

The relationship between inpatient cardiac surgery mortality and nurse staffing

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Content

- First preview Belgian RN4CAST-data
- Nurse staffing & patient safety cardiac surgery patients



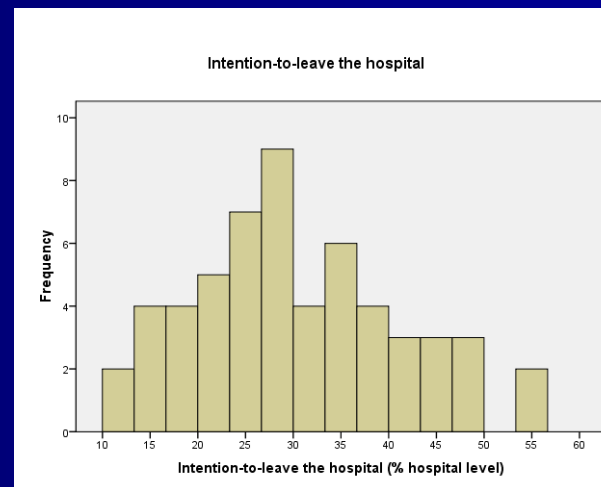
Study sample

- 56 hospitals, 272 nursing units
- 3186 respondents (Response rate: 72%)



Intention-to-leave the hospital

- If possible, would you **leave your current hospital** within the next year as a result of job dissatisfaction?
 - **29.5%**



Hospital level variation intention-to-leave				
Min	25th Pctl	50th Pctl	75th Pctl	Max
13.11	21.18	28.57	37.48	55.88



Associations Nursing Work Environment & intention-to-leave

Lower intention-to-leave in hospitals with a better nursing work environment (i.e. staffing & resource adequacy and strong nursing leadership)

	Intention-to-leave the hospital	
	Odds ratio	P-value
Gender	0.84	0.1990
Age	0.98	0.0649
Experience	0.99	0.4681
Staffing & Resource adequacy	0.25	p<0.05
Nurse-physician relation	-	-
Nurse leadership	0.49	p<0.05
Nurse foundations Quality of Care	-	-
Nurse participation	-	-



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Objective & Sample

■ Objective:

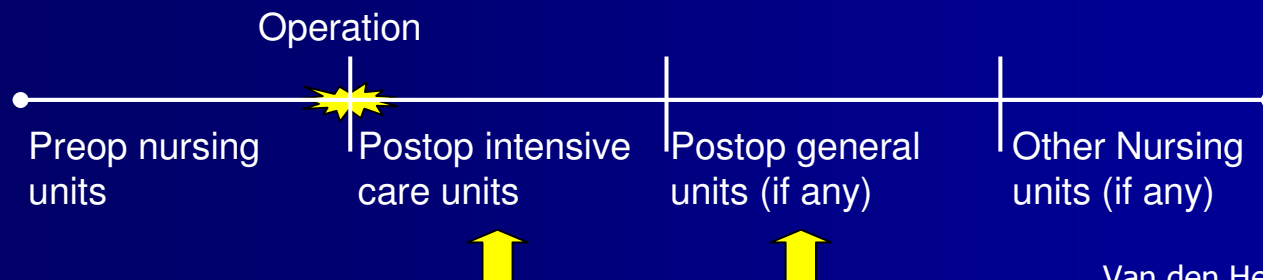
- To evaluate the association between nurse staffing levels and adverse events in cardiac elective surgery patients
- Using Routinely collected administrative databases

■ Sample:

- 28 hospitals; 9,054 patients aged 20 to 85 years admitted for **elective cardiac surgery** (Heart valve procedures & CABG)

■ Adjustment for differences in

- patient characteristics (age, gender, DRG, ROM); nursing intensity; Volume procedures



Results

- Consistent **significant associations** between **nurse staffing levels** on general postoperative surgical nursing units and **in-hospital mortality**
- Clinical impact?
 - **Simulating the impact** of setting NHPPD of postoperative general units **to the 75th percentile**
 - **44 patients would not have died**
 - This corresponds to **4.9 fewer deaths per 1000 patients admitted** for elective cardiac surgery.



Economic evaluation?

- Increasing NHPPD to the level of the 75th percentile:
 - 22.4 FTE nurses
 - Total cost: 1,211,022 Euro
 - Cost per saved life: 26,372 Euro
 - Cost per life-years gained: 2,639 Euro
- Cost per life-years gained for the implementation of 5 new technologies in the cardiovascular patient population:
 - 5,650 to 66,399 Euro (Califf et al., 2000)



Conclusion

- First Belgian RN4CAST-results illustrate associations between the **nursing work environment and intention-to-leave**, in line with North-American evidence
- Previous research illustrates **important associations between nurse staffing & in-hospital mortality**

