

## ▶ Establish Safe, Cost-Effective Staffing Targets

- Accurately Project Patient Demand
- Set Goals Based on Unit-Level Needs

# Setting Safe Targets Requires Striking a Balance

Developing staffing targets in health care's current financial reality is essential, but it requires a careful balance to enable delivery of quality care at lower costs.

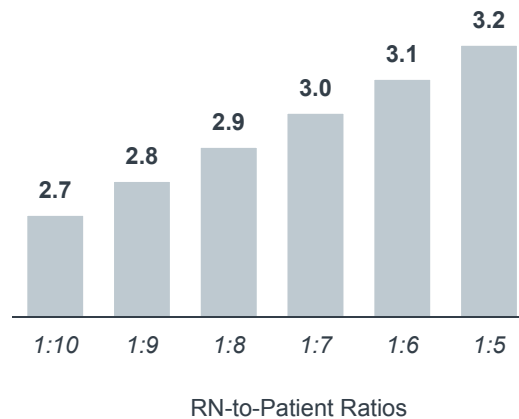
While richer nurse to patient ratios may support high-quality care, each additional nurse added to the roster has an associated cost.

By setting staffing targets that accurately reflect unit realities, managers can predict how much nursing care will be required to meet the needs of patients safely and effectively. The best targets effectively balance quality and cost by accurately matching staffing to demand.

## Weighing the Benefits and Costs of Adding Additional Nurses

*Increased Quality with Lower Ratios*

**Mean Quality Scores<sup>1</sup> Based on RN-to-Patient Ratios**



“If money was no object, I could pick all RNs to provide care because their scope is all-encompassing...but unfortunately none of us live in an environment where we have an endless supply of resources. You do have to make some choices.”

*Chief Nursing and Health Professions Officer,  
Canadian public hospital*

1) Quality of nursing care measured by the item "In general, how would you describe the quality of nursing care delivered to patients on your unit on your last shift?" with a 4-category response (poor, fair, good, excellent). Mean quality scores were derived from summing the responses of nurses with similar patient ratios and dividing by number of nurses with that patient ratio. Mean quality scores ranged from a low of 2.7 for 1:10 to a high of 3.9 for a 1:1 ratio.

2) Salaries listed in US dollars and adjusted by purchasing power parity.

3) In US dollars.

*Increased Cost with More RNs*

**Average RN Hourly Salaries in Select European Countries<sup>2</sup>**



**Average RN Hourly Salaries in Select Canadian Provinces<sup>3</sup>**



**Average RN Hourly Salaries in Select Australian States<sup>3</sup>**



Source: Sochalski J. "Is More Better: The Relationship Between Nurse Staffing and Quality Care in Hospitals," *Med Care*, 42, no. 2 (2004): ii67- ii73; "Nurses in the United States Earn 8 Times More than in Russia," Pay Wizard, <http://www.paywizard.org/main/salary/global-wage-comparison/>; "Overview of Key Nursing Contract Provisions," Canadian Federation of Nurses Union, 31 October 2015; "What Do Nurses Earn?" Health Times, <http://healthtimes.com.au/hub/nursing-careers/6/guidance/nc1/what-do-nurses-earn/605/>; Advisory Board interviews and analysis.

# No Gold Standard for Targets

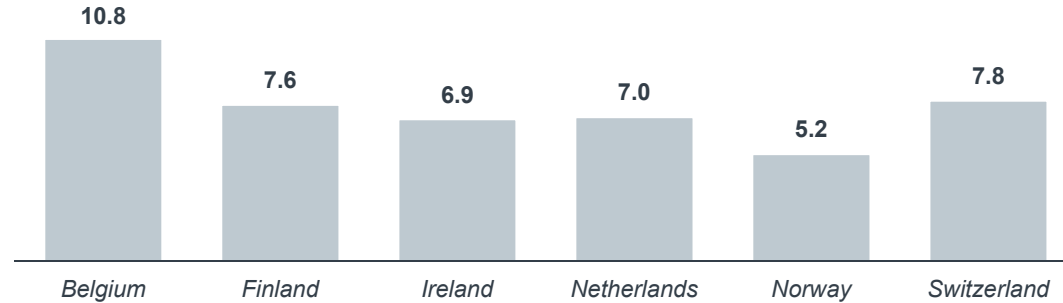
There is no global consensus on optimal staffing targets. International research examining medical and surgical units shows wide variability in average staffing levels.

In an effort to create consistency across health care systems, some regions have legislated nurse-to-patient ratios. Ratios are helpful guidelines, but they are not sufficient for developing the most accurate workforce projections.

There is no one-size-fits-all solution for staffing projections. Targets must be specific to each organisation and represent the patient demand of the units.

## Variation in Target RN-to-Patient Ratios Signals Lack of Clear Direction

Mean Number of Patients per Nurse in Med/Surg Units in Select European Countries<sup>1</sup>

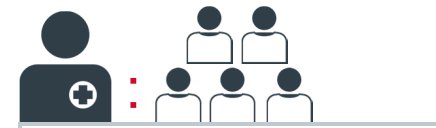


### Examples of Legislated Nurse-to-Patient Ratios



**1 to 4**

Mandated daytime nurse to patient ratio in medical/surgical units in Victoria and Queensland, Australia



**1 to 5**

Mandated daytime nurse to patient ratio in medical/surgical units in California, United States



### Based on Opinion, Not Evidence

“Staffing in hospitals has a history of being based in opinion and tradition, not evidence.”

*Douglas K, What Every Nurse Executive Should Know About Staffing and Scheduling Technology Initiatives*

<sup>1</sup>) According to surveys conducted in nine European countries as a part of the RN4CAST international study.

Source: Aiken L, et al., “Nurse Staffing and Education and Hospital Mortality in Nine European Countries: A Retrospective Observational Study,” *The Lancet*, 383, (2014) <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4035380/>; Douglas K, “What Every Nurse Executive Should Know About Staffing And Scheduling Technology Initiatives,” *Nursing Economics*, 29, no. 5 (2011): 273-275; Advisory Board interviews and analysis.

# Using Inaccurate Workforce Projections

The Global Centre identified two key challenges that result in managers using inaccurate workforce projections.

The first is using imprecise estimations of patient demand. Many organisations use vague metrics to predict their patient census.

The second is using blunt staffing metrics. These limit managers' ability to proactively make adjustments to match staffing to demand.

The first step in creating more precise staffing targets is to accurately project unit-level patient demand. Then, leaders must set staffing goals based on unit-level needs.

This section presents guidelines to help nursing leaders act on these two opportunities.

## Two Key Opportunities to Establish Safe, Cost-Effective Staffing Targets

### Challenges



#### Imprecise Census Estimations

Patient demand forecasts do not adequately account for predictable fluctuations; foundational metrics for measuring demand fall short



#### Blunt Metrics and Staffing Targets

Broad staffing metrics prevent granular management of staffing goals; limit ability to precisely match staff to patient demand

### Opportunity

Accurately Project Patient Demand

Set Goals Based on Unit-Level Needs

# Blunt Averages Hide Census Peaks and Valleys

To determine how many staff they need, many organisations rely on an annual average daily census (ADC). But this blunt measure does not capture fluctuations in patient demand.

The graphic on the right represents a unit budget that remains static from month to month. The unit almost certainly will not see exactly 20 patients every day, but the budgeted daily or monthly workforce does not reflect census variation. As a result, units will have too many or too few staff as the census fluctuates.

## Common Metric for Budgeting and Staffing Misses the Mark

### Annual Average Daily Census (ADC)

$$\text{ADC} = \frac{\text{Annual number of patients cared for in hospital}}{\text{Number of days hospital was open}}$$

### Example Nurse Budget Using ADC

2016 Nursing Salary Budget Medical/Surgical Unit					
Manager: Alice O'Reilly					
	Aug	Sep	Oct	Nov	Dec
ADC	20	20	20	20	20

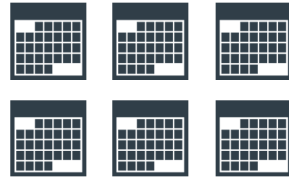
# Harnessing the Predictable Elements of Patient Demand

Despite variance in patient demand, leaders can identify predictable trends to create more accurate targets. These trends fall into three categories. The first is seasonal fluctuation—times of the year with heavier or lighter patient volumes. Second, there are variations associated with the day of the week. Finally, there are variations by time of day, with peaks and valleys occurring depending on the types of patients seen on the units.

By accounting for predictable variation, nurse leaders can more precisely understand the “demand” side of the supply/demand equation. As shown here, historical, trended data more accurately informs managers’ predicted patient volumes. The adjusted ADC more accurately reflects actual volumes on the unit.

## Three Kinds of Predictable Variation in Patient Demand

### Seasonal Fluctuations



Integrates historical trends of natural peaks and valleys

### Day of Week



Incorporates predictable trends in patient volume on a weekly basis

### Time of Day



Includes assessment of normal fluctuations throughout the day

## Exemplar Portion of Nursing Unit Budget Using Adjusted Average Daily Census

### Sample Monthly Budgetary Projections

2016 Nursing Salary Budget Medical/Surgical Unit					
Manager: Alice O'Reilly					
	Aug	Sep	Oct	Nov	Dec
Total Volume	180	200	210	195	250
Adjusted ADC	17	20	20	20	28

### Sample Day of Week Budgetary Projections

2016 Nursing Salary Budget Medical/Surgical Unit					
Manager: Alice O'Reilly					
	Mon	Tue	Wed	Thu	Fri
Total Volume	32	28	26	22	25
Adjusted ADC	30	28	24	20	20

### Seasonal Fluctuations to Consider



Wintertime  
Flu Season



Summertime  
Low Volumes



Surgeries  
typically  
scheduled  
on Mondays



Higher  
number of  
discharges  
on Thursdays

Source: Advisory Board interviews and analysis.

# Completing the Equation to Develop Accurate Targets

The next step in developing accurate targets is determining how many staff will be needed to meet predicted demand.

To do this, leaders should start by determining the right metrics to track. After selecting the right metric, leaders can set specific targets based on unit-level staffing needs.

The following page provides guidance on selecting the right metric.

## Determining Staffing Number and Skill Level Necessary to Meet Demand

### Matching Nurse Supply to Projected Demand



### Considerations for Setting Targets



**Determine Right Metric to Track**

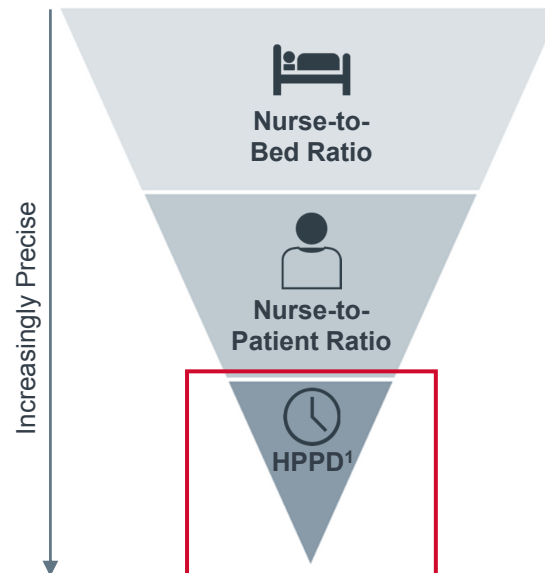


**Set Accurate Targets Based on Unit Needs**

# Manage to Smallest Unit of Measurement

There are a variety of metrics available for projecting staffing needs. As shown here, common nurse staffing metrics include nurse-to-bed ratios and nurse-to-patient ratios. The Global Centre recommends using the most precise staffing metric available. For most organisations, that metric is hours per patient day (HPPD), defined as the total number of direct care hours worked in a day divided by the total number of patients seen that day. HPPD provides the most granular level of data that can assist leaders in determining where to find costs savings.

## Common Nurse Staffing Metrics



1) Hours per patient day.  
2) Inclusive of all caregivers, but able to cut by provider type (RN, HCA, etc.).

## Hours per Patient Day Formula

$$\text{HPPD} = \frac{\text{TOTAL DIRECT CARE HOURS WORKED}^2}{\text{TOTAL PATIENTS PER DAY}}$$

### Advantages of Using HPPD Metric

- ✓ More precise metric for measuring staffing requirements based on demand
- ✓ Enables leaders to easily assign a cost to hours and monitor productivity
- ✓ Easy to benchmark against like units and sites of care



# Examine Limitations of HPPD

Although HPPD is the most precise staffing unit of measurement available to most organisations, it has limitations. In order to develop safe, cost-effective targets, leaders must understand these limitations.

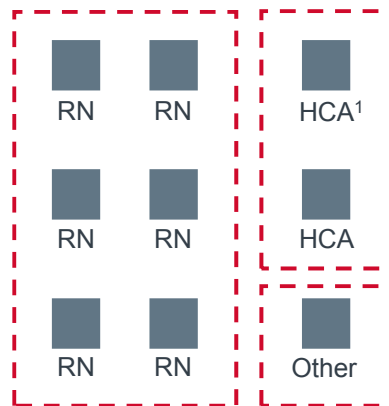
Traditional HPPD measures treat all nursing hours equally. Yet, the care provided by an RN is not the same as the care provided by a health care assistant—and neither is the cost.

To address this, the Global Centre recommends examining the types of care providers, their experience, and their skills when using HPPD as a staffing target.

For example, some organisations track RN HPPD separately from HPPD of other nursing staff. The following pages provide further detail about why this additional consideration is important.




## Exemplar Limitation of HPPD

*Treats All Labour Hours Equally*



1) Health care assistant.

## Representative Differences in Caregiver Preparation

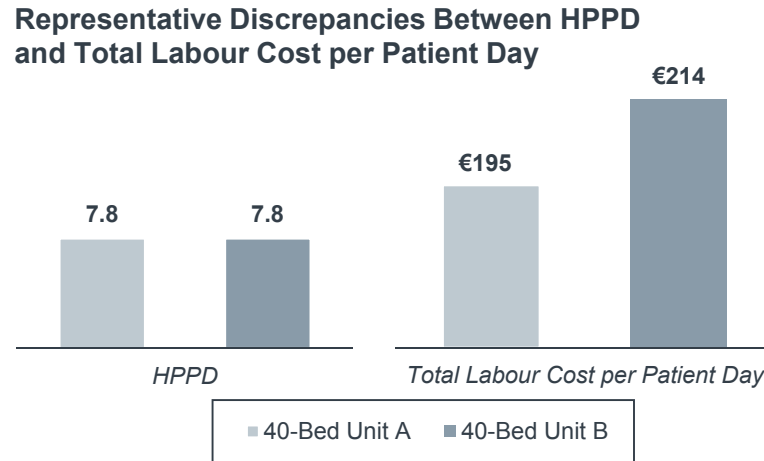
			
<b>Education</b>	RN	Diploma RPN/AN/EN	HCA
<b>Experience</b>	2 Years	10 Years	25 Years
<b>Certification</b>	Paediatric Nursing	None	None

Source: Advisory Board interviews and analysis.

# Understanding the Cost of Each Hour

By understanding the cost of each hour of care delivered, leaders can more accurately predict staffing targets to provide the most appropriate care at the lowest cost.

An example of two units with similar patient demographics is shown here. Both units deliver 7.8 hours of care per patient day, but one unit is delivering that care at a lower cost.




**Assumptions**

- RN pay = €34 per hour
- HCA pay = €13 per hour
- 40-bed unit fully filled
- Total number of staff per 24 hours on unit (13 for Scenario 1; 14 for Scenario 2)

$$\frac{\text{TOTAL HOURS} \times \text{TOTAL COST PER HOUR}}{\text{TOTAL PATIENTS PER DAY}} = \text{LABOUR COST PER PATIENT DAY}$$

To learn more about calculating labour costs per patient day access the **Rising Above the Bottom Line** Virtual Tool Suite at [advisory.com/gcne/costsavings toolkit](http://advisory.com/gcne/costsavings toolkit)



Source: Advisory Board interviews and analysis.

# Best Targets Combine Labour Costs and HPPD

When possible, the Global Centre recommends analysing labour cost per patient day in conjunction with setting staffing targets.

For illustrative purposes, two scenarios of a medical/surgical unit with a daily volume of 40 patients are shown here.

In scenario 1, the unit has nine RNs and four health care assistants. Collectively, they are delivering 7.8 hours of care per patient. Delivering that care costs €214 per patient day.

In scenario 2, the unit has changed the skill mix. Analysing historical demand, the manager sees the need for additional health care assistants (HCAs). When an RN retires, the manager hires two HCAs and the unit staff can now offer 8.4 hours of care—at a reduced cost of €210.

Although these savings may seem small, they can add up when multiplied over years and across units.

## Using Both HPPD and TLCPPD<sup>1</sup> Allows Creativity in Care Team Design

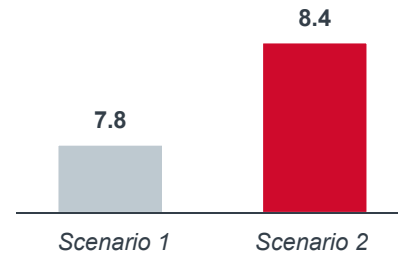
### Representative Comparison of HPPD and Labour Cost per Patient Day Under Two Staffing Scenarios<sup>2</sup>

#### Unit Staffing Scenarios

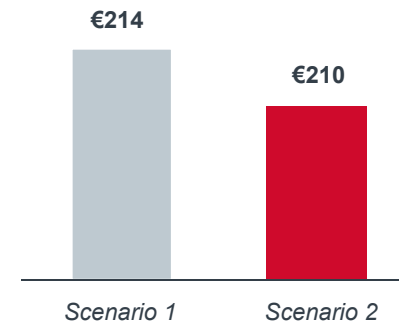
	Scenario 1	Scenario 2
RNs	9	8
HCAs	4	6

In scenario 2, the unit added 2 HCAs when an RN retired

#### Expected Shift in Total HPPD



#### Expected Shift in Labour Cost per Patient Day



1) Total labour cost per patient day.  
2) Both scenarios represent a 40-bed Med/Surg unit.

Source: Advisory Board interviews and analysis.

# Questions to Consider

The Global Centre recognises that more hours do not universally mean better hours and therefore recommends considering unit characteristics when developing HPPD targets.

Several considerations for customising HPPD to unit characteristics are shown here. By developing targets that reflect unit-specific needs, leaders can more accurately match staffing to patient demand.

## Unit-Specific Characteristics Must Be Considered for HPPD Targets

### Considerations for Customising HPPD to Unique Unit Characteristics



#### Staff Skill Mix, Characteristics

- What percentage of RNs, HCAs, and other personnel does the unit have?
- What tasks do RNs perform?
- What is the average age and experience level of unit staff?



#### Length of Stay and Activity

- What is the average length of stay on the unit?
- What is the average number of daily admissions/discharges/transfers?



#### Patient Population

- What is the average acuity of patients on the unit?
- What is the range of diagnoses on the unit?
- What is the intensity of the work required by the patient population?



#### Unit Design

- What percentage of single rooms and semiprivate rooms are on the unit?
- What is the total amount of walking involved for a direct caregiver?
- Does the unit have a central nursing station, a station at one end of the unit, or at both ends?



#### Ancillary/Support Services

- Which ancillary and support services are centralised to the unit?
- How many non-nursing clinical services do direct caregivers perform?
- How many non-clinical services do direct caregivers perform?



#### Accounting and Operations

- Are managerial, clerical support staff included in HPPD?
- What percentage of time do managers and charge nurses spend in direct patient care?
- What percentage of hours are budgeted for non-productive time (e.g., sick time, vacation time)?



For more resources on this topic, see our full *Towards Evidence-Based Staffing Toolkit* at [advisory.com/gcne](http://advisory.com/gcne)

# Combining Metrics for More Accurate Projections

Nursing units can further improve accuracy of staffing targets by examining multiple metrics together, rather than relying on a single metric.

A representative unit-level budget is shown here. The graphic shows adjustments for predictable variation in demand projections, reflected in the adjusted ADC<sup>1</sup>. These inform variations in unit-level staffing goals, using HPPD as the key metric. As a result, projected FTE requirements match projected patient demand more closely.

Because managers can allocate their FTE allotment more precisely throughout the year, they can avoid unnecessary overages or shortages.

## Example Nursing Salary Budget Using HPPD Targets<sup>2</sup>

2016 Nursing Salary Budget Medical/Surgical Unit												
Volumes												
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Total Volume</b>	260	241	377	409	320	369	298	323	303	314	299	319
<b>Adjusted ADC<sup>1</sup></b>	8.4	8.7	12.2	13.2	11.4	11.9	9.9	10.4	10.1	9.6	10.6	10.6
Direct Care Hours												
<b>HPPD</b>	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
<b>Direct Hours Required</b>	2028	2036	2941	3190	2496	2878	2326	2519	2363	2449	2332	2488
<b>Direct FTEs Required</b>	11.5	11.9	16.6	18.1	15.6	16.3	13.6	14.3	13.8	13.9	13.2	14.6

Different ADC used for each month based on volume; projections adjusted each month as needed

Direct hours and direct FTEs required varies depending on patient volume

1) Average daily census.  
2) Based on US calculations.

Source: Advisory Board interviews and analysis.

