



ARJO'S MOBILITY SOLUTIONS

# Early Mobilization



### Total Lift Bed™

Using only one or two caregivers, the Total Lift Bed™ can progressively move patients to a full standing and weight-bearing position to aid rehabilitation early in the acute phase of critical illness. Without leaving the bed, patients who need a graded transition from bedrest to supporting their full body weight, can be progressively moved to the standing position. As the bed tilts, the change in weight-bearing achieved by the patient is displayed on the foot lift footboard. This visual feedback helps caregivers to monitor progress, and set milestones against rehabilitation and mobility objectives.



### Sara Combilizer®

A tilt table, stretcher and multi-position chair, the Sara Combilizer helps facilitate early transfer from the bed to a sitting or upright standing position. A recent study evaluating the impact of the introduction of the Sara Combilizer demonstrated a significant reduction in time taken to mobilize for patients ventilated  $\geq 5$  days. Time to mobilize was reduced by 3 days and corresponded with significantly higher SOFA scores at the point of mobilization in the Sara Combilizer group, suggesting patients were also mobilizing at a more acute stage of their illness / in a higher degree of organ failure.



### Maxi Sky® 2 Infection Control

Our complete range of Maxi Sky ceiling lifts is designed to integrate with your care environment, helping to ensure a safe, comfortable and dignified experience for everyone involved. The ceiling lifts are installed, stored and operated so that a single caregiver can transfer patients or residents smoothly without any manual lifting, thereby helping to reduce the risk of injury for themselves and the person in their care.



### Sara® Plus

Sara Plus is a powered standing and raising aid designed for active transfers, balance, stepping and gait training. Designed with a detachable footplate and the support of the arm rest and sling, the Sara Plus is able to enhance mobility through exercises.



### IVEA

IVEA is an equipment management tool that was designed by clinicians to help improve outcomes and lower costs by making patient ambulation easier, safer, and more efficient.

# The impact of prolonged immobility

Intensive care unit (ICU) patients frequently have extreme derangement of physiological function. There is an initial focus on aggressive life support, coupled with continuous monitoring and treatment for organ failure.<sup>1</sup> While providing this care, ICU management of the critically ill patient has traditionally involved

supine or semi-recumbent positioning and bed rest, mechanical ventilation, analgesia, and sedation, but with historically little attention placed on long-term outcomes and in particular, neuromuscular function.

Up to 20% muscle wasting in first week

Muscle wasting occurs early and rapidly during the first week of critical illness, with losses of up to 20% seen for those in multi-organ failure<sup>2</sup>

Failure to wean from mechanical ventilation

A strong correlation between muscular weakness and poor outcomes has been observed, with weakness directly associated with failure to wean from mechanical ventilation and increased in-hospital mortality rates<sup>3,4</sup>

Severe functional impairments

ICU survivors frequently suffer severe functional impairments and reduced pace and degree of recovery.<sup>5</sup> These effects can last months to years after hospital discharge,<sup>6</sup> with a negative impact on employment and income in ICU survivors and their caregivers, and mortality and utilization of primary care services are high in the immediate post-discharge period<sup>7</sup>

## Clinical evidence

Author	Study	Design	Key Findings
Puthuchery et al 2013 <sup>2</sup>	Prospective study Patients admitted to ICU anticipated to be intubated for >48 hours and LOS > 7 days	63 patients recruited on day of admission to ICU. Muscle loss was determined through ultrasound measurements of rectus femoris cross sectional area (CSA) on days 1, 3, 7 and 10	<ul style="list-style-type: none"> <li>• Muscle wasting occurred from first day of admission</li> <li>• Significant reduction in rectus femoris CSA at day 10 in all patients</li> <li>• Losses were highest in those patients with multi-organ failure</li> </ul>
Herridge et al 2011 <sup>6</sup>	Prospective, longitudinal cohort study	Follow up study of 109 survivors of ARDS following hospital discharge. Interviews and examinations performed at 3, 6 and 12 months and at 2, 3, 4 and 5 years	<ul style="list-style-type: none"> <li>• Significant exercise limitation and reduced HRQOL still present 5 years following hospital discharge</li> <li>• Greater rate of recovery in younger patients but still had not returned to normal predicted levels at 5 years</li> <li>• Increased costs and usage of healthcare services in survivors of ARDS</li> </ul>
Yende et al 2016 <sup>8</sup>	Secondary analysis of 2 international RCTs	Controlled comparison of outcomes for patients with severe sepsis. Only patients who were functional and living at home without help before sepsis and hospitalization were included	<ul style="list-style-type: none"> <li>• Approximately one third of patients with severe sepsis had died at 6 months</li> <li>• 41% were unable to live independently following hospital discharge</li> <li>• Almost half of patients with mobility and self-care problems at 6 months had either died or continued to report problems at 1 year</li> </ul>

# The benefits of early mobilization

Early mobilization has been demonstrated to be both safe and feasible for patients admitted to critical care.<sup>9</sup> When implemented, programs of early mobility have demonstrated numerous benefits to both the patient and the organization. As a result, early mobilization is now included as a key component in a number of national and international guidelines.<sup>10-12</sup>



## Patient

- Reduces the degree of muscle loss and minimizes the poor physical condition associated with prolonged bed rest<sup>13,14</sup>
- Improved functional status at hospital discharge<sup>15,16</sup>
- Improved walking ability at discharge<sup>14</sup>
- Improved health related quality of life<sup>14</sup>
- Reduced incidence and duration of delirium<sup>15,16</sup>



## Organization

Cost reductions associated with

- Reduced ICU and hospital length of stay<sup>17,18,19</sup>
- Increased patient flow<sup>18,19</sup>
- Reduced duration of mechanical ventilation<sup>15,17,18</sup>
- Reduced readmissions
- Increased patient satisfaction levels

## Clinical evidence

Author	Study	Design	Key Findings
Schweickert et al 2009 <sup>15</sup>	RCT 2 Medical ICUs	104 patients PT / OT initiated within 72 hours until discharge	<ul style="list-style-type: none"> <li>▪ Achieved mobility milestones earlier</li> <li>▪ Improved function at hospital discharge</li> <li>▪ Reduced incidence and duration of delirium</li> <li>▪ Reduced duration of mechanical ventilation</li> </ul>
Needham et al 2010 <sup>19</sup>	Quality improvement project Medical ICU	57 patients mechanically ventilated ≥ 4 days	<ul style="list-style-type: none"> <li>▪ Improved sedation and delirium status</li> <li>▪ Increased number of rehabilitation sessions per patient</li> <li>▪ Reduced ICU and hospital length of stay</li> <li>▪ 20% increase in admissions through bed days saved</li> </ul>



# Featured product: IVEA

## **IVEA is efficient.**

Caregivers can pre-load IVEA with common patient equipment, ensuring zero-transfer time to move devices from one piece of equipment to another and helping to decrease the time it takes to ambulate a patient.

## **IVEA is safe.**

Cords and equipment are safely secured helping to reduce tripping hazards and allowing caregivers to keep their attention on their patient instead of equipment.

## **IVEA is simple.**

It's easy to maneuver and lightweight. Its color-coded adjustment points intuitively indicate which components are actionable for caregivers.



We recognize that you have a choice of equipment provider to support your rehabilitation and early mobility programs in ICU.

With more than 40 years' experience and knowledge gained as the global leader in patient handling and

mobility solutions, we are able to support your facility with a range of services including education, assessment and early mobility programs to help support your initiatives. For further information, please visit [www.arjo.com](http://www.arjo.com) or contact your local Arjo representative.

#### References

1. Kress, JP. Clinical trials of early mobilization of critically ill patients. *Critical Care Medicine*. 2009; 37[Suppl.]:S442-S447.
2. Puthachery Z, Rawal J, Mcphail M, et al. Acute skeletal muscle wasting in critical illness. *J Am Med Assoc*. 2013;310:1591-600
3. De Jonghe B, Bastuji-Garin S, Durand MC, et al. Respiratory Weakness Is Associated With Limb Weakness and Delayed Weaning in Critical Illness. *Critical Care Medicine* 2007;35:2007-2015
4. Garnacho-Montero J, Amaya-Villar R, Garcia-Garmendia JL, et al. Effect of Critical Illness Polyneuropathy on the Withdrawal From Mechanical Ventilation and the Length of Stay in Septic Patients. *Critical Care Med* 2005;33:349-354
5. Griffiths RD, Hall JB. Intensive care unit-acquired weakness. *Crit Care Med* 2010; 38: 779-787
6. Herridge MS, Tansey CM, Matte A, et al. Functional disability 5 years after acute respiratory distress syndrome. *N Eng J Med*. 2011;364(14):1293-304
7. Griffiths J, Hatch RA, Bishop J, et al. An exploration of social and economic outcome and associated health related quality of life after critical illness in general intensive care unit survivors: a 12-month follow-up study. *Crit Care*. 2013;17(3):R100.
8. Yende S, Austin S, Rhodes A, Finfer S, Opal S, Thompson T, et al. Long-term quality of life among survivors of severe sepsis. *Crit Care Med*. 2016;44(8):1461-7.
9. Cooper AB, Thornley KS, Young GB, et al. Sleep in critically ill patients requiring mechanical ventilation *Chest*. 2000; 117(3):809-18
10. National Institute for Health and Care Excellence [NICE]. (2009) Rehabilitation after critical illness. London: NICE (Nice guideline no 83)
11. Baron R, Binder A, Biniek R, et al. Evidence and consensus based guideline for the management of delirium, analgesia, and sedation in intensive care medicine. (DAS- Revised Guideline 2015) - short version. *Ger Med Sci*. 2015 Nov 12;13:Doc19.
12. Devlin JW, YOanna S, Gelinac C, et al. Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU. *Critical care Medicine*. 2018; 46(9)
13. Chiang LL, Wang LY, Wu CP, et al: Effects of physical training on functional status in patients with prolonged mechanical ventilation. *Phys Ther* 2006; 86:1271-1281
14. Burtin C, Clerckx B, Robbeets C, et al: Early exercise in critically ill patients enhances short-term functional recovery. *Crit Care Med*. 2009; 37:2499-2505
15. Schweickert W, Pohlman MC, Pohlman AS, Nigos C, Pawlik AJ, Esbrook CL, et al. Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. *Lancet* 2009;373:1874-82.13
16. Schaller SJ, Anstey M, Blobner M, et al. Early, goal-directed mobilisation in the surgical intensive care unit: a randomised controlled trial. *Lancet* 2016;388:1377-88
17. Morris PE, Berry MJ, Files DC, Thompson JC, Hauser J, Flores L, et al. Standardized rehabilitation and hospital length of stay among patients with acute respiratory failure. *J Am Med Assoc*. 2016;315(24):2694-9.
18. McWilliams D, Weblin J, Atkins G, et al. Enhancing rehabilitation of mechanically ventilated patients in the intensive care unit: a quality improvement project. *J Crit Care*. 2015;30(1):13-8.
19. Needham D, Korupolu R, Zanni JM, et al. Early physical medicine and rehabilitation for patients with acute respiratory failure: A quality improvement project. *Arch Phys Med Rehabil* 2010; 91:536-542

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At Arjo, we believe that empowering movement within healthcare environments is essential to quality care. Our products and solutions are designed to promote a safe and dignified experience through patient handling, medical beds, personal hygiene, disinfection, diagnostics, and the prevention of pressure injuries and venous thromboembolism. With over 6500 people worldwide and 65 years caring for patients and healthcare professionals, we are committed to driving healthier outcomes for people facing mobility challenges.

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