

FOR PROFESSIONALS

SAVINGS CALCULATOR

The Costs of Critical Care and Mechanical Ventilation

The cost of healthcare in the United States has been estimated to consume nearly 14% of the gross domestic product and nearly one third of this expense has been attributed to inpatient care¹. Further, despite accounting for only 10% of all inpatient beds, intensive care units (ICU) accrue nearly one third of all inpatient costs². Studies have estimated that \$4 to \$5 billion dollars were spent in the United States directly related to the medical expenditures of mechanical ventilation and mechanical ventilation on average increases the length of ICU stay by 4.0 days and increases the average cost of care by \$18,643^{3,1}.

Improving Communication Reduces Costs

How can the Vidatak EZ Board help?

Two decades of clinical research has clearly demonstrated that mechanically ventilated patients endure having unrecognized needs. These patients are disoriented, misunderstood and overwhelmed with a sense of dependency, loss of control and isolation, while feeling trapped, dehumanized, fearful, anxious and afraid⁴. Further, it has been documented that ineffective patient and patient-family communication leads to longer hospital stays and higher fixed variable costs⁵.

The **Vidatak EZ Board is the only clinical, research-based, communication intervention for the voice disabled patient**. It was actually designed by mechanically ventilated patients! Clinical research at UCLA Medical Center has shown the EZ Board reduces patient frustration, increases overall satisfaction with healthcare, and most importantly, **decreases the use of pain and anxiolytic medication**^{6,7}.

Recent research has demonstrated that **interruption of pain and anxiolytic medication decreases the duration of mechanical ventilation and length of hospital stay** and also **decreases the incidence of** complications that ensue from mechanical ventilation such as **ventilator-associated pneumonia, upper gastrointestinal hemorrhage, bacteremia, barotraumas, venous thromboembolic disease, cholestasis, and sinusitis**^{8,9}. This not only improves overall clinical performance but also saves your hospital money!

How Much You Can Save With Vidatak

Sample calculation of savings using the Vidatak EZ Board

Benefits are not seen with every patient, but we have itemized cost savings with a conservative factored 10% effectiveness on reduction in sedation, length of ICU stay, and nursing full-time equivalents (FTE's).

For our model, we will consider a hospital with 50 ICU beds. Medical literature demonstrates that nearly 50% of critical care patients will be mechanically ventilated (MV) during some portion of their hospital stay and the average length of ICU stay for MV patients is 6.9 days.^{10, 1}. Given patient turnover is 6.9 days, each ICU bed has the potential to be utilized by 4 MV patients per month. Assuming 50% capacity due to variation in admissions and length of stay, the hospital will care for 50 MV patients per month. Estimating conservatively, with 10% of MV patients using the EZ board, approximately **5 patients will use the EZ board each month.**

$$50 \text{ ICU beds} \times 50\% \text{ capacity} \times 50\% \text{ MV} \times 4 \text{ patients/bed/month} \times 10\% \text{ utilization}^* =$$

5 MV patients/month

Reduction in sedation

The average price per vial of sedative is \$40 and on average a MV patient requires five vials per day. Clinical research has shown the average length of mechanical ventilation is 6.9 days¹. Therefore, it costs \$1,380 to sedate a MV patient. Assuming 10% effectiveness in 5 MV patients per month translates to **cost savings of \$690.**

$$\$40/\text{vial} \times 5 \text{ vials/patient/day} \times 6.9 \text{ days} \times 5 \text{ MV patients/month} \times 10\% \text{ effectiveness}^{**} =$$

\$690/month

Reduction in length of stay

The daily cost of care for a MV patient is \$3,500 per day and the average stay is 6.9 days¹. Even assuming a conservative 10% benefit in patients that use the EZ Board, the **cost savings from a reduction in ICU stay is \$12,075.**

$$\$3,500/\text{patient/day} \times 6.9 \text{ days} \times 5 \text{ MV patients/month} \times 10\% \text{ effectiveness} =$$

\$12,075/month

* Given the variety of diagnoses and the variability in standards of care, we conservatively estimate that approximately 10% of mechanically ventilated patients would use the EZ Board.

**Given the variety of diagnoses and the variability in standards of care, we conservatively estimate 10% effectiveness related to cost savings benefits with patients who use the EZ Board.

Reduction in full-time equivalents

Psychosocial needs are a qualifier for making a patient 1:1 care. By enhancing communication, reducing frustration, and improving overall satisfaction with healthcare, the Vidatak EZ Board may reduce FTE's by reducing acuity, allowing the 1:1 nurse to now care for 2 patients.

The cost of critical care nurse staffing for a 24 hour shift averages \$720¹¹. The average MV patient requires mechanical ventilation for 6.9 days of which 50% may require 1:1 staffing¹. Therefore, the staffing cost for one MV patient is \$2,484. Assuming 10% effectiveness leads to **cost savings of \$1,242 each month**.

$$\text{\$720/patient/day} \times 6.9 \text{ days} \times 50\% \text{ 1:1 staffing} \times 5 \text{ MV patients/month} \times 10\% \text{ effectiveness} =$$

\\$1,242/month

Summary: Saving \$690 per month on sedation, \$12,075 per month in ICU expenses, and \$1,242 in staffing each month for **total cost savings of \$14,007/month or \$168,084/year!**

Return on Investment: The **average cost of the Vidatak EZ Board is \$15**, used with total available patients (50/month) = \$750/month x 12 months = **\$9,000 cost/year**.

NET SAVINGS EQUALS \$159,084 PER YEAR!!!
OR
NEARLY A 20 FOLD RETURN ON INVESTMENT!!!

Conservatively assuming 10% effectiveness with reduction in sedation, length of stay and 1:1 staffing with only 10% of MV patients, the EZ Board saves a hospital with 50 ICU beds over \$150,000 per year!



This is based on a national average. The number of patients who will use the EZ Board and the ability to demonstrate effectiveness in your hospital may be more or less depending on your patient demographic and standards of care.

For more information regarding the EZ board, consultation services, or a cost-savings analysis for your hospital, please visit our website at www.vidatak.com or contact us at customerservice@vidatak.com or **310.550.5856**.

References

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