Investments in Nursing Save Lives

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Supported by National Institute of Nursing Research

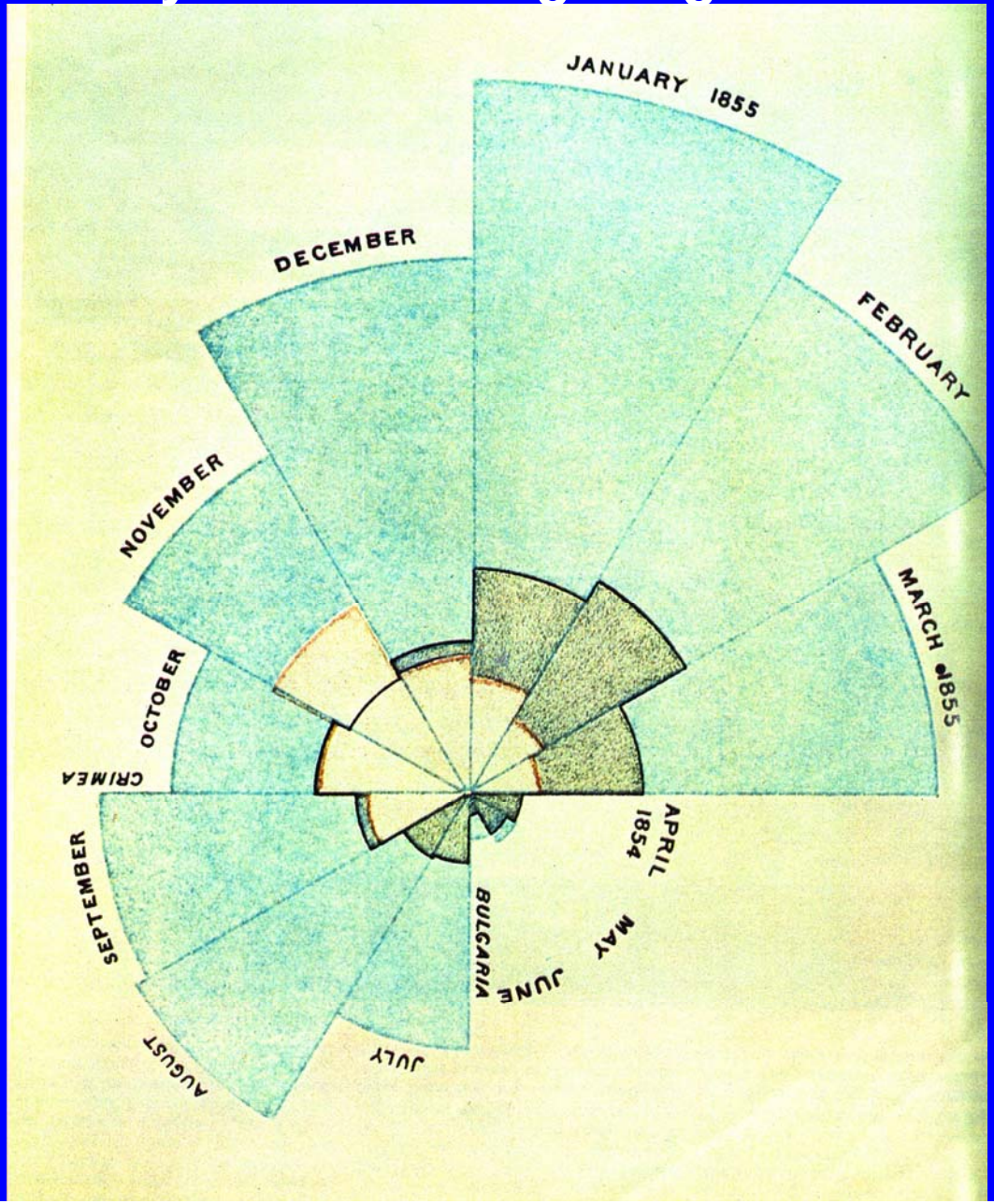
Preventable Deaths in British Military Hospitals during Crimean War, 1855 by Florence Nightingale

Key

Blue – Preventable Deaths

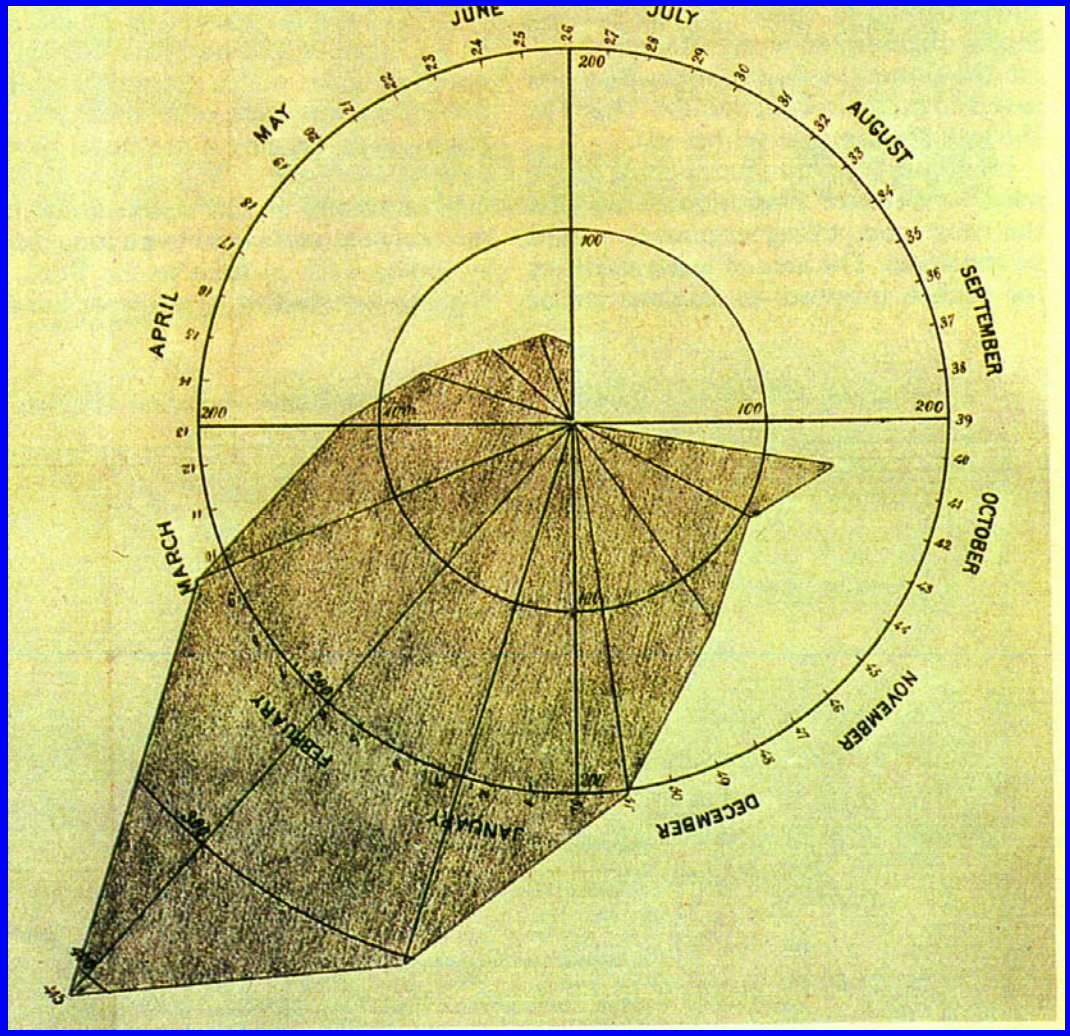
Pink – Deaths from Wounds

Gray – Deaths, all other causes



Source: Notes on Matters Affecting the Heath, Efficiency and Hospital Administration of the British Army, 1858.

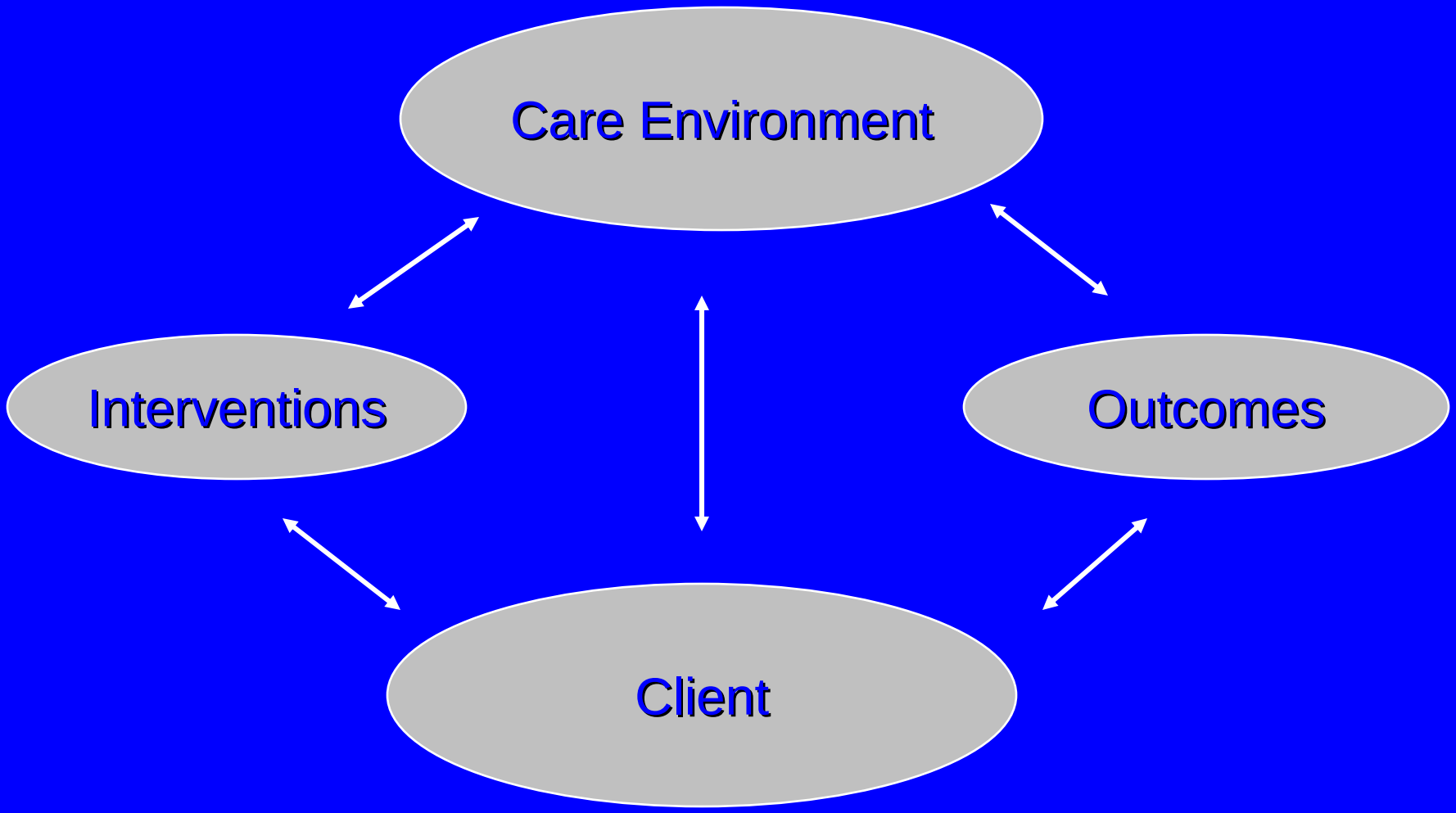
Mortality at Scatari Declined Sharply After Improvements in Care Environment Under Nightingale's Influence, 1855



Death rate peaked in February 1855 at mortality rate of 43% of cases treated.
Reforms began in March and within 6 months the mortality rate was 2%

Source: Cohen, Florence Nightingale. Scientific American 250(3) March 1984.

The Quality Health Outcomes Model



Source: Adapted from Donabedian by American Academy of Nursing (Mitchell et al.,*: J. Nursing Scholarship* 30:43-46, 1998

Link Between Nursing and Risk of Error and Failure to Rescue

- Nurses are the surveillance system for prevention and early detection of adverse occurrences, and leading edge of rescue efforts
- Surveillance is compromised by inadequate **nurse staffing** & **education, poor communication, operational failures that erode vigilance**
- Once a problem is identified, organizational features of care **environment** (doctor-nurse communication, nurse involvement in hospital policies) determine the success of patient rescue.

Latent Errors Compromise Surveillance

- Latent system errors are managerial decisions that set the stage for active errors:
  - Centralized HR decision making; understaffing; failure to correct operational failures in clinical care; culture of poor team communication; under education of managers and clinicians
- Triggers at bedside: interruptions, concurrent emergencies, communication failures, inexperience, fatigue, burnout, chaos

Onerous Nurse Workloads and Chaotic Environments: Errors Waiting to Happen

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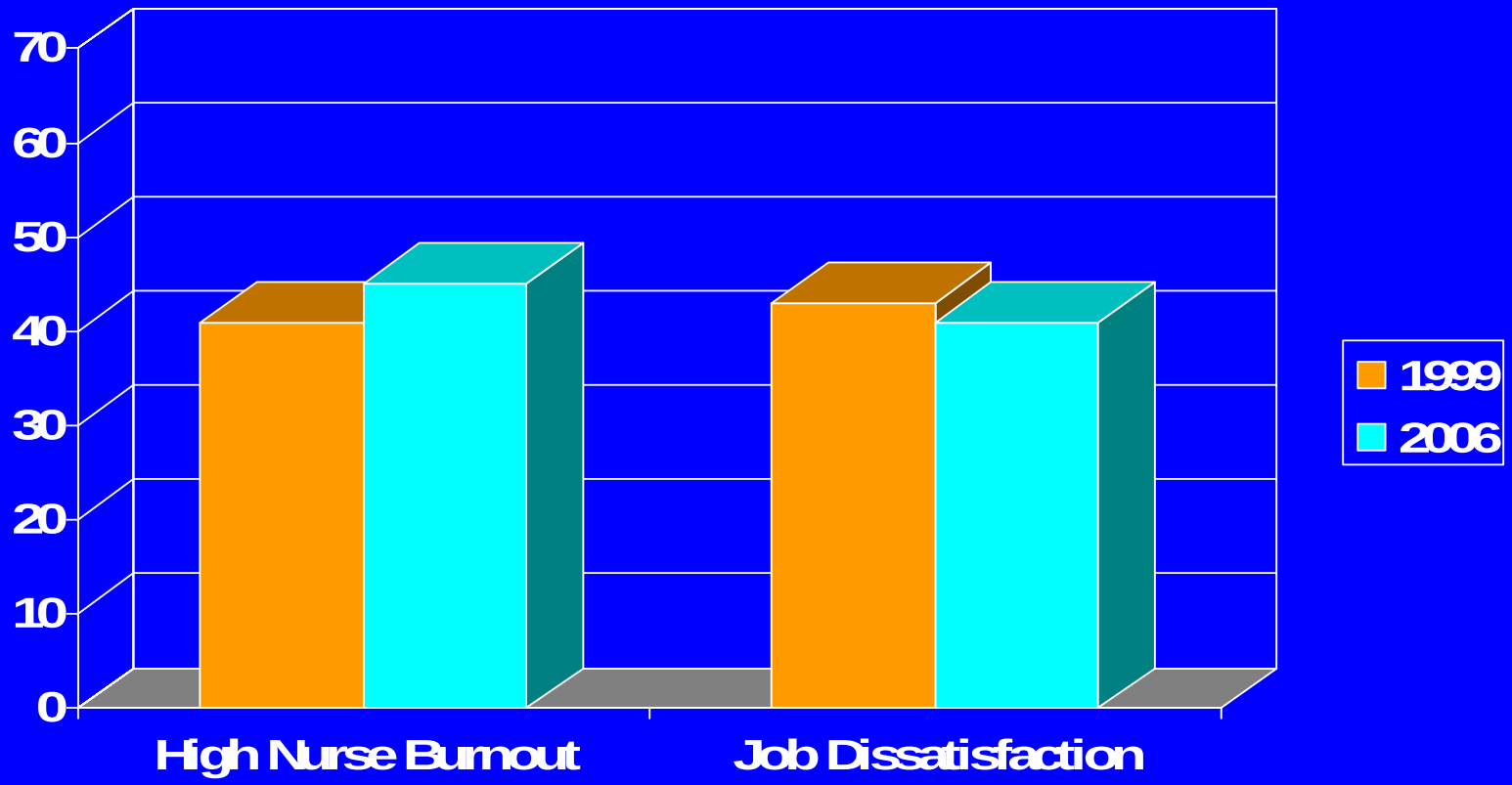
Hospital Nurse Burnout and Job Dissatisfaction: Trends 1999 and 2006

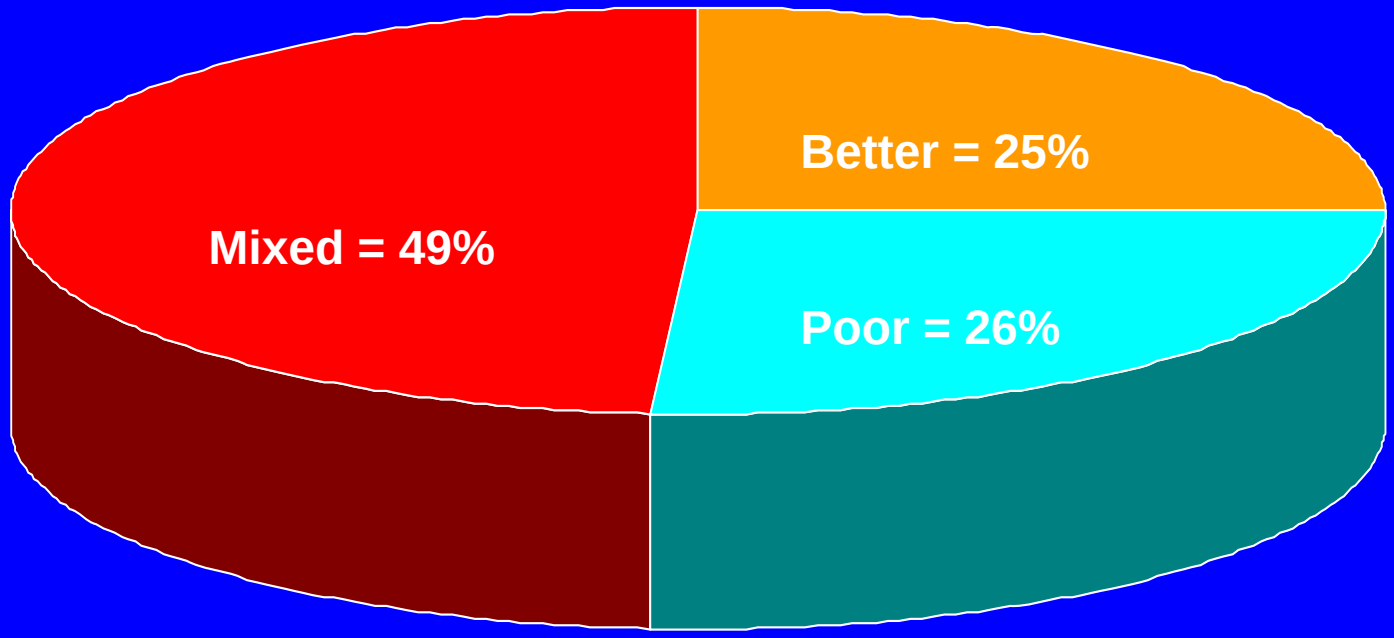


Measuring Patient Care Environment

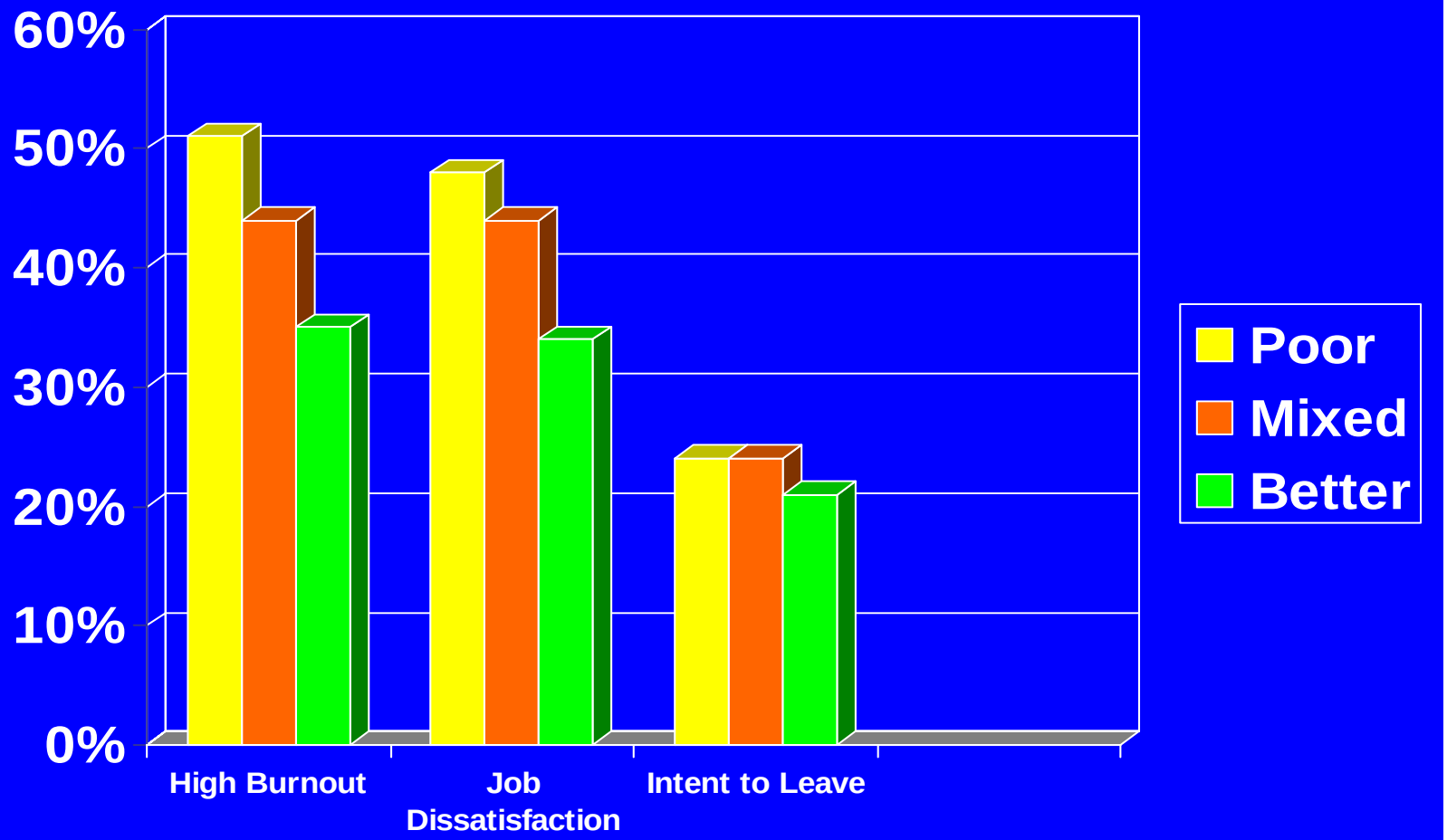
Aiken and Patrician, *Nursing Research*, 2000; Lake, *Research in Nursing & Health*, 2002

- Practice Environment Scale, a survey-based instrument, selected by National Quality Forum as a Quality Indicator, taps 5 organizational domains:
  - Staffing adequacy
  - Manager ability & leadership
  - Nurse-physician relations
  - Clinical staff involvement in hospital affairs
  - Quality assurance

Distribution Hospitals by Quality of Patient Care Environment



Percent Distribution Hospital Nurse Outcomes by Quality of Care Environment



Nurse Burnout and Job Dissatisfaction Highly Associated with Patient Satisfaction

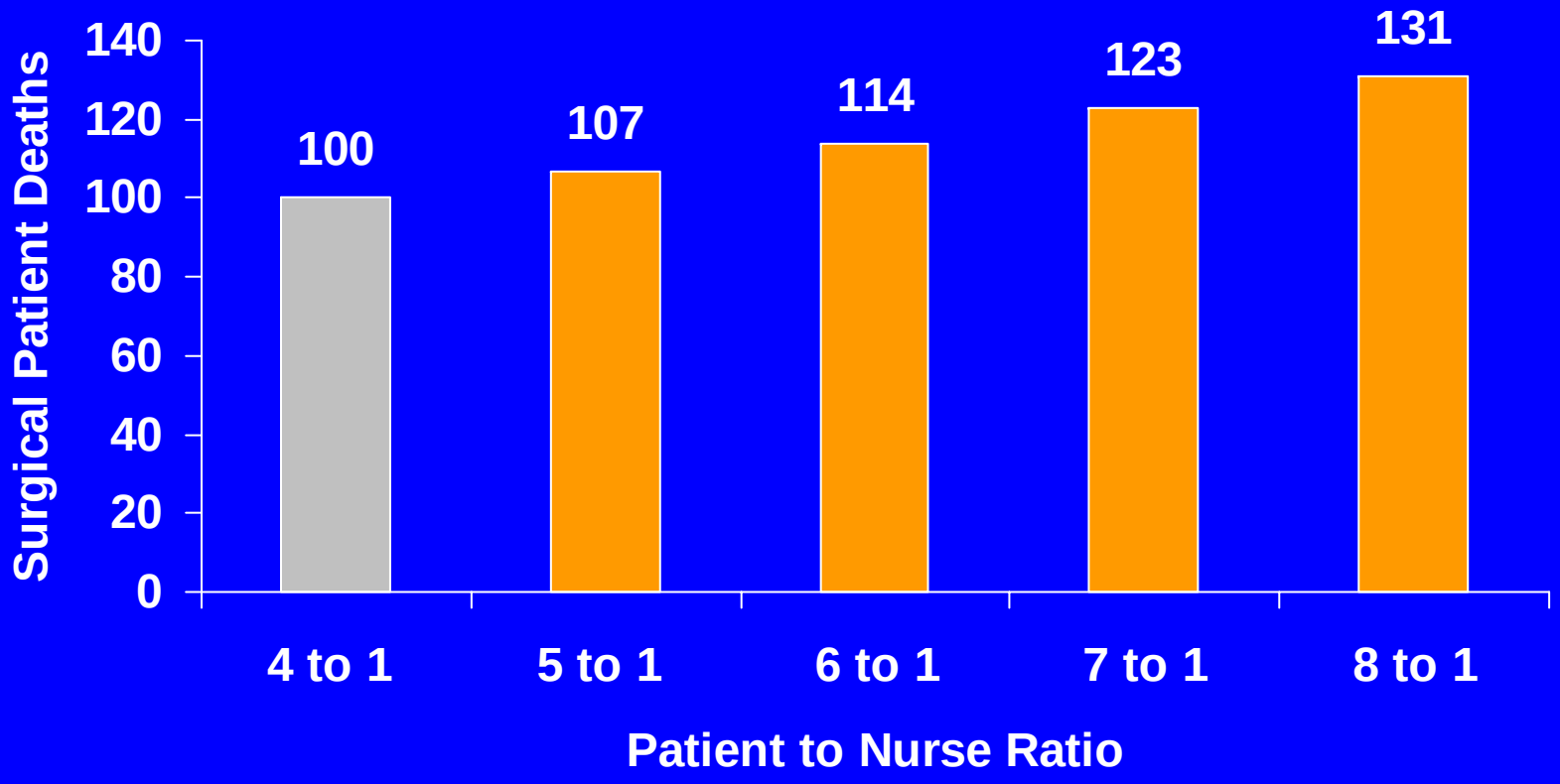
- Patient satisfaction is significantly lower in hospitals with poorer care environments
- Same factors linked to nurse burnout (understaffing, operational errors, poor nurse & physician communication) are associated with patient dissatisfaction
- Particularly important in view of CMS payment increases for higher patient satisfaction

Hospital Nurses' Reports that Medical Errors Occur Frequently by Poor versus Better Care Environments

	Occur Frequently
Medication errors	73% more likely
Patient falls with injuries	90% more likely
Nosocomial infections	55% more likely

For every 100 surgical patients who die in hospitals with 4 to 1 patient to nurse ratios, the number that would die in hospitals with higher ratios would be be…

(L. Aiken et al. JAMA 2002)



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Variation in Nurses' Education and its Consequences

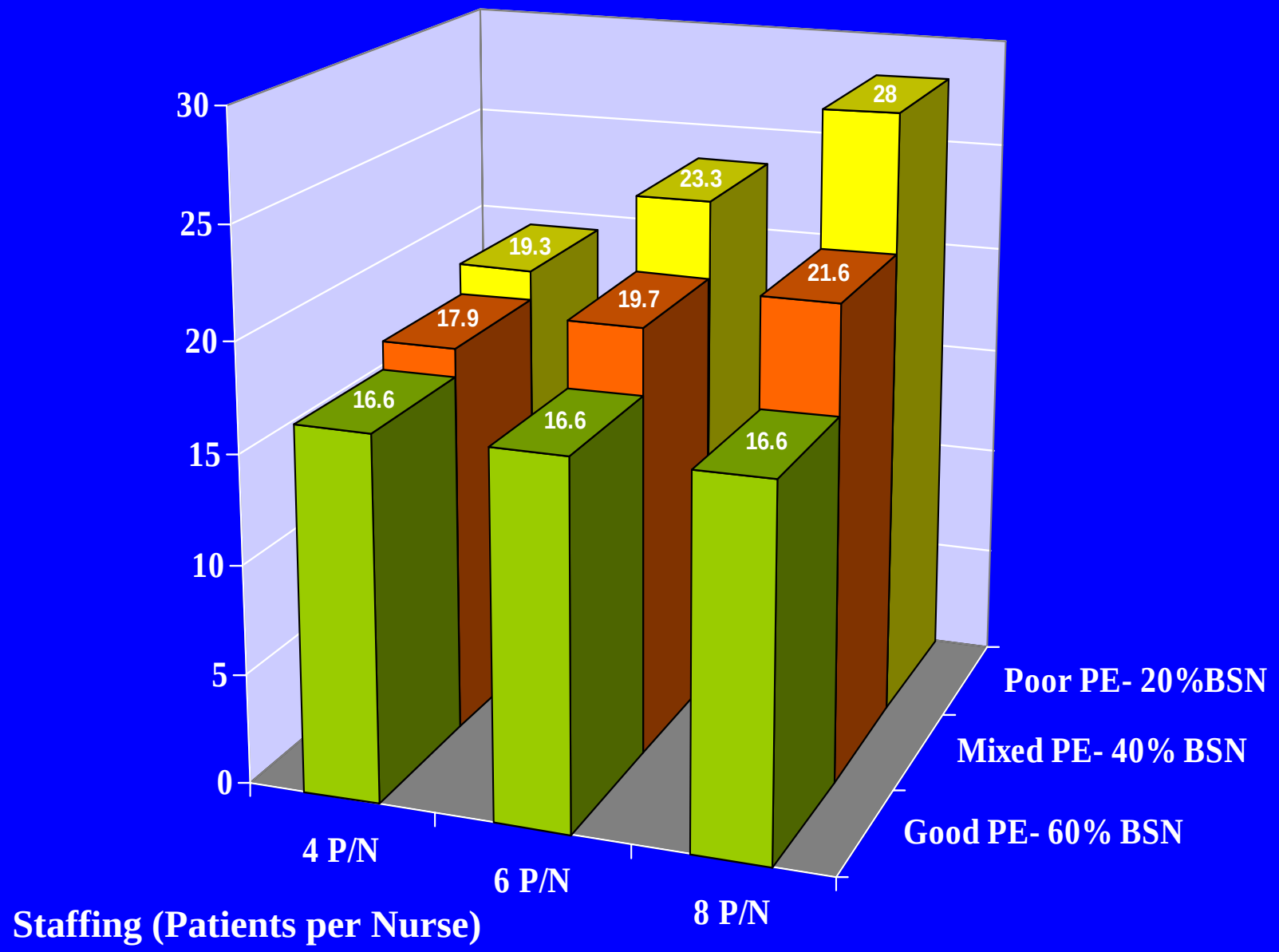
Aiken et al. JAMA 2003

- The proportion of hospital staff nurses with BSNs in hospitals varied from 0 - 77%
- Each 10% increase in proportion of nurses with BSNs was associated with a 5% decline in mortality following common surgical procedures.
- Each 10% increase in BSN was associated with 5% decline in failure to rescue

Odds on Dying Following Common Surgical Procedures

Odds on dying reduced by 19% in hospitals with better vs. poorer care environments after accounting for differences in patient characteristics, nurse staffing, education, physician qualifications, hospital characteristics

Deaths Per 1000 Surgical Patients



What Impact Could Improved Care Environments Have on Lives Saved?

- If all hospitals had “better” nurse practice environments, 4:1 RN staffing ratios, and 60% BSNs, about 12,000 deaths following common surgical procedures could be prevented annually
- These procedures account for 12% admissions and have a lower mortality rate than non-surgical patients
- Total lives saved annually if all hospitals improved the quality of their nurse practice environments to the level in the “better” 25% of hospitals, would be greater than 40,000

Promising Areas of Research

Establishing Cause and Effect in Nursing Outcomes Research: Natural Experiments and Targets of Opportunity

Patient safety: California legislated minimum hospital nurse staffing ratios

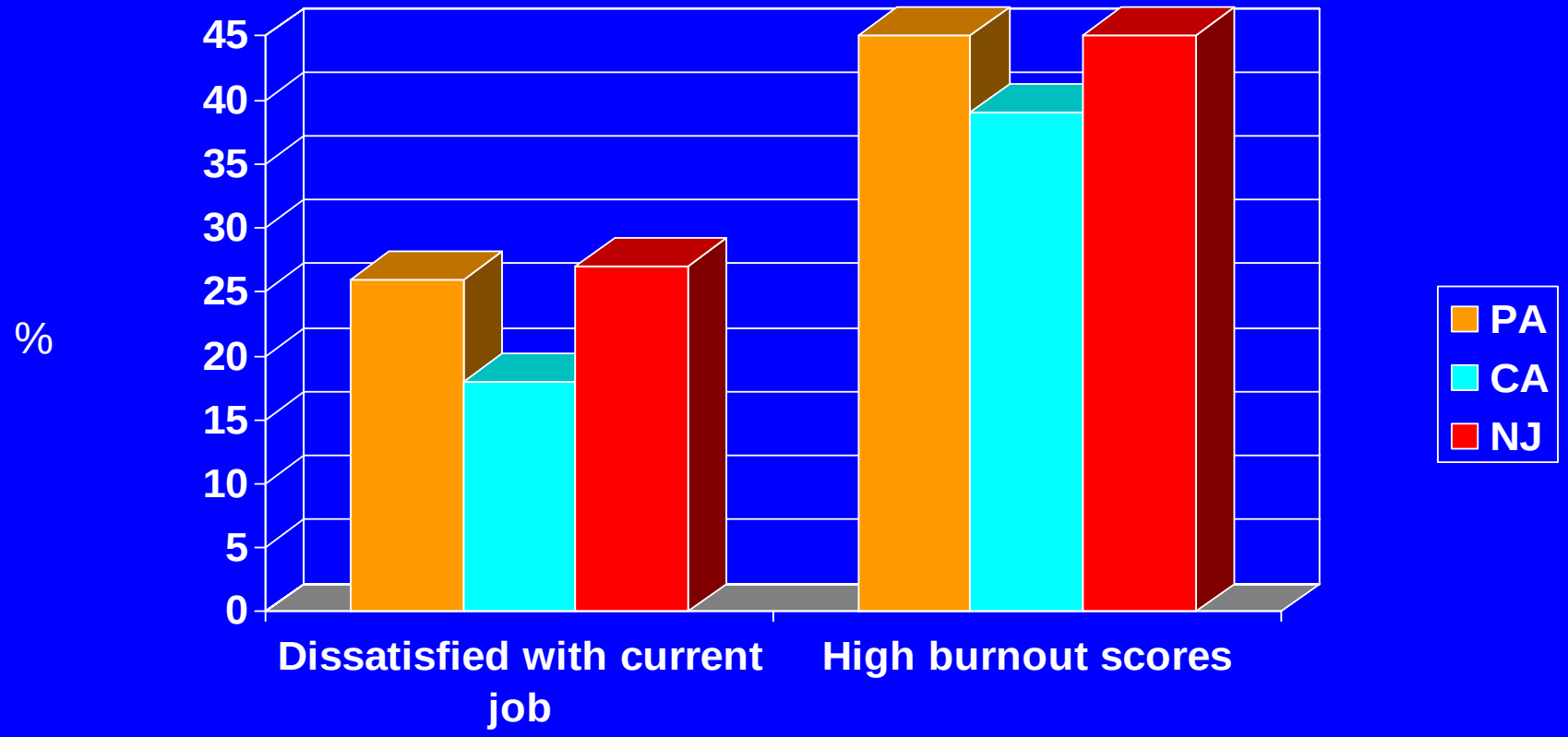
Actual Hospital Patient to Nurse Ratios, 2006

Specialty	California	New Jersey	Pennsylvania
All	**4.3**	**5.6**	**5.5**
Med Surg	4.9	6.8	6.6
Peds	3.9	5.1	5.0
ED	6.6	8.5	8.6
Adult ICU	2.2	2.7	2.5

Since implementation of mandated minimum ratios, among CA hospital nurses in 2006:

- 71% say that quality of care has improved
- 65% report that workloads have been reduced
- 76% can take at least 30 minute break during shift
- 64% indicate that CA nurses are more likely to stay in their jobs
- 60% believed that nurses outside CA are more likely to come to work in the state

Hospital Nurses Report Job Dissatisfaction and Burnout, 2006



Nursing: Improving Return on Investment

- Nurses one of the largest single line items in hospital operating budgets, 20% or higher
- Return on investment in nursing could be much higher by changing care environments
  - Operational failures (1 per RN hour) and interruptions mid-task (1 per RN hour) undermine productivity and surveillance
  - Reducing RN turnover and use of supplemental staffing saves millions of dollars annually
  - Improved patient outcomes result in shorter LOS, fewer ICU days, lower pharmaceutical use, fewer ancillary tests and services, and lower overall expenditures per patient

Hospital P4P

- CMS core clinical measures (30-day mortality, surgical complications, timely and appropriate care for AMI) all linked to nursing
- CMS measure set to be expanded to include outcomes in which nurses have key roles
  - Prevention (surgical site infections including antibiotic prophylaxis and discontinuation)
  - Overall experience of care (patient satisfaction)
- Consideration of NQF nurse sensitive quality measures including work environment (PES-NWI)
- In nursing homes, staff retention is used as proxy for quality by CMS which may signal possibility of workforce proxies for quality in hospitals

Latent system error in patient care environment is the unfinished patient safety agenda

Building the research base examining the relative importance of investments in improvements in the care environment including nurse staffing and education is central to reducing medical errors and improving patient outcomes.