

# Lower Nurse-to-Patient Ratio: Higher Patient Satisfaction

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## OBJECTIVES

- Determine if lower nurse to patient ratio improved patient satisfaction.
- To assess how nurse-to patient ratios and nurse work hours affect the patients hospital stay.
- To determine whether nurse staffing in California hospitals, where state mandated minimum nurse to patient ratios are in effect, differs from Kentucky with no mandated ratio.

## ABSTRACT

The issue of nursing care and patient staffing ratios is not new to medical-surgical nurses. It took national importance in 1996 with the release of an Institute of Medicine (IOM) report that evaluated nursing and patient safety. Patient's conditions have become complex and require more nursing attention than before, yet, hospitals have become more economically focused and business oriented. Hospital nurse staffing is a matter of major concern because of the effects it can have on patient safety and quality of care. Nursing-sensitive outcomes are one indicator of quality of care and may be defined as "variable patient or family caregiver state, condition, or perception responsive to nursing intervention". Most research has focused on adverse rather than positive patient outcomes for the simple reason that adverse outcomes are more likely documented in the medical record (Stanton, 2004, p. 2). This project focuses on positive nursing sensitive outcomes such as patient satisfaction, shortened inpatient length of stay and decreased hospital readmissions. The purpose of this paper is to reinforce the hypothesis that lower nurse-to-patient ratio results to higher patient satisfaction.

## LITERATURE REVIEW

Nurses to patient ratios set the maximum number of patient that may be assigned to a nurse during one shift. When the nurse to patient ratio is high it means that one nurse have a relatively high number of patients to care for, and when the nurse to patient ratio is low it means that one nurse has responsibility for a relatively low number of patients (Rasin, M. & Silner D. 2008).

According to a research funded by the Agency for Healthcare Research and Quality, hospitals with low nurse staffing levels tend to have higher rates of poor patient outcomes such as pneumonia, shock, cardiac arrest, and urinary tract infections (Stanton,2004). Another study shows that with an increased amount of patients assigned to each nurse lead to increased rates of falls, central line bloodstream infections, nursing staff turnover, and absenteeism. It was found that nurses with a lower amount of patients had the best results of care management related to patient safety indicators (de Magalhães, A. M., Dall'Agnol, C. M., & Marck, P. B. 2013).

A study completed by Aiken and colleagues (2010) found 74% of California staff nurses thought that the quality of care had improved as a result of mandated staffing legislation. Other findings in this study include decreases in patient and family complaints and a decrease in workplace (horizontal violence) (Hertel, 2012). This same study has inspired a campaign for an even more lower nurse-to-patient ratio (4:1 Campaign,2015).

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## METHODOLOGY

Nursing staffing is a complex issue. Since mandated nurse to patient ratio is only implemented in California, research of other healthcare facilities with documented nurse-to-patient ratio is not easily accessible. Our group have used a method of obtaining data from the Bureau of Labor Statistics and U.S. Census Bureau for registered nurses employed by each state and state population with health care coverage (people that has access to healthcare) to represent the nurse-to patient ratio and obtained data from Medicare.gov for patient satisfaction scores. We then, observed the trend on the data collected and formulated a table to present our findings. Selection of states represented are based on the ANA's report of states which have the highest and lowest concentration of RN nurses to generate a contrasting comparison. The rest of are presentations are adapted from previous professional peer-reviewed researches that will support our hypothesis.

## DATA PRESENTATION

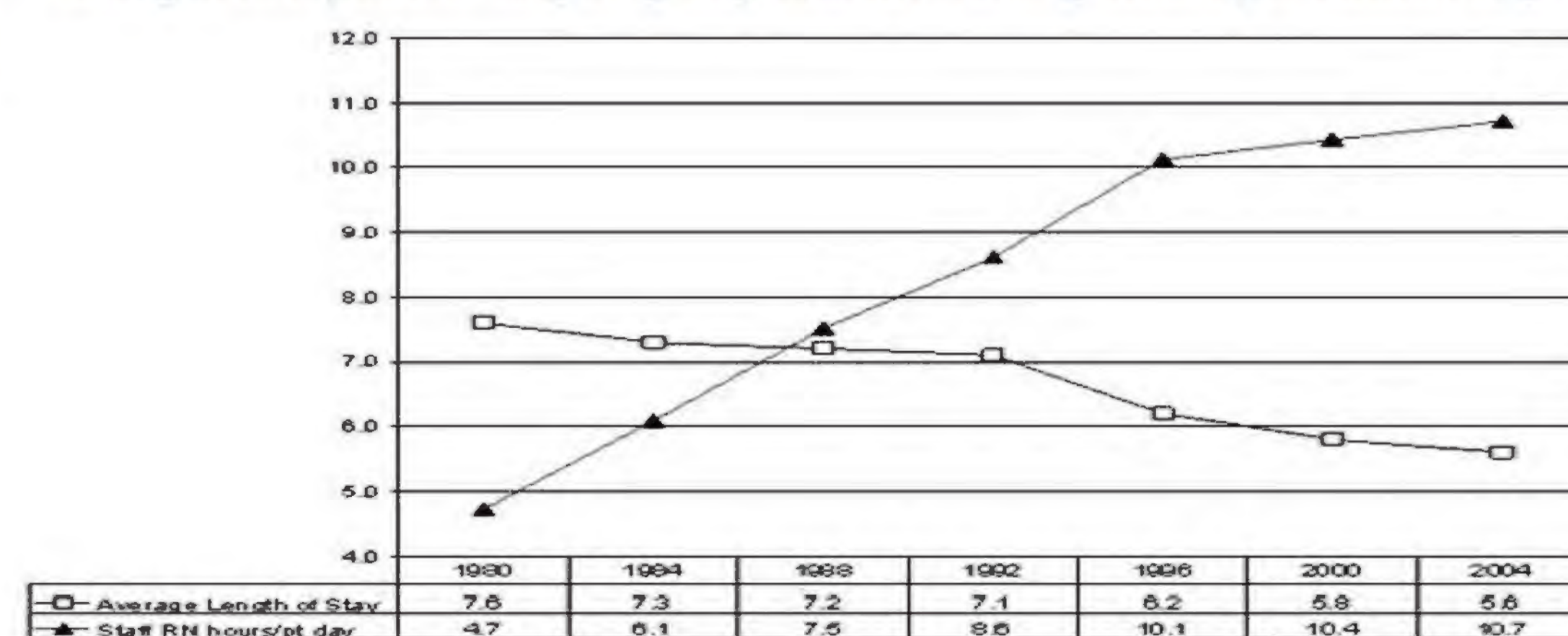
### PRESENTATION 1: RN CONCENTRATION COMPARED TO PATIENT SATISFACTION BY STATE

State	State population with Health Care Coverage (United States Census Bureau,2015)	Registered Nurses employed in the State (Bureau of Labor Statistics, 2015)	Registered Nurses employed per population with Healthcare coverage	Patient Satisfaction* (Hospital Compare,2016)
South Dakota	761,462	11,950	1:64	78
Louisiana	3,895,384	42,270	1:92	76
Minnesota	5,055,916	59,640	1:85	74
Ohio	10,335,946	126,270	1:82	73
Kentucky	3,840,980	43,630	1:88	73
New Hampshire	1,193,555	12,720	1:93	73
Texas	21,453,378	198,650	1:107	73
Alabama	420,3016	44,000	1:96	72
Arkansas	2,50,7648	22,480	1:111	70
California	32,607,634	255,010	1:127	68
Florida	16,298,103	168,870	1:97	67
Alaska	9,395,259	5,910	1:1,590	66
Maryland	5,411,767	51,100	1:106	65
New Jersey	7,838,261	78,460	1:100	64
New York	17,697,437	171,880	1:102	64

\* Patient satisfaction is represented by the percentage of patients who gave their hospitals a rating of 9 on the scale of 0 (lowest) to 10 (highest)  
 Color Legend:  
 GREEN Nurse-to-client ratio lower than 1:100 with patient satisfaction above the national average of 71%  
 RED Nurse-to-client ratio greater than 1:100 with patient satisfaction below the national average of 71%  
 PURPLE Data does not conform with any of the trend  
 According to the American Nursing Association having more than 1 nurse for every one hundred people is considered high concentration of RN per 100,000 population (ANA, 2014).

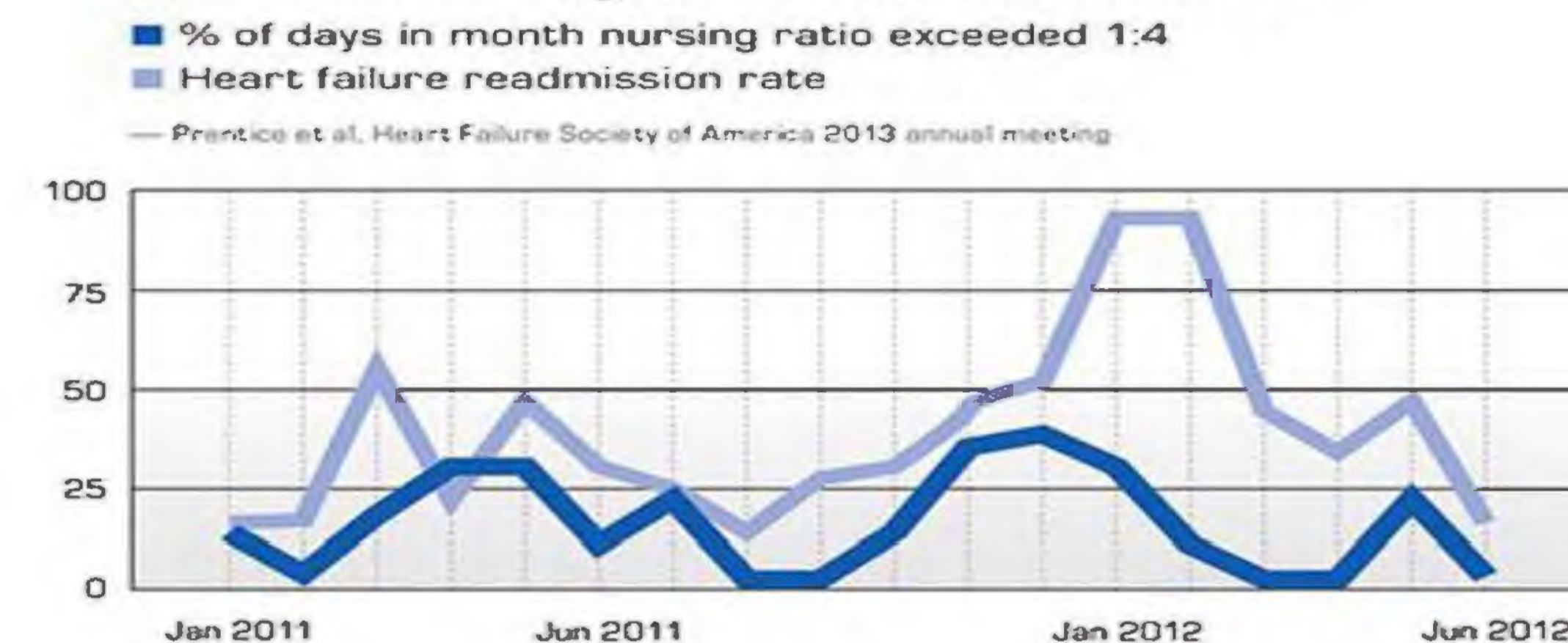
### PRESENTATION 2:

#### Changes in Inpatient length of Stay and RN Nursing Hours per Patient stay



Data for use in this figure were derived from the American Hospital Association (2005) annual survey and the U.S. DHHS National Sample Survey of Registered Nurses 2004.

## Nurse Staffing & HF Readmissions



In the year 2013, investigators led by Matthew McHugh found that hospitals with more favorable nurse-to-patient ratio were 25% less likely to incur readmission penalties than hospitals with lower nurse staffing (Carollo,2014)

### PRESENTATION 3: HOSPITAL UNIT: NURSE-TO-PATIENT RATIO (MINIMUM)

Hospital Unit	Mandated California Ratios	UK Hospital Ratios	Proposed RN Ratios
Intensive/Critical Care	1:2	1:2	1:2
Neo-natal Intensive Care	1:2	1:3	1:2
Operating Room	1:1	1:1	1:1
Post-anesthesia Recovery	1:2	1:2	1:2
Labor and Delivery	1:2	1:2	1:2
Antepartum	1:4	-	1:4
Postpartum couplets	1:4	-	1:3
Postpartum women only	1:6	-	-
Pediatrics	1:4	1:4	1:3
Emergency Room	1:4	1:4	1:3
ICU patients in the ER	1:2	1:2	1:2
Trauma patients in the ER	1:1	1:1	1:1
Step down	1:3	1:3	1:3
Telemetry	1:4	1:4	1:3
Medical/Surgical	1:5	1:6	1:4
Other Specialty Care	1:4	1:4	1:4
Psychiatric	1:6	-	1:4

Both data presentation are from the National Nurses United. The proposal for mandatory minimum ratios were put forward by the National Nurses United, the U.S. largest nursing Union. The proposed ratio illustrate how ratios can be made to fit differing patient acuity across the health sector.

## DISCUSSION/CONCLUSION

Presentation 1 shows that when the ratio of employed RN nurses and the demographic with health care coverage are compared with patient satisfaction, most states with a ratio of lower than 1:100 have patient satisfaction scores above the national average. On the other hand, most states with greater than 1:100 reflected lower patient satisfaction scores from national average. This findings support our hypothesis that lower nurse-to-patient ratio results to higher patient satisfaction.

Presentation 2 shows that inpatient length of stay is inversely proportional with the RN nursing hours per patient stay. The second graph presents a directly proportional relationship between nurse staffing and HF readmission. When the nurse ratio exceeds 1:4 the number of readmission rises. Through this data we can conclude that nurse are able to adequately respond to the needs of each patient during their hospital stay if the have less patients to care for during their shift. The administration of intermediate nursing interventions results to lower inpatient stays and readmissions.

Presentation 3 compares California mandated ratio and a proposed RN ratio. The data shows the proposed RN ratios calls for an even more lower nursing-to-patient ratio for ante-partum, postpartum, ER, telemetry, medical surgical, and psychiatric unit. This shows that lower nurse-to-patient ratios are more desirable to promote quality care for patients and be made to fit patients' differing acuity across the health sector.