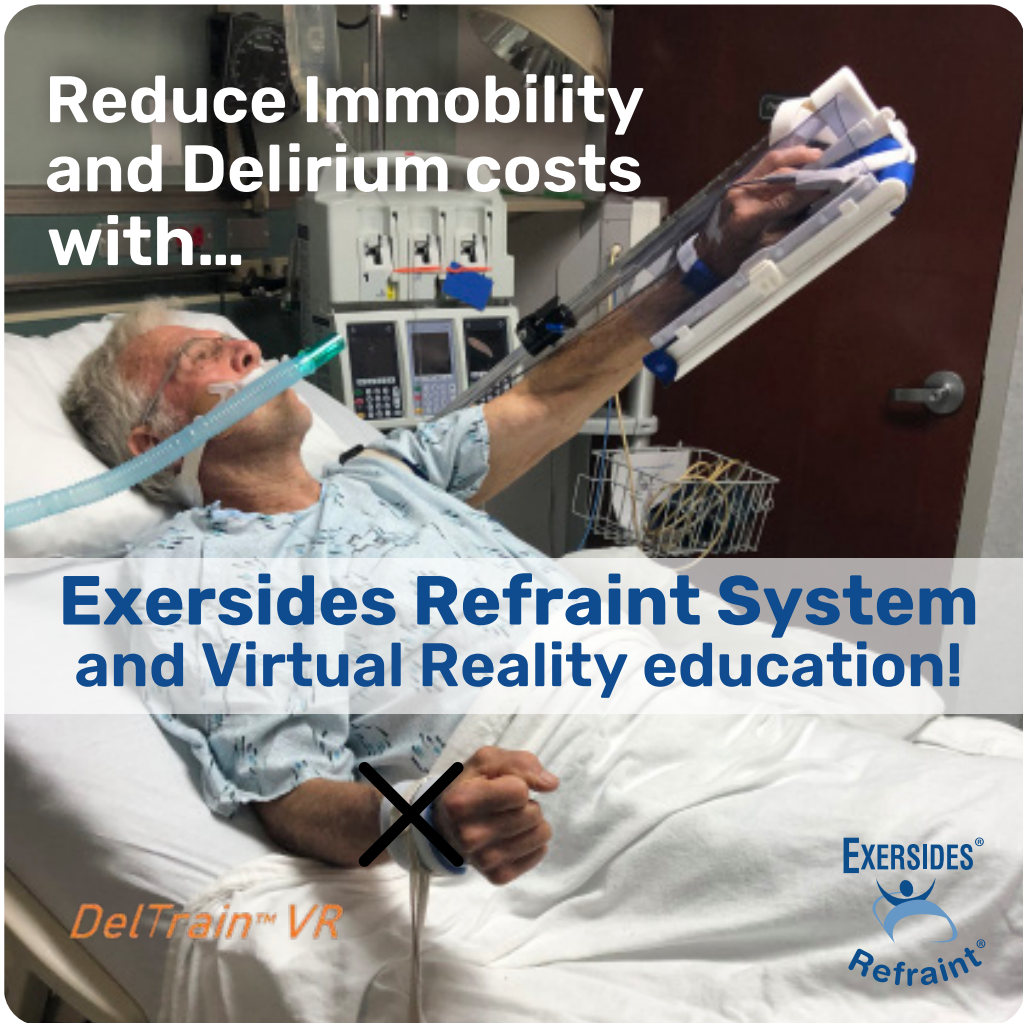


**Reduce Immobility  
and Delirium costs  
with...**



**Exersides Refrains System  
and Virtual Reality education!**

*DelTrain™ VR*



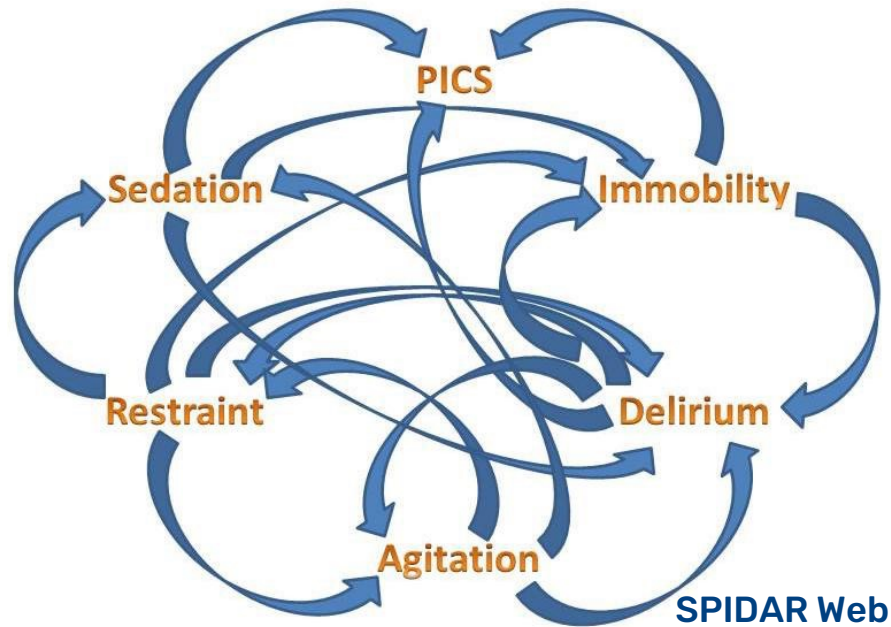
### **Adult and Pediatric**

**For Use In** ICU • PICU • Medical/Surgical •  
Trauma Step-Down • PACU •  
Dementia Acute Rehab • EMS

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# Cost Savings

ICU Liberation/A-F bundle principles strive to reduce immobility and sedation, and encourage early mobilization and interaction with resultant fewer ventilator days and complication costs

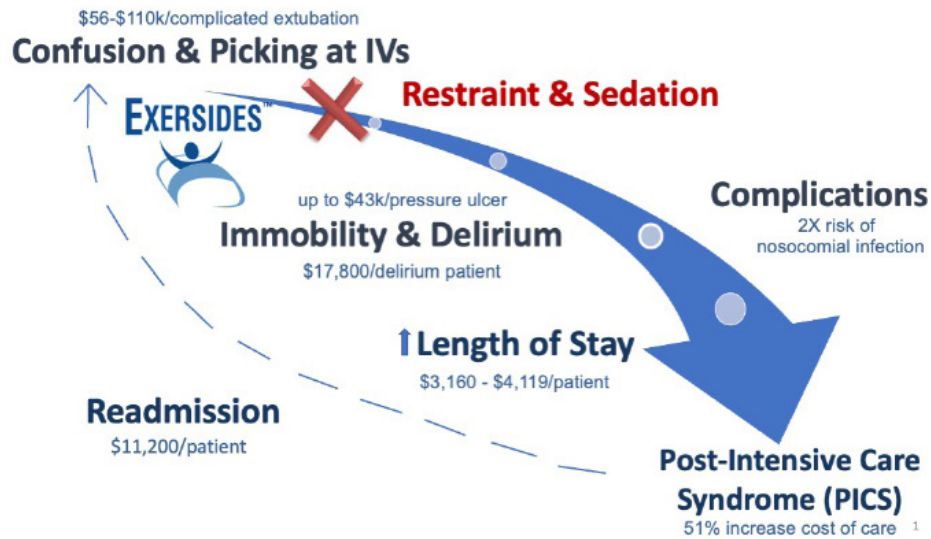


## Immobility and delirium costs

- ICU days  $\uparrow$  by 4.77 days @ avg \$4k/day if intubated = \$19k/pt
- Hospital days  $\uparrow$  by 6.67 days @ avg \$1.5k-2k/day = \$12k/pt
- Sitter usage @ > \$160/shift
- Unplanned extubation  $\uparrow$  by >11x
- Doubled nursing hours
- IV/tube/catheter dislodgement
- Hospital-acquired pneumonia
- Pressure injuries
- Readmissions

### The Exersides Refrains System

# Cost Savings



**Validation Strategy:** HD Medical can help you track above costs

## Direct Costs

**Sedation costs** \$50/day/intubated patient  
Opiate costs  
Anti-psychotic costs

## Staff

**Sitter Costs** \$160/shift

## Length of Stay

**Ventilator Days** \$1.5k/day

**ICU Days** \$4k/day if intubated

**Hospital Days** \$1.5k-2k/day

## The Exersides Refraining System

# Regulatory Benefits

## SCCM PADIS Guidelines on Restraints

**RECOMMENDATIONS:** ... studies...paradoxically report higher rates of the events that their use is intended to prevent. These events include more unplanned extubations and frequent reintubations; greater un-intentional device removal; longer ICU LOS; increased agitation; high-er benzodiazepine, opioid, and antipsychotic medication use; and in-creased risk for delirium or disorientation.

Patients' perceptions...provoke strong emotional responses that persist after the ICU stay. Given the prevalence, unintended consequences, and patients' perceptions of physical restraint use, critical care providers should closely weigh the risks...before initiating or maintaining phys-ical restraint use. Although certain countries report a "restraint-free" ICU environment, it may be possible that their use of bedside sitters and/or pharmacologic restraints is increased.

## ACCM Clinical Practice Guidelines

**RECOMMENDATION:** The choice of restraining therapy should be the least invasive option capable of optimizing patient safety, comfort, and dignity.

## Refrant & Guidelines

Exersides Refrانت allows compliance with PADIS Guidelines & ACCM recommendations and the ONLY all-in-one device in compliance with CMS "Least Restrictive Restraint" The Exersides Refrانت System prin-ciples are supported by Surgeons, Intensivists, Psychiatrists and Thera-pists. SCCM & CMS Guidelines recommend what only Exersides offers.

## The Exersides Refrانت System

# Clinical Trials

## A Novel Physical Restraint Alternative for Early Mobilization, Delirium Prevention and Sedation Minimization in Intubated Patients.

Pavini, Marie MD; Washburn, Jolana RN. Department of Critical Care, Rutland Regional Med Ctr, Rutland, VT, US. 2017.

**RESULTS** Less sedation; Better agitation scores; More movement; Better interaction  
Better Patient satisfaction, Better Family satisfaction, Better Staff satisfaction

n=10	Pre-study propofol (mcg/kg/hr)	During study propofol (mcg/kg/hr)	SAS*	Time spent moving (hrs)	Time spent interacting (min)
<b>Wrist restraints</b>	26±18.2	20±11.7	3.2±0.4	0±0	2.2±4.4
<b>Exersides Refraint</b>	28±8.4	11.2±10.0	4±0.7	2.6±1.6	66±73.8

\*Sedation-Agitation Scale; 1=comatose, 4=calm and cooperative, 7=dangerously agitated

## Phase I Pilot Safety And Feasibility Study Of A Novel Restraint Device In Critically Ill Patients With Acute Respiratory Failure.

Biren B. Kamdar, MD, MBA, MHS, Janelle Fine, BS, Dale Needham, MD PhD, Renee Stapleton, MD PhD, Marie T. Pavini, MD, et al.

**RESULTS** No safety events were reported. Feedback from patients, family and clinicians was positive and constructive.

	Day 1 (n=7)		Day 2 (n=4)	
	Exersides	Traditional Restraint	Exersides	Traditional Restraint
<b>Time in restraint</b> (mean hours ± SD)	4.0±0.6	2.1±1.9	1.8±2.1	3.8±1.2
<b>Wrist activity level, median</b> (IQR) <sup>a</sup>	59 (16-177)	92 (24-213)	92 (28-213)	77 (22-206)
<b>RASS sedation score</b> (mean hours ± SD) <sup>b</sup>	-1.5±1.8	-0.5±1.8	-0.6±1.5	-1.7±1.2
<b>CAM-ICU delirium</b> (n) <sup>c</sup>	1	1	1	1
<b>Satisfaction with Exersides</b> (mean hours ± SD) <sup>d</sup>	3.3±0.7		3.8±0.4	

a) Represented as median (IQR) number of non-zero movements per 30-second epoch, as measured using bilateral wrist actigraphy. Left and right wrist. b) Richmond Agitation-Sedation Scale (RASS). c) Confusion-Assessment Method (CAM-ICU). d) Quebec User Evaluation of Satisfaction with Assistive Technology (Quest 2.0) device subscale, higher score is better with a range from 1 (not satisfied at all) to 5 (very satisfied)

## The Exersides Refraint System

## Ventilator Weaning and Restraints

**Daily Sedation Interruption in Mechanically Ventilated Critically Ill Patients Cared for With a Sedation Protocol: A Randomized Controlled Trial. JAMA. 2012;308(19):1985– 1992.**

Mehta S, Burry L, Cook D, et al.

**RESULTS** Daily sedation interruption is associated with more restraint use (OR 1.84, 95% CI 1.27, 2.67)

## A-F Bundle Barriers and Restraints

**Identifying barriers to delivering the ABCDE bundle to minimize adverse outcomes for mechanically ventilated patients: A systematic review. Chest. 2017 Aug;152(2).**

Costa DK, White MR, Ginier E.

**RESULTS** Perceived patient barriers to early mobilization in the intensive care unit: Patient and staff safety concerns

## Unplanned Extubation and Restraints

**Incidence, risk factors and outcomes of delirium in mechanically ventilated adults. Crit Care Med. 2015 Mar;43(3):557-66.**

Mehta S, Cook D, Devlin JW, et al for the SLEAP Investigators and the Canadian Critical Care Trials Group.

**RESULTS** Restrained patients had: Lower APACHE II mean scores; More delirium; More device removal; More reintubation; All statistically significant

## Use of physical restraints in adult ICU patients to prevent patient-initiated device removal: a systematic review. Università di Bologna Facoltà di Medicina. 2011 Oct.

Bassi E, Ceresola M.

**RESULTS** One third or more of the self-extubation events occurred despite use of wrist restraints ... as it can heighten agitation and may have devastating physical and psychological effects on the patients.

# Public Image

## Look good for your close-up

**NY Times** Take a Vacation From Exercise? Your Body May Not Thank You: Two new studies look at what happens when we do not exercise or move around much for a period of time. *Aug 1 2018*

**WSJ** How to Minimize Permanent Mental Trauma from an ICU Stay *Mar 2, 2018*

**PBS News Hour** Why a stay in the ICU can leave patients worse off *Jun 16, 2017*

**NY Times** Nightmares After the I.C.U. *July 22, 2013*

**PBS with Meg Ryan** Pioneers in Healthcare

## Magnet Status financial benefits

We can provide references and trial results for your proposal. Nurse-driven Quality Improvement will impress!

## HCAPS/MIPS/Press-Ganey scores

In our Pilot Study, questionnaires revealed a greater satisfaction by patients and family (as well as staff).

### The Exersides Refraint System

# Differentiating Features

**Multiple levels of Refrains & restraint make the Exersides Refrain the only all-in-one device in compliance with CMS 'Least Restrictive Intervention'.**



## Unlike Wrist Restraints

No Head-to-Hand unplanned extubation

Allows safe arm movement

Wrist strap auto-regulates to prevent neurovascular injury and edema

Does not obscure arterial lines



## Unlike Mitts

Easy access to and visualization of hand/IVs

No entanglement to dislodge catheters & IVs

No entanglement or unplanned extubation

## Unlike Anything

Tangle-free IV containment system for safety

Titrate restraint from strict to liberal to none

Built-in Occupational Therapy hand device

Hand Shield prevents tube/catheter dislodgement

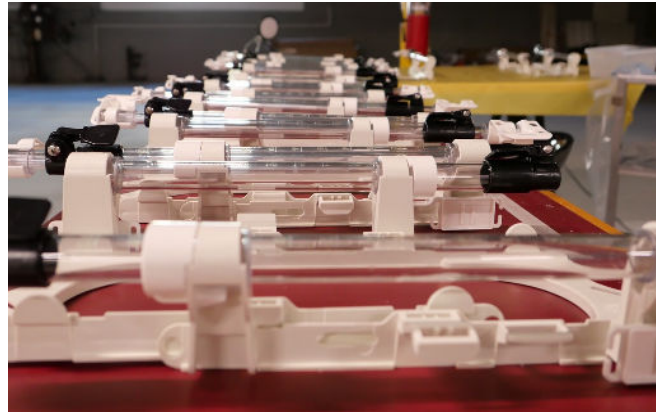




# Company

## Healthy Design dba HD Medical

- FDA-Registered
- ISO13485-compliant manufacturing facility
- Woman-owned
- US manufacturing



**HD** *medical.org*

*Pioneering the way to better patient outcomes by empowering caregivers to safely improve cognition, mobility, and human spirit*