shift work sleep disorder

Partner with physicians to educate staff on effective collaboration

Create opportunities for continuing education across disciplines on successful collaboration

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Thank you

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