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The Fiscal Impact of Safe Patient Limits in Illinois

Four Ways the Policy Would Improve Hospital Bottom Lines

A Higher Road for a Better Tomorrow
ILLINOIS ECONOMIC POLICY INSTITUTE
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Executive Summary

The Illinois General Assembly is debating whether to establish limits on the number of patients that can be assigned to Registered Nurses (RNs). While the legislation is intended to improve patient care outcomes and reduction occupational hazards that contribute to the state's nursing shortage, critics argue that it would place a considerable financial burden on hospitals by increasing their labor costs. In fact, an analysis of both economic and public health research finds that at least 75 percent of these increased labor costs would be offset because safe patient limits would:

- reduce RN turnover in Illinois, saving hospitals $401 million,
- decrease injury rates for RNs, saving hospitals $7 million,
- improve patient health outcomes, saving hospitals $876 million from reduced care costs, and
- lower readmission rates within 30 days of discharge, saving hospitals $75 million.

Over the longer term, safe patient limits could produce a brighter financial future for Illinois hospitals. *Economic Census* data reveals that Illinois' hospitals currently lag national averages in terms of both employment growth and revenue growth. California, the only state to have implemented safe patient limits for nurses, far exceeds national averages on both metrics.

Overall, safe patient limits would promote better outcomes for patients, nurses, and the people of Illinois– at a net cost impact that amounts to 1 percent of total hospital spending and less than 15 percent of the gross operating surplus of hospitals in Illinois.

Introduction

The Illinois General Assembly is considering legislation on safe patient limits, which would establish patient-to-nurse ratios in Illinois hospitals. In 2019, House Bill 2604 and Senate Bill 1908 address safe patient limits in response to insufficient staffing levels that have exacerbated occupational hazards and made it difficult to retain nurses (Manzo et al., 2019). However, in a hearing before the Labor & Commerce Committee in the Illinois House of Representatives, the Illinois Health and Hospital Association testified that the legislation would increase hospital costs by $2 billion in Illinois (Vollmer, 2019). This Illinois Economic Policy Institute (ILEPI) fiscal brief reviews economic and public health research to evaluate the potential costs and savings to Illinois' hospitals if lawmakers vote to enact safe patient limits for Registered Nurses.

Illinois' Hospital Market in Brief

Hospitals have seen significant growth in Illinois over recent years. In 2016, hospital employment eclipsed 269,000 workers, an increase of nearly 26,000 workers (10.7 percent) since 2000 (LEHD, 2018). In addition, the Bureau of Economic Analysis at the U.S. Department of Commerce reports that hospitals' "gross domestic product" in Illinois– or the value that hospitals add to the economy– grew by an average pace of 3.8 percent per year between 2006 and 2016 (BEA, 2018). The Illinois Health and Hospital Association (IHA) has estimated that hospitals spend approximately $39.9 billion on an annual basis (IHA, 2018). In addition, Illinois' hospitals annually earn an estimated $3.2 billion in gross operating surplus from proprietor income and other property-type income (IMPLAN, 2018).

The Registered Nurse Workforce in Illinois Hospitals

Registered Nurses (RNs) in Illinois are highly educated but relatively underpaid. Fully 67 percent of full-time RNs in Illinois have at least a bachelor's degree, ranking 14th-highest in the nation. However, the average income earned by Illinois' nurses ranks 22nd in the nation. Illinois' nurses earn between 6 percent and 10 percent less on average than their counterparts in other states, relative to their high levels of educational attainment (Manzo et al., 2019).

According to the 2016 *American Community Survey* from the U.S. Census Bureau, there were 84,866 Registered Nurses employed either full-time or part-time at Illinois hospitals in 2016. These RNs earned an average income of $64,019 per year (Ruggles et al., 2018). Using national estimates from the *Employer Cost for Employee Compensation* survey conducted by the U.S. Department of Labor, approximately 67 percent of an RN's total compensation is in wage and salary income while 33 percent is in fringe benefits, including legally-required contributions to Medicare and Social Security (BLS, 2019). As a result, the average cost to employ an RN at an Illinois hospital was an estimated $95,551 in 2016.

The Impact of Safe Patient Limits on Registered Nurse Staffing Levels

If the state enacted safe patient limits, it is estimated that Illinois' hospitals would require an estimated 19,094 additional RNs, a 22.5 percent increase over current levels. This is consistent with the reported workforce shortage of 19,100 nurses (Manzo et al., 2019). It also aligns with the assumed $2 billion cost from the Illinois Health and Hospital Association which, at a cost of about $100,000 per new nurse, translates to around 20,000 new nurses (Vollmer, 2019). Furthermore, it tracks the growth of RNs in hospitals following the 2004 passage of safe patient limits in California.[1]

Four Ways Safe Patient Limits Improve Hospital Bottom Lines

Previous research has found that safe patient limits have no negative impact on the financial performance of hospitals (Silber et al., 2016). Adding Registered Nurses to a hospital's workforce improves the recruitment and retention of nurses, helping to reduce turnover costs for employers (Aiken et al., 2010). Additionally, more RNs help to reduce occupational injuries, resulting in additional financial savings. Safe patient limits can also improve patient outcomes and reduce patient mortality, which can produce medical savings in the form of reduced patient care costs. Finally, by improving patient outcomes, safe patient limits lower hospital readmissions rates, further reducing expenditures.

1. Reduced Turnover Costs for Registered Nurses

The shortage of Registered Nurses in Illinois is primarily caused by low retention rates. Stress, caused in part by insufficient staffing levels, leads an estimated 30 to 50 percent of all new Registered Nurses to

[1] According to data from the *Current Population Survey Annual Social and Economic Supplement* (CPS-ASEC) from the U.S. Census Department, California's hospitals employed an average of 119,043 RNs from 1999 through 2003, the five-year period before safe patient limits were implemented. From 2004 through 2008 after enactment, the average number of RNs in California hospitals was 150,370, a 26 percent growth. However, average employment in all other positions in California hospitals reportedly grew from 376,511 to 387,313 over the same timeframe, a 3 percent growth. The difference in these two growth rates results in net (relative) 23 percent increase in the employment of RNs by hospitals in California (Flood et al., 2018).

either change positions or leave nursing completely within the first 3 years of clinical practice (Aiken et al, 2002; MacKusick & Minick, 2010). Additionally, 93 percent of nurses say that stress caused by the nursing shortage will lead to even more nurses leaving the profession (Rosseter, 2017). Previous research has found that a one percentage point improvement in nurse retention rates would save an average hospital over $330,000 per year in recruitment and training costs across the United States (NSI, 2018).

To calculate the fiscal impact of safe patient limits on turnover costs, the average annual turnover in Illinois' hospitals between 2015 and 2017 was compared to the equivalent rate in California, where safe patient limits have been in place since 2004. Because the data are not broken down by occupation, this analysis assumes that RNs have the same turnover rate as all other employees in the hospital, including physicians and administrative workers. The average annual turnover in hospitals is 21.8 percent in Illinois and just 17.1 percent in California (LEHD, 2018).[2] If Illinois were to drop to California's turnover levels, about 4,800 more nurses would be retained every year. Previous research has found that the cost of nurse turnover amounts to 1.3 times the salary of a departing nurse (Bland Jones & Gates, 2007). Based on these figures, safe patient limits could produce $401.4 million in annual hospital savings associated with lower turnover rates for Registered Nurses (Figure 1).

2. Lower Injury Rates for Registered Nurses

Hospitals are one of the most hazardous places to work in America (OSHA, 2013). Registered Nurses lift, reposition, and transfer patients, which can cause overexertion, sprains, and strains. Healthcare workers also have one of the highest on-the-job injury rates in the United States, costing the industry $13.1 billion and more than 2 million lost workdays per year (Harris, 2013). In Illinois, the on-the-job injury and illness rate is 7.9 per 1,000 RNs, the 2nd-highest injury rate for nurses in the Midwest (Manzo et al., 2019).

A comparison between Illinois and eight neighboring Midwest states reveals that as nurse staffing levels increase, injury rates for nurses fall (Manzo et al., 2019). If Illinois increased the number of nurses by 22.5 percent, average injury rates would be expected to fall from 7.9 per 1,000 full-time RNs to 5.5 per 1,000 full-time RNs, based on the regional trend. Even with the expanded workforce, the number of RN injuries and illnesses in hospitals would decrease from the current level of 670 injuries and illnesses to 572 injuries and illnesses, a 14.7 percent drop. At an estimated savings of about $74,429 per injury from previous economic research, this amounts to a $7.3 million benefit that could accrue to Illinois' hospitals from safe patient limits (*Becker's Hospital Review*, 2014) (Figure 1).

3. Improved Patient Care and Reduced Patient Mortality

Numerous studies have found that safe patient limits can improve patient care, producing long-term savings for hospitals (Spence Laschinger & Leiter, 2006; Hughes, 2008; Aiken et al., 2007; Neuraz et al., 2015). Understaffing of nurses increases the risk of preventable medical errors, patient infections, bedsores, heart failures, and patient deaths (Shindul-Rothschild et al., 2017; Mello et al., 2007). Mortality rates of patients undergoing general surgery are 17 percent lower in hospitals with above-average nurse

[2] Estimates are for the 11 quarters from 2015Q1 through 2017Q3, the latest quarter for which turnover data were available. The average quarterly turnover rate was 4.3 percent in California and 5.4 percent in Illinois (LEHD, 2018). These quarterly turnover rates were multiplied by 4 to arrive at the annual estimates.

staffing levels (Silber et al., 2016). Moreover, after California implemented safe patient limits in 2004, the likelihood of in-patient death within 30 days of hospital admission fell, patient time spent in the intensive care unit fell by 24 percent, and patient time spent in surgical units fell by 31 percent (Aiken et al., 2010; Kane et al., 2007).

In 2009, researchers estimated that adding 133,000 RNs to hospitals nationally would result in $6.1 billion in reduced patient care costs, or $45,865 per new nurse (Dall et al., 2009). Using this metric, Illinois hospitals could save about $875.7 million in annual costs by hiring over 19,000 new RNs (Figure 1).[3]

4. Lower Hospital Readmissions Rates

High hospital readmission rates within 30 days of discharge negatively affect a hospital's financial health. Nationally, the cost of 3.3 million adult hospital readmissions within 30 days totals an estimated $41.3 billion, or approximately $12,515 per readmission (Hines et al., 2014). In addition, under the Affordable Care Act, Medicare reduces payments to hospitals for potentially preventable readmissions. This component of the national health care law was implemented to link federal funding directly to the quality of hospital care (HPAE, 2018; CMS, 2018).

One possible solution is safe patient limits, which have been found to reduce patient readmission rates in hospitals. Due to its improved RN staffing levels, California has statistically lower rates of readmission than Massachusetts and New York (Flanagan et al., 2016). Assuming Illinois' hospital readmissions fall to California levels, consistent with the academic research, Illinois would experience approximately 6,000 fewer adult hospital readmissions within 30 days. At $12,515 per readmission, Illinois' hospitals would save approximately $75 million per year after implementing safe patient limits (Figure 1).

Net Fiscal Impact

Safe patient limits would produce a $465 million net cost to Illinois hospitals (Figure 1). While safe patient limits would cost Illinois' hospitals $1.82 billion more in employee compensation, the impacts on nursing turnover, occupational safety, patient safety, and readmissions rates would produce $1.36 billion in offsetting hospital savings each year.

It is important to put this estimate in context. A $465 million net cost impact equates to 1.2 percent of the total spending by Illinois hospitals in 2017 (IHA, 2018). It is also 14.6 percent of the cumulative hospital operating surplus of $3.2 billion in Illinois (IMPLAN, 2018). In addition, Illinois hospital GDP– or the value that hospitals add to the economy– has grown by an average of 3.8 percent per year over the past decade (BEA, 2018). At this average growth rate, hospitals could generally absorb the 1.2 percent increase in expenditures due to safe patient limits within one year, even at the Federal Reserve target rate of inflation of 2 percent. This relatively marginal fiscal impact of safe patient limits corroborates previous research which has found that safe patient limits have no discernible impact on the financial performance of hospitals (Silber et al., 2016; Everhart et al., 2013).

[3] Note that this estimate is conservative because the figures have not been adjusted for inflation.

FIGURE 1: POTENTIAL COSTS AND SAVINGS TO ILLINOIS HOSPITALS FROM PASSING SAFE PATIENT LIMITS

Impact Factor	Annual Estimate	Brief Explanation
Labor Costs	+$1,824,500,000	This is derived from 19,094 new RNs multiplied by $95,551 in employer costs for the average nurse.
Turnover Costs	-$401,400,000	If Illinois were to drop to California's turnover levels, savings would equate to 1.3 times the average salary of $64,019, multiplied by an estimated 4,823 additional retained nurses.
Registered Nurse Injury Rates	-$7,400,000	After accounting for the increase in RN employment, Illinois hospitals would be expected to have 98.7 fewer nurse injuries over the year. This estimate is multiplied by $74,429 in total costs per injury.
Patient Care Costs	-$875,700,000	This is the product of 19,094 new RNs multiplied by $45,865 in predicted savings per nurse.
Patient Readmission Rates	-$75,000,000	This is the product of 19,094 new RNs multiplied by $45,865 in predicted savings per nurse.
Net Impact on Hospital Costs	**+$465,000,000**	**This is the sum of the estimated effects on labor costs, turnover costs, RN injury rates, patient care costs, and patient readmission rates.**

**Note: Estimates are rounded to the nearest $100,000.*

FIGURE 2: HOSPITAL REVENUE AND EMPLOYMENT IN CALIFORNIA, ILLINOIS, AND THE UNITED STATES, 2002-2012

NAICS Code 622: Hospitals	Hospital Metric	2002 Economic Census	2012 Economic Census	Percent Change
California Hospitals	Total Revenue	$52,235,007,000	$104,607,718,000	+100.3%
	Paid Employees	459,037	533,683	+16.3%
Illinois Hospitals	Total Revenue	$22,771,971,000	$36,209,420,000	+59.0%
	Paid Employees	245,923	245,690	-0.1%
All U.S. Hospitals	Total Revenue	$500,112,841,000	$876,849,962,000	+75.3%
	Paid Employees	5,174,262	5,751,341	+11.2%

Source: 2002 Economic Census and 2012 Economic Census (Census, 2019).

Finally, *Economic Census* data from the U.S. Census Bureau and U.S. Department of Commerce demonstrates that California's hospitals have grown strongly since the state enacted safe patient limits (Figure 2).[4] In 2002, two years prior to California implementing safe patient limits, hospitals in the state employed over 459,000 workers and generated $52.2 billion in revenue. One decade later, they employed nearly 534,000 workers, a growth of 16 percent, and generated $104.6 billion in revenue, a growth of over

[4] The *Economic Census*, considered "the official measure of the nation's businesses and economy" is conducted every five years in years ending in "2" and "7." The latest year for which data are currently available is 2012. The data for 2017 has been collected and will be released in stages, with most releases occurring between fall of 2019 and winter of 2021 (Census, 2018).

100 percent. By contrast, over the same time period, employment in Illinois' hospitals was stagnant at just under 246,000 workers and revenue increased by 59 percent, from $22.8 billion to $36.2 billion. Moreover, California's hospitals had faster employment growth than the national average (11 percent) and faster revenue growth than the national average (75 percent) between 2002 and 2012.[5] Overall, this data suggests that safe patient limits did not appreciably weaken the financial performance of hospitals in California.

Discussion and Conclusion

This analysis has only estimated effects on hospital bottom lines. The analysis does not consider economywide impacts. For instance, by ensuring that patients who are employed can return to work healthy and in a timely manner, safe patient limits would boost productivity in the labor market. Because insurance companies often only cover a portion of health care expenses and safe patient limits would reduce readmissions rates, the policy would reduce out-of-pocket costs paid by Illinois residents. Moreover, newly-employed nurses would spend their incomes at local businesses in their communities. As a result, safe patient limits would have positive effects on the broader Illinois economy.

However, the main conclusion is that safe patient limits would improve patient care and nurse retention. Safe patient limits would lower turnover costs by improving nurse morale and reduce occupational injuries, while at the same time saving lives and decreasing hospital readmission rates. At little overall financial impact on Illinois' profitably hospital industry, safe patient limits would promote better outcomes for patients, for nurses, and for the people of Illinois.

[5] While some might argue that population growth is responsible for these numbers, California's population increased by 10.1 percent, the U.S. population increased by 9.1 percent, and Illinois' population increased by 2.5 percent during this time. Thus, employment in California grew 4.2 percentage-points faster than the state's population growth. U.S. hospital employment only grew 2.1 percentage-points faster. At the same time, Illinois' hospital employment declined relative to the change in population.

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