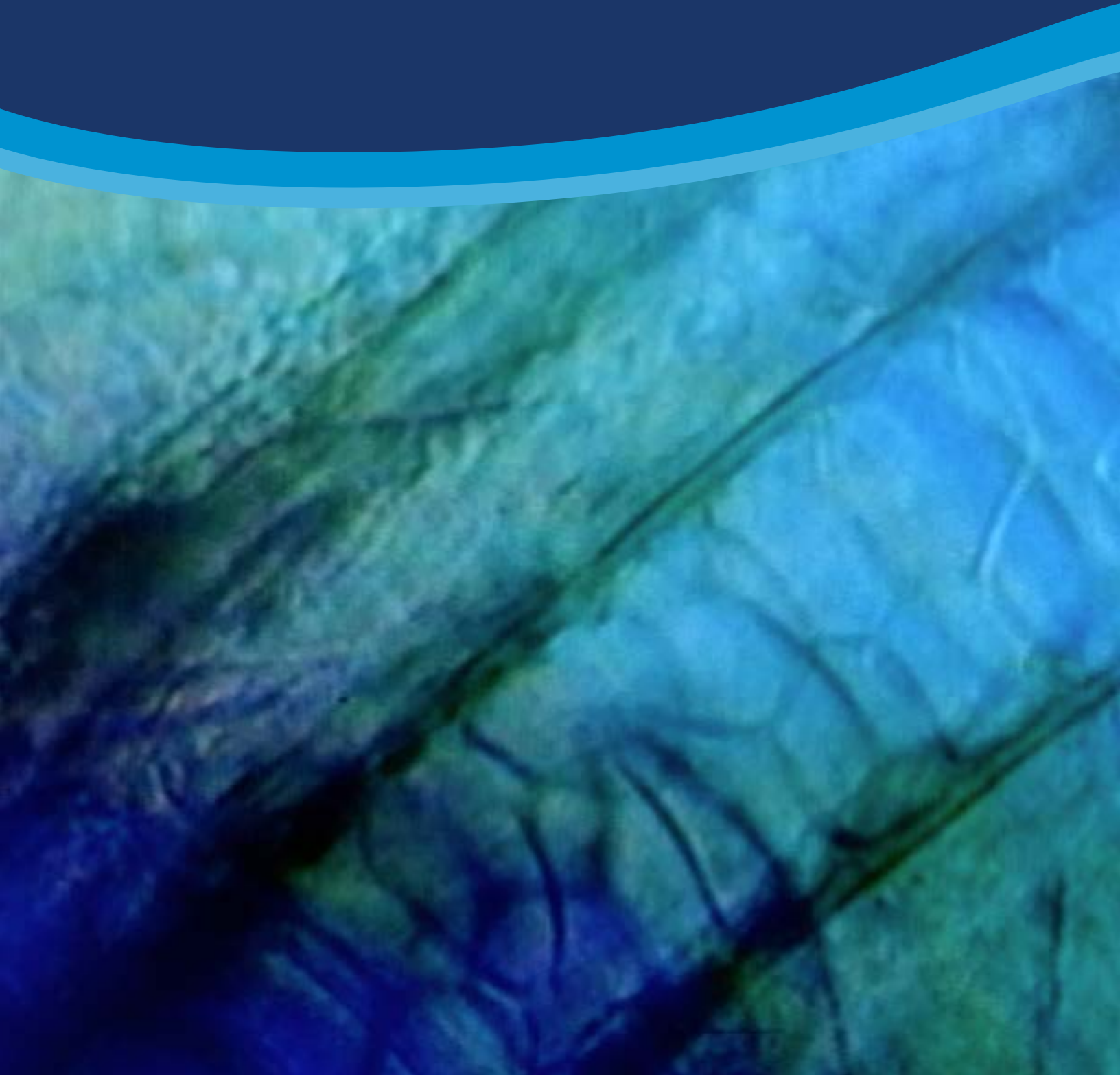




Barlow Respiratory  
HOSPITAL

# Outcomes 2017



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Dear Colleague,

Barlow Respiratory Hospital is proud to present its first Outcomes book. This inaugural publication highlights our unique role in the continuum of adult acute respiratory care, with a focus on patient outcomes. As the only not-for-profit long-term acute care hospital in California, we are committed to preserving access to continued intensive care of the highest quality for chronically critically ill and medically complex patients.

As pioneers in the care of the chronically critically ill, Barlow Respiratory Hospital has treated and liberated more patients from prolonged mechanical ventilation than any other hospital in the nation. This high volume has helped us build expertise and develop innovative approaches to treat ventilator-dependent patients, most notably our published TIPS<sup>®</sup> weaning protocol.

Outcomes of care go beyond basic questions of treatments, timeframes, and survival. There is no doubt in our minds that for a ventilator-dependent patient, the ability to breathe on their own is the most important outcome for them. For any medical condition, no single outcome captures the results of care. For many conditions that we treat here at Barlow, we continue to work on defining a set of comprehensive outcomes and look to organizations like the International Consortium for Health Outcomes Measurement (ICHOM) for inspiration and guidance.

Improving outcomes and value for patients is best accomplished with all parties (patients and their families, the healthcare team, and payers) focused on the needs of the patient. Our commitment to value and transparent reporting of accurate, timely information about patient care reflects Barlow Respiratory Hospital's culture of continuous improvement and is designed to help referring physicians, patients, and families make informed decisions.

We hope you find this information valuable. We welcome your feedback, questions, and ideas for collaboration. Please contact us at [info@barlowhospital.org](mailto:info@barlowhospital.org)

Sincerely,



**Amit Mohan, PhD, FACHE, FACMPE**  
President & Chief Executive Officer  
Barlow Respiratory Hospital



**David R. Nelson, MD**  
Medical Director  
Barlow Respiratory Hospital

# Barlow Respiratory Hospital

## **MISSION:**

To make a positive difference in the lives of individuals with chronic critical illnesses and complex respiratory conditions in post-acute settings.

## **VISION:**

To be the best in the care of individuals with complex respiratory conditions in the post-acute setting.

## **VALUES:**

Continuous Improvement – to deliver best outcomes

Collaboration – to improve patient care

Efficiency – in clinical services delivery

Respect – for patients, families and co-workers

# Organization Overview

Barlow Respiratory Hospital is regarded as one of the top long-term acute care hospitals in the nation serving the chronically critically ill, and the destination of choice for weaning patients from prolonged mechanical ventilation. Patients are referred to Barlow from nearly 100 hospital intensive care units (ICUs) in the Los Angeles metropolitan area and Southern California. With multiple locations in Los Angeles County, we are conveniently accessible to patients and families.

In 2016, Barlow Respiratory Hospital was awarded the Gold Seal of Approval® for Respiratory Failure Certification by The Joint Commission, the only one on the West Coast. Barlow is among fewer than two dozen hospitals nationwide that have achieved this elite certification. Barlow was also awarded the designation as the only West Coast Passy-Muir Center of Excellence, recognized for treating patients with tracheostomies, on and off the ventilator.

## Since 1902

At Barlow Respiratory Hospital, we have built a legacy of specialized care for respiratory illnesses. Originally the premier sanatorium in old, Los Angeles for the treatment of tuberculosis, Barlow is the longest continuously operating respiratory hospital in the United States.

After contracting tuberculosis in New York City in 1895, Dr. Walter Jarvis Barlow headed west for the dry and sunny climate and a reasonable chance of recovery. Stemming from his infection and cure, he developed an urge to help other tubercular patients. From that caring motivation would emerge the founding of The Barlow Sanatorium in 1902. Barlow transitioned to a full-service respiratory hospital starting in the late 1960's. Later, with the advent of intensive care units and critical care medicine, Barlow transitioned again, assuming its current mission as a regional specialty center for weaning chronically critically ill patients from mechanical ventilation.

At Barlow Respiratory Hospital, patients with chronic critical illness and complex respiratory conditions benefit from the expertise of a multidisciplinary medical staff consisting of clinicians who specialize in pulmonary medicine, critical care medicine, and internal medicine, all working in close collaboration with physicians in a variety of medical practice specialties.

The partnership between physicians and our interdisciplinary team of allied healthcare professionals of nurses, respiratory therapists, physical, occupational and speech therapists, dietitians, social workers and case managers promotes communication and coordination of care, to inform treatment decisions and support patient centered goal-setting.

# Established Expertise

## Volume Matters

Barlow Respiratory Hospital admits and treats more than twice the national percentage of mechanically ventilated patients discharged from long-term care hospitals (LTCH).

*(Data Source: Medicare Payment Advisory Commission (MedPAC), March 2017)*

### **Barlow Respiratory Hospital is a high-volume regional weaning center.**

In a true value-based system, volume matters. Volume of a condition treated is positively correlated with the outcome for that condition. For over three decades, Barlow Respiratory Hospital has focused on serving chronically critically ill patients with complex respiratory conditions.

Clinicians who treat a high volume of patients with the same condition become expert in treating those conditions. Barlow Respiratory Hospital staff pulmonologists have treated over 1,000 patients at each of our three locations.

## 2016

<b>Total Patients</b>	972
<b>Ventilator Weaning Program</b>	347
<b>Weaning Success Rate</b>	58%

## 2007-2016

<b>Total Patients</b>	7,701
<b>Ventilator Weaning Program</b>	2,399
<b>Weaning Success Rate</b>	54%

## 1988-2016

<b>Total Patients</b>	Approximately 20,000
<b>Ventilator Weaning Program</b>	6,003
<b>Weaning Success Rate</b>	52%

**“Higher-volume  
hospitals have  
better outcomes.”**

**Dr. David Shahian**  
Professor of Surgery  
Harvard Medical School

# Barlow Outcomes: At-a-Glance

**58%**  
weaning success rate



**90%**  
overall satisfaction  
with care provided



**15%**  
higher survival rate



**37%**  
decrease in  
time to wean



**19%**  
decrease in  
length of stay



**39%**  
increase in overall  
mobility score  
all patients



**53%**  
increase in overall  
mobility score  
for ventilator patients





**“The most powerful single lever for reducing cost and improving value is improving outcomes.”**

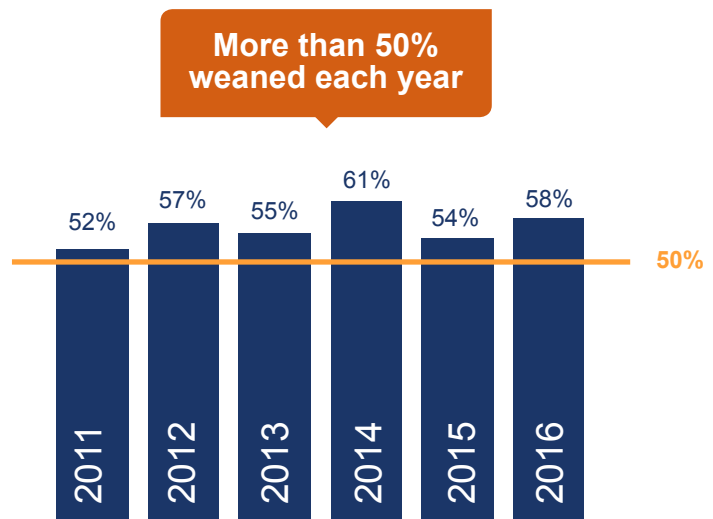
**Michael E. Porter**  
Harvard Business School

# Ventilator Weaning Program

## Weaning Success Rate

Barlow Respiratory Hospital consistently liberates over half of all chronically critically ill patients admitted for weaning from mechanical ventilation.

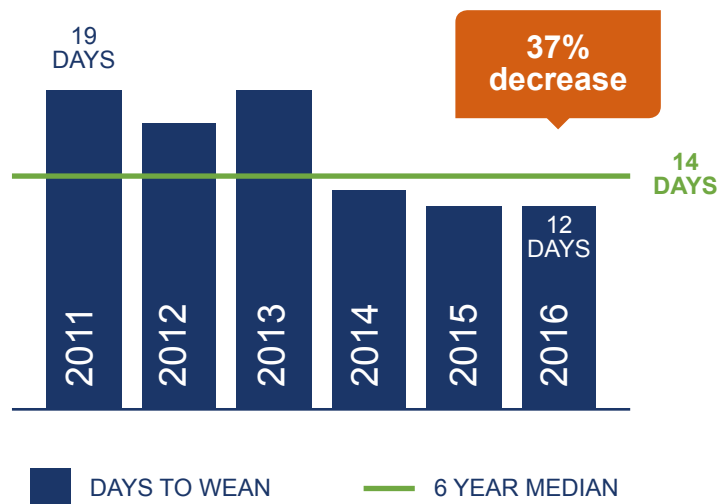
*Weaned is defined as patient being free of invasive mechanical ventilation at least one full calendar day prior to day of discharge.*



## Time to Wean (median days)

More than half of patients who wean now do so within the first two weeks of admission

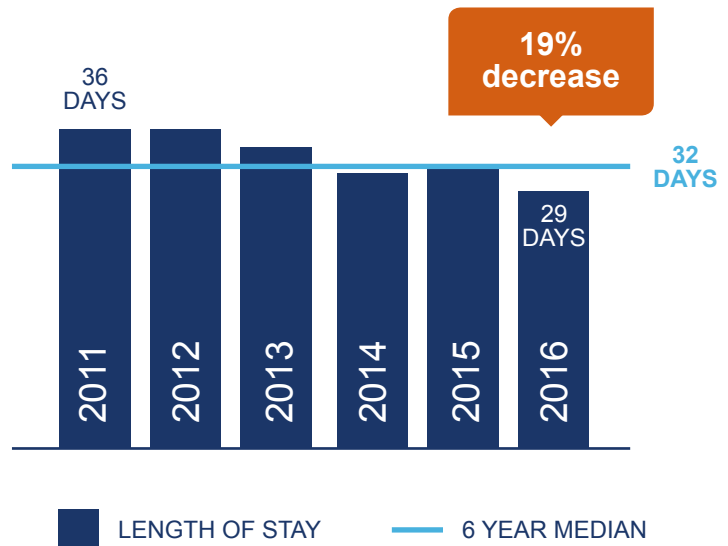
*Time to wean is tallied from day of admission through last day of ventilator support.*



# Length of Stay (median days)

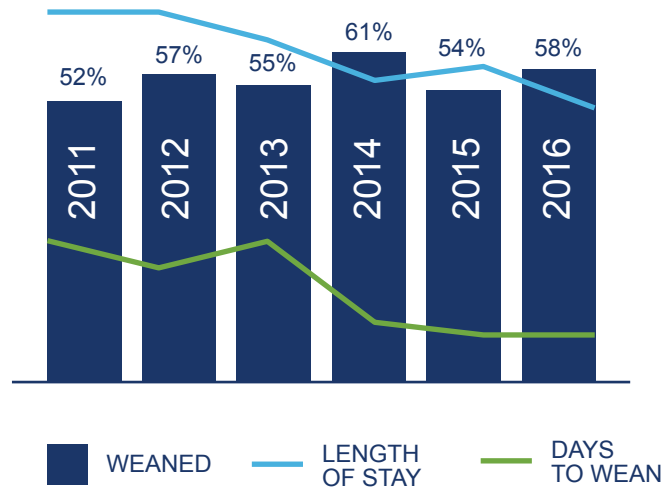
Barlow Respiratory Hospital has consistently decreased length of stay with 19% decrease over six years.

*Length of stay is defined as number of days from admission to discharge.*



# Continuous Improvement

Barlow Respiratory Hospital has consistently weaned more than 50% of patients each year for the last six years while decreasing the number of days to wean and length of stay.



# Center for Outcomes and Value

Barlow Respiratory Hospital's Center for Outcomes and Value, formerly the Barlow Respiratory Research Center, focuses on the outcomes-based study of respiratory illnesses to create, evaluate and communicate new knowledge of treatments and outcomes of ventilator dependency, respiratory failure and other disease processes. Barlow leads LTCHs in outcomes reporting with over 80 publications – book chapters, peer-reviewed journal articles, and abstracts – and numerous national and international conference presentations.

Barlow Respiratory Hospital maintains the largest longitudinal dataset in the nation with reported outcomes of chronically critically ill patients admitted to a LTCH for weaning from prolonged mechanical ventilation. The Ventilation Outcomes Dataset (VOD), a performance improvement dataset, includes data on more than 6,000 patients over 29 consecutive years.

The advantage of our rich longitudinal dataset is that we can measure change. The dataset allows us to analyze the impact of various processes, protocols, and policies on improvement in patient outcomes.

By reporting its outcomes, Barlow Respiratory Hospital serves as a valuable resource for patients who become ventilator-dependent and have weaning and rehabilitative potential, the chronically critically ill, those with chronic lung and medically complex disease processes, their families, and the medical community entrusted with their care.

In addition to this clinical Outcomes book, we support transparent public reporting of healthcare quality data.

We invite you to look at our outcomes, always available online.

[www.barlowhospital.org/outcomes](http://www.barlowhospital.org/outcomes)

**“If you can measure it,  
you can manage it.”**

**Robert S. Kaplan**  
Harvard Business School

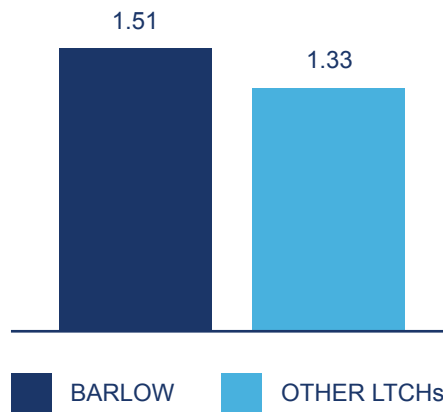
# Key Population Metrics and Quality Measures

Compared to all other long-term care hospitals in Los Angeles, Riverside and San Bernardino counties, Barlow treats patients with highest severity of illness.

## Case Mix Index

The case mix index (CMI) of a hospital reflects the diversity, clinical complexity and the needs for resources in the population of all the patients in the hospital.

*(Data Source: Medicare Claims database (2010-2015 claims))*

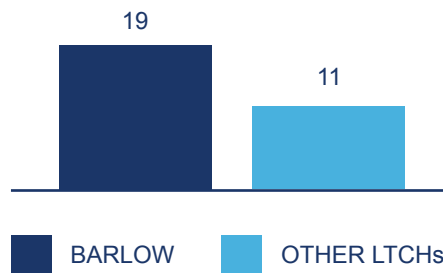


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## Intensive Care Unit Days Prior to LTCH Admission

Patients admitted to Barlow Respiratory Hospital spend approximately one week longer in acute care hospital intensive care units compared to all other long-term care hospitals in Los Angeles, Riverside and San Bernardino counties.

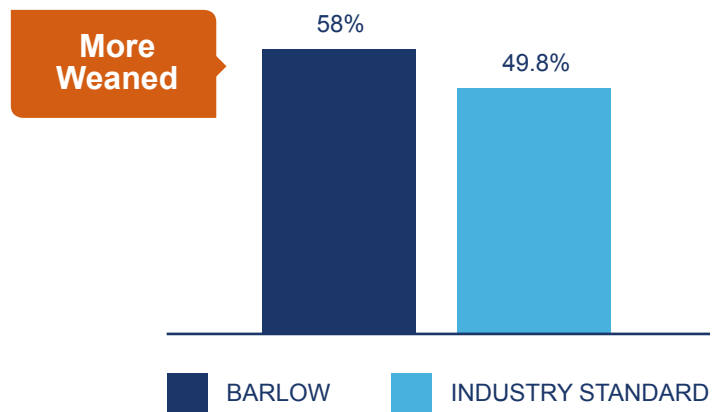
*(Data Source: Medicare Claims database (2010-2015 claims))*



## Ventilator Wean Rate

In 2016, Barlow Respiratory Hospital's weaning success rate was eight percentage points higher than industry standard.

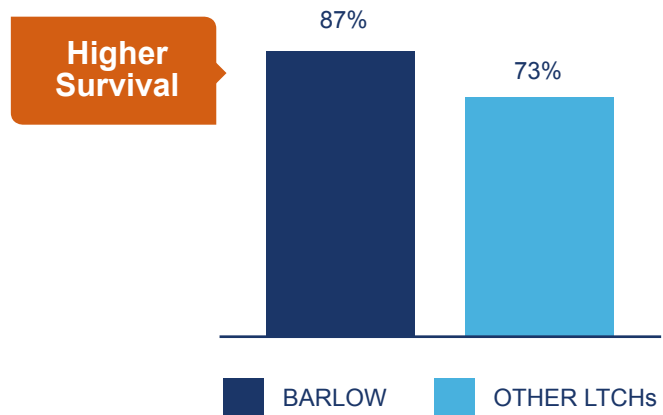
*(Sources: Barlow internal data; industry annual report)*



## Survival to Discharge

Despite a higher patient acuity, Barlow Respiratory Hospital has a survival rate 14 percentage points higher compared to all other long-term care hospitals in Los Angeles, Riverside, and San Bernardino counties. When adjusted for patient complexity, our survival rate is **20 percentage points higher** than others.

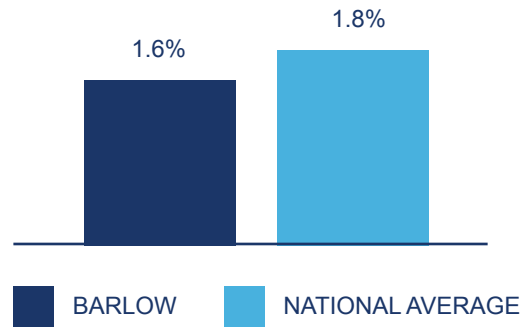
*(Data Source: Medicare Claims database (2010-2015 claims))*



# New or Worsened Pressure Ulcers

Barlow Respiratory Hospital's rate of new or worsened pressure ulcers is lower than the Comparison Group U.S. National Average.

(Source: CMS LTCH Facility-Level Quality Measure Report 2016)



# Catheter-Associated Urinary Tract Infection

Barlow Respiratory Hospital's ratio of reported to predicted catheter-associated urinary tract infections (CAUTI) of 0.87 was no different than the national benchmark. (Confidence interval (range) 0.425, 1.599)

(Source: CMS LTCH Facility-Level Quality Measure Report 2016)



# Central Line-Associated Blood Stream Infection

Barlow Respiratory Hospital's ratio of reported to predicted central line-associated blood stream infections (CLABSI) of 1.392 was no different than the national benchmark. (Confidence interval (range) 0.754, 2.366)

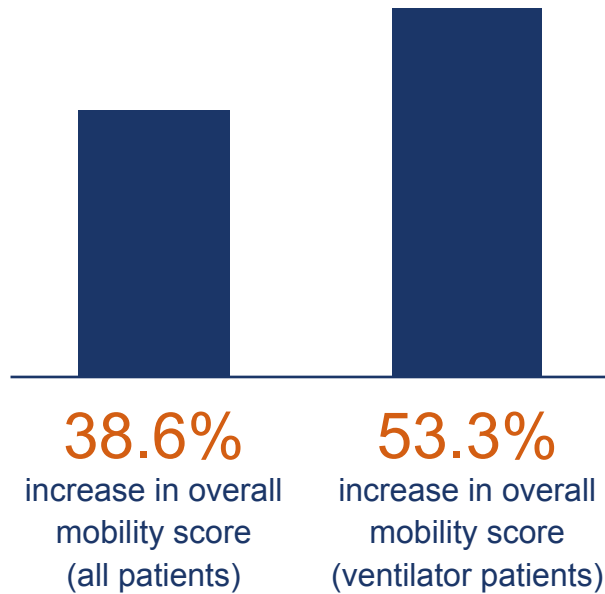
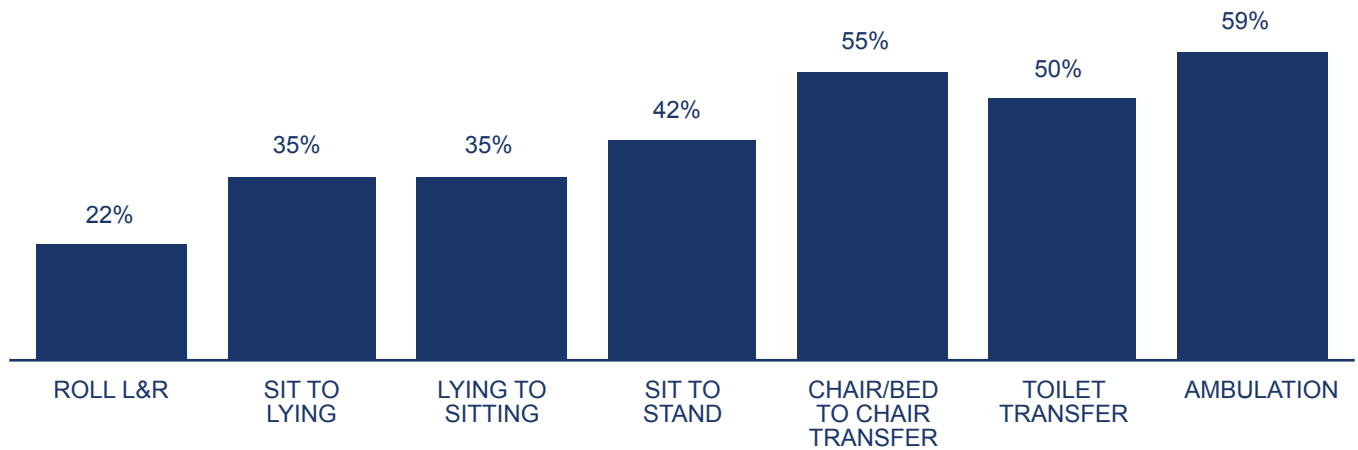
(Source: CMS LTCH Facility-Level Quality Measure Report 2016)





# Functional Abilities: Mobility

From admission to discharge, Barlow patients realize gains in every measured activity.



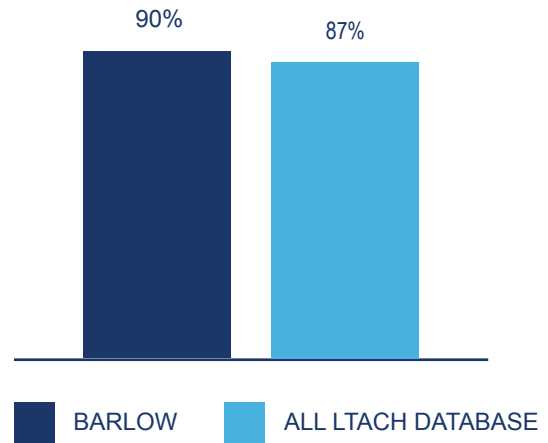
(Source: Barlow internal data from LTCH CARE Data Set – Version 3.0)

# Experience of Care

## Patient Satisfaction with Physician Care

Barlow physicians rank higher in overall satisfaction with care provided when compared to a national LTACH database.

*(Source: Press Ganey LTACH Inpatient Report 6/1/2016-5/31/2017)*

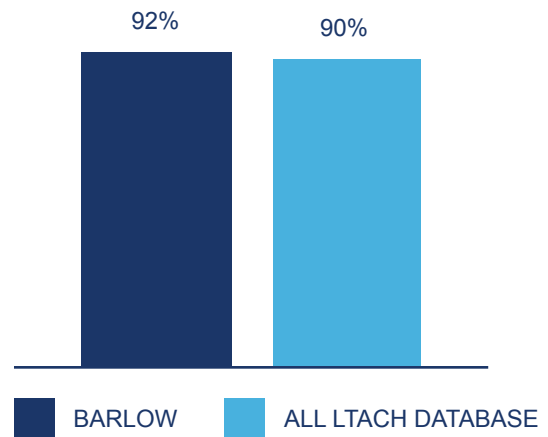


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## Likelihood of Recommending Barlow

The likelihood of patients recommending Barlow was higher when compared to a national LTACH database.

*(Source: Press Ganey LTACH Inpatient Report 6/1/2016-5/31/2017)*



**“The impact of volume  
on patient survival and  
other measures of well-  
being...is enormous.”**

**Dr. Peter Pronovost**

Director, Armstrong Institute for Patient Safety and Quality  
Johns Hopkins Medicine

# Shaping Healthcare Decisions and National Benchmarks

## **First published weaning protocol**

Barlow Respiratory Hospital was the first to develop and publish an evidence-based protocol for weaning ventilator-dependent chronically critically ill patients in the post-ICU setting. Our Therapist-Implemented Patient-Specific “TIPS®” protocol has long been the standard of care at Barlow, and adopted by many hospitals nationwide and abroad, serving as a template for “best practice” models for weaning patients from prolonged mechanical ventilation.

## **First multicenter study**

Barlow Respiratory Hospital served as the primary research site and leader of the only multicenter study to date of LTCH weaning outcomes. The results of the study are published as two papers in the journal Chest.

## **A national presence**

Selected after a national call for nominations, Barlow staff holds membership on multiple technical expert panels (TEP) convened by the Centers for Medicare & Medicaid Services (CMS). A TEP is a group of stakeholders and experts who provide technical input on the development, selection, and maintenance of measures for which CMS contractors are responsible. Barlow representatives provide important input to the regulations that shape the quality measures for the Long-Term Care Hospital Quality Reporting Program, and care for chronically critically ill patients.

## **Academic partner**

Barlow serves as a teaching hospital for medical students at the Keck School of Medicine of USC and the David Geffen School of Medicine at UCLA. Barlow Respiratory Hospital also acts as a clinical training site for Respiratory Therapy, Nursing, Physical, Occupational, Speech Therapy and Clinical Nutrition allied health professionals. Educating medical professionals of the future to care for the chronically critically ill is a vital role we play in our community, and one in which we take great pride.

**“For patients in need of specialized respiratory care after prolonged hospitalization, Barlow Respiratory Hospital is the destination of choice and provides renewed hope for patients and families.”**

**David R. Nelson, M.D.**  
Medical Director, Barlow Respiratory Hospital

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213-250-4200  
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Cover Image:  
Lung cells with blood circulation in blue tint  
Encyclopedia Britannica Films



With a legacy of care, compassion and hope, Barlow Respiratory Hospital welcomes patients from all over California, the West Coast and beyond. Locations in Los Angeles, Van Nuys and Whittier make Barlow accessible to patients and families throughout Los Angeles County including San Fernando, Santa Clarita and San Gabriel Valleys. If you have a patient who requires the experience and expert care only Barlow can offer, contact us today.

**LOS ANGELES**

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Los Angeles, CA 90026

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Van Nuys, CA 91405

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