

Confusion & Picking at IVs



Unplanned Extubation \$801,250

Berkow L, et al. Unplanned extubation: A costly complication of airway management that leads to preventable death. Trends in Anaes and Crit Care. 2020 Feb.

Bedside Sitters \$1,057,500

Delirium \$7,859,000

Vasilevskis E, et al. Epidemiology and risk factors for delirium across hospital settings. Best Pract Res Clin Anaes. 2012 Sep;26(3):277-87.

Pressure Injury \$242,900

Padula WV, et al. The national cost of hospital-acquired pressure injuries in the United States. Int Wound J. 2019 Jun;16(3):634-640

Complications \$183,900

Bail K, et al. The cost of hospital-acquired complications for older people with and without dementia; a retrospective cohort study. BMC Health Serv Res. 2015 Mar 8;15:91.

Length of Stay \$3,614 / day

Kyeremanteng, K, et al. 501: ICU Delirium, Clinical Outcomes, and Cost: Systematic Review and Meta-analysis. Crit Care Med: 2018 Jan; Vol 46(1):235

Readmission \$1,751,250

Beresford L, Hospital Readmissions Rates, Medicare Penalty Analysis. The Hospitalist. Public Policy. 2015 Apr 3.

COST SAVINGS ANALYSIS

for

Your Institution

Total Beds: 500

Total Calculated Benefit of Refraint®:

\$13,504,550

Assumptions: costs in USD based on references cited applied to annualized national average utilization (inpatient admissions) of TOTAL BEDS x 50 with a weighted utilization of Refraints of 50%



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Cost Analysis for Your Institution
 Total Hospital Beds: 500
 Annual Census: 25000

Annual Complication Costs	Low	High
Pressure Ulcers	\$1,070,800	\$101,726,000
Unplanned Extubations	\$2,187,500	\$2,562,500
Delirium	\$16,303,000	\$64,421,000
Readmissions	\$4,087,500	\$6,150,000
Hospital-acquired Complications	\$952,800	\$23,820,000
Bedside Sitters	\$2,700,000	\$3,240,000
Total Annual Spending:	\$27,301,600	\$201,919,500
Total Monthly Spending:	\$2,275,133	\$16,826,625
Exersides Refraint® Cost	90 Refraints @ 50% usage	135 Refraints @ 75% usage
Annual	\$292,500	\$438,750
Monthly	\$24,375	\$36,563

Monthly Savings

Effectiveness	Low	High
100%	\$2,250,758	\$16,790,063
75%	\$1,688,069	\$12,592,547
50%	\$1,125,379	\$8,395,031
25%	\$562,690	\$4,197,516

Annual Savings

Effectiveness	Low	High
100%	\$27,009,100	\$201,480,750
75%	\$20,256,825	\$151,110,563
50%	\$13,504,550	\$100,740,375
25%	\$6,752,275	\$50,370,188



The Exersides® Refrains® System

Designed for:

Validated safety and efficacy¹

- Improve patient agitation scores and outcomes
- Improve the control of sedation and mobility
- Allow for patient active range of motion without decreasing safety
- Connect to the patient at the wrist and shoulder for minimal skin contact
- Does not interfere with patient access and equipment
- Reduce the risk of self-extubation
- Increase patient, family, and staff care satisfaction

Reducing staff workflow requirements

- Easy to adjust for improved control
- Reduces documentation workload
- Does not require additional staff to operate
- Improves line management
- Provides quality measurement of care
- Compatible with hospital bed and equipment

Versatility and adjustability

- Multiple movement level options included: Traditional Restraint, Exercise Strap, and No-Strap
- Approved for both adults and pediatrics

Physician guideline compliance

- Supports “Least Restraint Necessary” CMS mandate
- Aligned with ABCDEF Bundle and ERAS Initiatives



The Exersides® Refrains® System is focused on improving outcomes and workflow.



PATIENTS

- Less agitation
- Less sedation
- More mobility options
- No wrist compression
- Minimal skin contact
- Additional safety



ICU STAFF

- Less restraint documentation
- IVs and arterial lines visible and contained
- Easily check glucose, pulse oximetry, capillary refill
- Easily change level of restraint
- More control over patient progress and safety



FAMILIES

- Better interaction
- Loved one not tied to bed
- Hold hands
- Designed to reduce Post-Intensive Care Syndrome (PICS) and PICS-Family
- Involvement with patient's in-bed mobility



ADMINISTRATION

- Complies with CMS mandate of “Least Restraint Necessary”
- Less sedation helps reduce complications and re-admissions
- Better satisfaction scores
- Reduces staff burnout
- Covid-relevant



The Exersides® Refraint® System

Designed by ICU Staff for ICU Staff
to make patient and staff interaction easier
with improved care results.



CMS 42 CFR 482.13(e)(1)(i)(C): “A restraint does not include devices, . . . to permit the patient to participate in activities without the risk of physical harm. . .”

Challenges

Sedation and limited mobility can cause physical, cognitive, and psychiatric disabilities care resulting in^{2,3}

- Post-Traumatic Stress Disorder (PTSD)
- Post-Intensive Care Syndrome (PICS)
- Anxiety
- Depression
- Delirium

Hospitals struggle with keeping in compliance

Centers for Medicare and Medicaid has mandated a “Least Restraint Necessary”, but hospital compliance is difficult when traditional restraints are the main option.

Patient care costs continue to burden healthcare systems

Both ICU costs and volumes have increased. Patients that experience disabilities may require re-hospitalization or other additional care that increases costs.¹⁻⁴

~2M Americans per year

May experience physical, cognitive, and psychiatric disabilities post-ICU Care ^{2,5}

~ \$102k - \$157k

Additional hospital costs per patient may occur due to hospital complications¹

- \$56K-\$110K per complicated extubation
- \$43K per pressure ulcer
- 2X risk of nosocomial infection
- \$3.1K - \$4.1K increase in patient hospital stay

> \$43k per person

Is the mean post-hospitalization costs of COVID-19 survivors,⁴

1) Lin B, Kamdar B, et al. Pilot Safety and Feasibility Study of a Novel Restraint Device in Critically Ill Patients with Acute Respiratory Failure. Am J Respir Crit Care Med 2020;201:A3598.

2) Kosinski S, Mohammad RA, Pitcher M, et al. Patient Education Series: What is Post Intensive Care Syndrome. Am J Respir Crit Care Med. 2020; 201:15-16

3) Needham DM, Davidson J, Cohen H, et al. Improving long-term outcomes after discharge from intensive care unit: report from a stakeholders' conference. Crit Care Med. 2012 Feb;40(2):502-9

4) Gajic O, Ahmad SR, Wilson ME, et al. Outcomes of critical illness: What is Meaningful? Curr Opin Crit Care. 2018, 24(5): 394-400. doi:10.1097/MCC.0000000000000530

5) Wilbur J, Rockafellow J, Shian B. Post-ICU Care in the Outpatient Setting. Am Fam Physician. 2021 May 15;103(10):590-596. PMID: 3398300

Indications for Use: Patients assessed to be at risk of entanglement in vital interventions such as vascular access lines or breathing equipment.

Contraindications: DO NOT USE if patient is prone, has an upper limb injury, or an IV or wound site which could be compromised by the device, or if body is compressed against device e.g. obesity, deformity.