

# Progressa™ Bed System

Advancing mobility. Accelerating recovery.



Enhancing outcomes for patients and their caregivers:

**Hill-Rom**

The critical care environment is becoming more complex and demanding each year.



## The challenges

Intensive Care Unit (ICU) facilities worldwide face very similar challenges and have the same fundamental needs: improved quality of care and cost control; reduced length of stay and fewer re-admissions; and eliminating preventable falls or complications such as hospital-acquired infections, muscle atrophy or pressure ulcers.

## The solution

The concept that safe and early mobility helps patients recover faster is supported by published clinical evidence.<sup>1-6</sup> Hill-Rom is uniquely positioned to provide a total, integrated portfolio of solutions and clinical support that encourages early mobility and facilitates safe, efficient care.



## Our foundation

The Mobility is Life™ concept forms the foundation from which Hill-Rom develops and manufactures solutions with the mission of enhancing outcomes for patients and caregivers by pioneering new ways to speed recovery.

# The consequences of immobility

## Neurological

Delirium occurs in up to 80% of ICU patients with up to \$60,000 incremental annual cost of care <sup>25</sup>



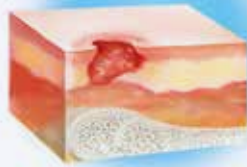
## Respiratory

VAP\* can add 10-12 days to ICU length of stay and cost from \$12,000-25,000 per patient <sup>9</sup>



## Skin

Average cost of care for stage III or IV pressure ulcer in acute care is \$43,000 and an additional 4-day length of stay <sup>13</sup>



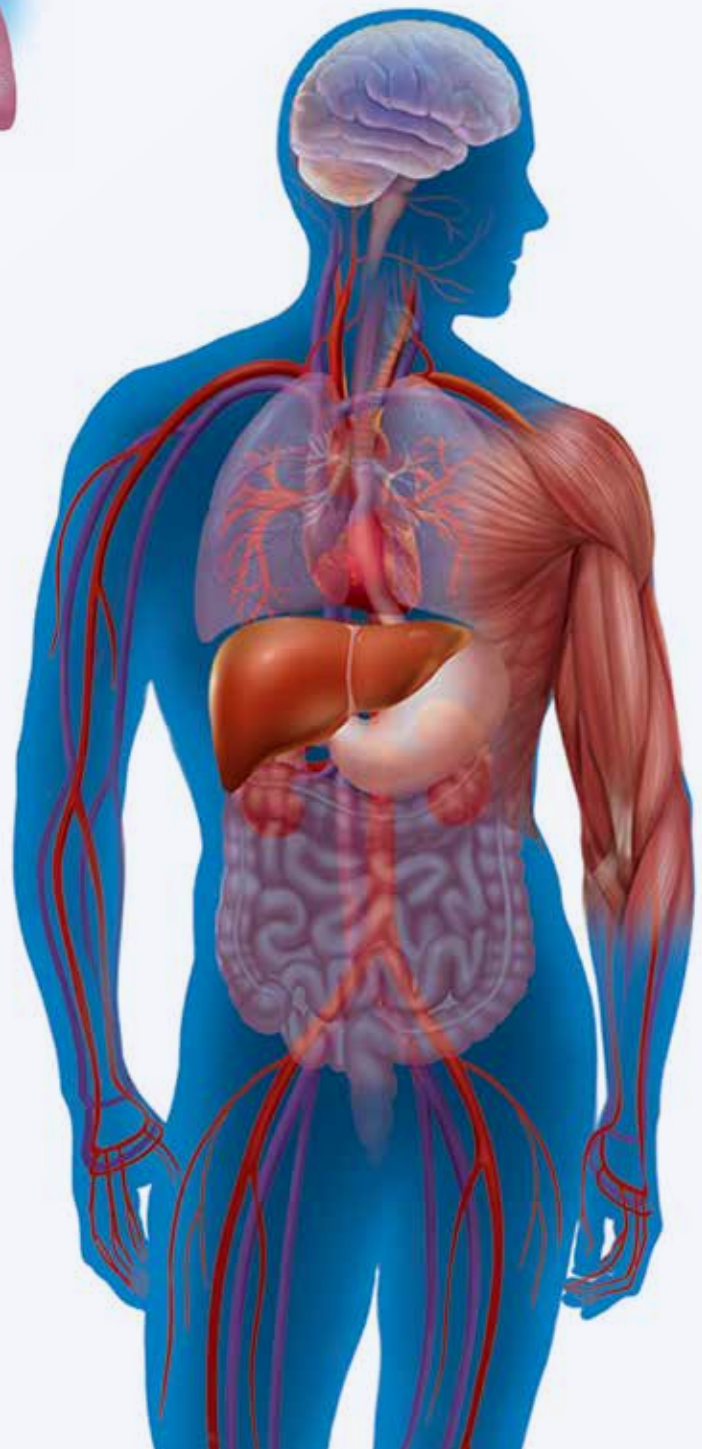
## Cardiovascular

Orthostatic intolerance, cardiac deconditioning and 15% loss of plasma volume <sup>19</sup>



## Metabolic

Insulin resistance and negative nitrogen balance





### Musculoskeletal

Musculoskeletal: Strength loss of 50% in first 3-5 weeks with only 6% recovery per week with exercise <sup>3, 26, 27</sup>



### Renal

Urinary retention, stasis and/or calculi



### Gastrointestinal

Constipation and faecal impaction



### Hematologic

Anaemia

*Immobility increases the risk of developing life-threatening complications and psychological problems, and has a significant negative impact on patient outcomes.*

*The clinical issues surrounding lack of mobility are magnified within the high acuity patient-care environments, such as the ICU.*

## Why early mobility?

Consequences of immobility include increased length of stay and cost of treatment, and for the caregivers there is a greater risk of work-related injuries. <sup>11</sup>

### Immobility can lead to:

- More time on the ventilator
- Increased length of stay in the ICU
- Increased length of stay in hospital
- Higher mortality rates

Evidence shows that the implementation of an early mobility programme in the ICU such as the Progressive Mobility™ Programme from Hill-Rom can result in decreased length of stay, reduction in costs and improvement in the health and well-being of the patient. <sup>1-6</sup>

# The economic impact of a Progressive Mobility Programme and technology is significant

Muscle atrophy is measurable within three to five days of bed rest in both healthy and critically ill adults. In fact, up to 50% of patients experience functional decline between hospital admission and discharge.<sup>3</sup>

Respiratory complications attributable to immobility are the major reason for ICU re-admissions, which often result in twice the average hospital length of stay and an increase in mortality rate of up to 10%.<sup>12</sup> In addition, the cost and prevalence of facility-acquired pressure ulcers is high. The hospital-acquired pressure ulcer rate in the ICU sector is about 4.5%, and the average cost of a stage III-IV pressure ulcer is more than \$43,000.<sup>13,14</sup>

Implementing a Progressive Mobility Programme with technological advancements helps achieve enhanced clinical and financial outcomes.



## What beneficial results do they provide?

The "Dr. Winkelman study" evaluated the impact on patient outcomes in the ICU, by utilising a Progressive Mobility Programme including technologically advanced therapeutic beds and patient lifting solutions.<sup>6</sup>

- ICU average length of stay was **reduced by 5 days**
- Average number of ventilator days **decreased by 3 days**
- First patient activity occurred **3.5 days earlier**

## Economic impact of early mobility in ICU

ICU length of stay cost savings were \$11,507 (based on an average cost of \$3,968 per day).

- Savings attributable to reduced ICU length of stay were approximately \$13,000
- Savings in ventilator days were approximately \$11,000 for patients who were mobilised earlier

### Cost savings due to the implementation of an early mobility programme in ICU<sup>1</sup>

Cost savings per day reduced ICU LOS* in a unit with an average of 500 patients annually		Cost savings per reduced ventilator day in an ICU with an average of 200 ventilated patients annually	
ICU reduced LOS	1 day	Reduced ventilator days	1 day
ICU cost/day	\$3,184	Ventilator cost/day	\$3,968
ICU savings/patient	\$3,184	Ventilator savings/patient	\$3,968
Annual number of ICU patients	500	Annual number of ventilator patients	200
Annual ICU LOS savings	\$1,592,000	Annual ventilator savings	\$793,600

**Potential combined annual savings: \$2,385,600**



# Is your early mobility programme as efficient as it could be?

Patients who are confined to hospital beds without regular physical activity are at risk of developing serious physical and psychological problems such as ICU-acquired weakness, ventilator-acquired pneumonia (VAP), pressure ulcers, deterioration of muscle mass and delirium.<sup>3,7-10</sup>

## Pathological ICU-acquired weakness

Critical polyneuropathy or myopathy is a neurological disorder that afflicts patients with severe, acute illness requiring an ICU stay longer than 24 hours and involves the nerves and muscles.

- Delays weaning and severely compromises rehabilitation of the patient
- Significantly increases ICU and hospital length of stay and higher mortality rates<sup>7</sup>

### Risk factors include:

- Sepsis
- Inflammatory responses
- Multiple organ failure
- Elevated blood glucose levels
- Use of steroids or neuromuscular blockers, which contribute to the pathological ICU-acquired weakness

## Ventilator-acquired pneumonia (VAP)

Ventilator-acquired pneumonia is one of the major complications that can occur in the pulmonary system as a result of immobility.

- On average, the VAP rate is around 15.8 per thousand ventilator-days, adding an additional 12 days to hospital length of stay
- The mortality rate is increased by about 15%<sup>9</sup>
- Increased cost of care is approximately \$40,000 – \$ 90,000 per patient<sup>28</sup>

## Use of a Progressive Upright Mobility Protocol Plus (PUMP) and technology in a neurointensive care unit<sup>5</sup>

### PUMP:

- A mobility bundle toolkit was developed, including the PUMP algorithm: an 11-step algorithm progressing from 45° head of bed -> partial chair -> full-bed chair -> standing in place -> pivot and into chair -> transfers -> ambulation with increasing distances and levels of independence
- Additional mobility aids were purchased
- Interdisciplinary education was initiated

### Results using a mobility programme<sup>5</sup>:

Mobility was increased among the neurointensive care patients by 300%

Neurointensive care unit length of stay was reduced by 13%

Hospital length of stay significantly decreased from 12 to 8.6 days

Hospital-acquired infections were reduced by 60%

VAP significantly decreased from a rate of 2.14 per 1,000 days to zero

# Your critical care environment is becoming more demanding and complex each year.

The pressure to do more with less is one of the major challenges for caregivers today. As resources are often limited, caregivers need the right tools to increase their efficiency and enable them to do more per shift. Heavier workloads require caregivers to spend more and more time on non-patient care tasks.

Managing patient migration is a physically demanding, time-intensive task that puts caregivers at high risk of acquiring musculoskeletal injuries.<sup>21,22</sup> For the caregiver, lifting patients accounts for up to half of all work-related injuries.<sup>11</sup> Caregivers need to find a fine balance between delivering efficiency and compliance with safety protocols within the critical care environment.

## Improving the mobilisation process has a positive impact on patient recovery

- A significant ergonomic improvement for caregivers, reduction in time needed by 84.7%<sup>15</sup>
- Frequency of mobilisation increased by 48.5%<sup>15</sup>
- Number of caregivers required per verticalisation reduced by 45% vs. standard mobilisation procedures
- Time-span between extubation and full mobilisation out of bed reduced by 38%<sup>16</sup>

## Clinical care for seriously ill patients is complex and physically and legally challenging

### Caregivers face a number of growing challenges:

- The patient population is getting older, more immobile and fragile
- There is an increasing amount of equipment in a limited working area
- The responsibility to minimise risk of patients acquiring hospital-acquired complications
- The need for high accuracy in documenting the treatment and care provided

## Perceived patient and environmental barriers to mobilising the ICU patient<sup>3</sup>

Patients need to understand that early mobility is critical to their recovery. If the patient is in pain, medication can be administered, but mobilisation is essential. Education is one of the keys to success.

### Perceived barriers to mobilising ICU patients:

- ICU patients are too heavily sedated
- ICU patients are not comfortable being mobilised
- Potential risk of line dislodgement
- Not enough human and technological resources
- Potential haemodynamic instability





## Progressive Mobility Programme

Immobility increases the risk of life-threatening complications, impacting patient outcomes, length of stay and cost of treatment.

The Progressive Mobility Programme, only available from Hill-Rom, is founded on evidence-based methodologies that support early patient mobility - without compromising patient or caregiver safety.

- Promotes patient and caregiver safety through integrated functionality and lift system <sup>23,24</sup>
- Helps caregivers maintain optimal therapeutic positioning, deliver evidence-based therapies and restore mobility
- Assists in minimising the risk of cardiovascular, respiratory, metabolic and muscular disorders, as well as delirium

# Hill-Rom Progressive Mobility Programme



## Breathe

Ensures that patients can breathe effectively and will not develop complications related to immobility during this critical phase.

### HOB\* > 30°/HOB\* Alarm

Maintains optimal HOB angle in compliance with VAP prevention protocols

### Continuous Lateral Rotation Therapy (CLRT)

Helps to loosen pulmonary secretions and increases blood flow to avoid pulmonary complications<sup>2</sup>

### Percussion & Vibration (P&V) Therapies

Improves respiratory efficiency



## Tilt

Getting the patient physiologically ready for the sitting and standing position with just a few pushes of a button

### HOB\* > 45°/HOB\* Alarm

Maintains optimal HOB angle in compliance with VAP prevention protocols

### 18° Reverse Trendelenberg-Tilt Table

Provides orthostatic conditioning



## Sit

This position facilitates better breathing and helps patients physiologically adapt to the upright position

### Partial Chair

Facilitates gas exchange

### Chair Egress

Allows for lung expansion

### StayInPlace™

Prevents patient migration, minimising the need for patient repositioning

*Advancing mobility can help critically ill patients experience accelerated recovery.<sup>3</sup>*

## The benefits of a Progressive Mobility Programme



### Stand

Allows patients to attempt standing while providing additional support if required

#### Chair Egress

Builds patient strength

#### Sit-to-Stand Lifts

Provides partial weight bearing



### Move

Patients at this level are weak but able to cooperate and have out-of-bed orders from the physician

#### Chair Egress

#### Sit-to-Stand Lifts

Achieves out-of-bed orders

#### Liko® Stand-up and lifting solutions

Facilitates ambulating patients for progressively longer distances

*In summary, implementing a Progressive Mobility Programme with technological advancements helps achieve better clinical and financial outcomes.*

*Studies show: patients are off the ventilator faster; reduced occurrence of VAP; less potential for skin injury; and a reduction in delirium.*

Outcomes in ICU Survivors, Mean (95% CI)	Without early mobility***	With early mobility***	Improvement (Days out of bed)
Days to patient first out of bed**	11.3	5.0	6.3
ICU LOS days**	6.9	5.5	1.4
Hospital LOS days**	14.5	11.2	3.3

\*\* Adjusted for BMI (Body Mass Index) , Acute Physiology and Chronic Health Evaluation II, and vasopressors  
 \*\*\* Only patients who survived to hospital discharge were included in the outcome analyse. LOS = Length Of Stay.

## Progressa Bed System

# The pressure to do more with less is a major challenge in healthcare today

The Progressa Bed System, developed in collaboration with nurses, physicians and therapists, responds to the evolving needs of caregivers, patients and healthcare facilities and supports the implementation of the Progressive Mobility Programme from Hill-Rom.

With the help of the Progressa Bed System's integrated functionality and lift system, caregivers can maintain optimal therapeutic positioning, deliver evidence-based therapies and help restore mobility to minimise the risk of cardiovascular, respiratory, metabolic and muscular disorders, as well as delirium.

More than just a bed, the Progressa Bed System is a therapeutic device that acts as a seamless extension of the health care team.

In addition, the flexibility of the Progressa Bed System platform allows you to configure the bed to meet your current needs and upgrade as those needs change.



*Progressa makes it possible to implement early mobilisation more effectively to avoid hospital-acquired complications which are a burden for the patient, their relatives and the caregivers.*



Right: Mark Verhagen, Critical care nurse  
Left: Pieter Vaes, Critical care nurse  
St. Elisabeth Hospital – Tilburg, The Netherlands

### The Progressa Bed System offers a choice of surface options

For more details please refer to the Technical Specifications brochure.



**Progressa Prevention Surface**

(Non-powered Air)



**Progressa Therapy Surface**

(Powered Air)



**Progressa Pulmonary Surface**

(Powered Air)



## Efficiency



### IntelliDrive® Transport System\*

A single caregiver can easily and safely transport the bed with precise stop and turn controls.



### Graphical Caregiver Interface (GCI)®

For enhanced caregiver ergonomics, hinged GCI can be pre-programmed or customised to adjust therapies.



### HandsFree® CPR Control

Foot-operated control lowers the head and knee sections, and raises the foot section in one step.



### Side Exit Assist

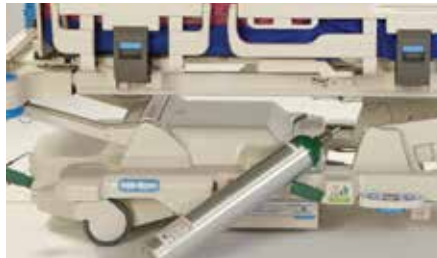
Assists the patient to sit as part of the Progressive Mobility Programme.

## Safety



### Head-Of-Bed (HOB) alarm

Sends alert when HOB angle drops below 30° or 45°.



### Obstacle Detect® System

Stops bed from lowering and raises it if object is detected between the upper and base frame.



### 3-Mode Bed Exit Alarm

For patient safety, 3 alarm levels depending on patient's condition.

## Connectivity



The Hill-Rom Progressa Bed System offers built-in capabilities for connecting to a remote nurse station\*\* for the transmission of information.

### This includes:

- Remotely transmitting bed exit alerts
- Nurse call alerts

\* Optional

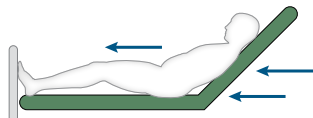
\*\* Dependent on model selected, geographical market and healthcare facility

Managing patient migration is a physically demanding, time-intensive task that puts caregivers at high risk of acquiring musculoskeletal injuries.<sup>21, 22</sup>



## StayInPlace technology is available only with the Progressa Bed System

Without StayInPlace technology, the Head-Of-Bed angle can put pressure on the patient's lower back, which can cause migration toward the foot end of the bed.

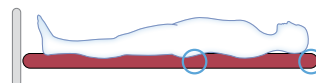


StayInPlace technology allows the Progressa Bed System frame and surface to lengthen and grow as the head of the bed is raised.

A key innovation, StayInPlace is a ground-breaking technology that prevents patient migration, minimising the need for patient repositioning. By dynamically responding to the patient's Head-Of-Bed angle, StayInPlace technology is designed to help reduce caregiver lift burden to avoid back injuries, as well as avoiding unnecessary pain to the patient caused by repositioning, and provides the added benefit of lowering the risk of pressure ulcers.

### StayInPlace

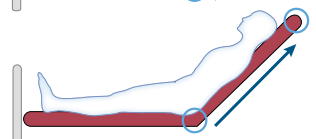
- Designed to prevent patient migration, minimising the need for patient repositioning
- Responds dynamically to the patient's Head-Of-Bed angle
- Designed to reduce caregiver lift burden and lower the risk of pressure ulcers
- Minimising the need for patient repositioning can save nursing hours



StayInPlace technology is not activated while the patient is in a prone position.



As the head of the bed is elevated, StayInPlace technology increases the surface area under the patient's upper body.



StayInPlace technology extends the head section of the frame and surface in unison to accommodate the natural elongation of the body as the patient sits up.



*“The StayInPlace feature is without a doubt one of the key benefits. As the bed moves out, the patient doesn’t slide down and is safe and comfortable, without any pressure on their back.”*

## Total flexibility to meet the needs in any ICU setting

The Progressa Bed System is the only ICU bed platform on the market that meets the needs of Critical Care patients in different ICU disciplines through upgradability and configurability.

The Progressa Bed System can be configured and upgraded to meet a wide range of requirements within a hospital, while providing a consistently superior user experience. You can decrease total-cost-of-ownership by using ONE supplier to reduce maintenance, spare parts and training costs.

The Progressa Bed System can be configured to meet your facility’s needs today, while providing the flexibility to meet changing needs in the future.

- Upgrade or reconfigure to meet changing needs and budget
- ONE supplier reduces maintenance and training costs to help manage total-cost-of-ownership

## Unique features and functionality for safe ICU patient mobilisation

Early mobility is a proven strategy that enhances patient outcomes and reduces ICU length of stay. The Progressa Bed System provides unique features and functionality to help caregivers effectively progress ICU patients from the flat/supine position through to exiting the bed safely, easily and more frequently at every level of tolerance.<sup>15-16</sup>

### **Clinical efficiency provided by the Progressa Bed System:**

- Eases the individual steps of Progressive Mobility at every level of patient acuity and tolerance
- Significantly contributes to shortening ICU length of stay
- Enables Progressive Mobility while reducing the risk of adverse events such as line displacement
- Shortens time to first out of bed

## Full control and support of the Progressive Mobility Programme

Designed in collaboration with caregivers, the Progressa Bed System supports protocol compliance with the Progressive Mobility Programme and helps caregivers comply with safety protocols. It maximises caregiver control to enhance safety, extend connectivity and improve efficiency.

Connectivity features allow caregivers to do most of the documentation without leaving the bedside.

- On-time and bed-side documentation
- Reduces errors associated with documentation

Hill-Rom is a leading global medical technology company with more than 10,000 employees worldwide. We partner with healthcare providers in more than 100 countries, across all care settings, by focusing on patient care solutions that improve clinical and economic outcomes in five core areas: **Advancing Mobility, Wound Care and Prevention, Patient Monitoring and Diagnostics, Surgical Safety and Efficiency and Respiratory Health.** The people, products and programs of Hill-Rom work towards one mission: **Every day, around the world, we enhance outcomes for patients and their caregivers.**



Hill-Rom is committed to the concept that mobilising people early and supporting their independence, improves life - in the hospital and at home.

The Progressa Bed may be used in a variety of settings including, but not limited to, acute care, including critical care, step down/progressive care, medical/surgical, high acuity sub-acute care, post anaesthesia care unit (PACU), and sections of the emergency department (ED).

Medical device (93/42/EEC): Class Im,

Class IIa for therapy and pulmonary surfaces Notified Body UL (UK) Ltd. CE0843

Scale Classification (EN 45501): Class III

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This medical device is a regulated health product which, pursuant to such regulation bears a CE mark. Hill-Rom recommends that you carefully read the detailed instructions for safe and proper use included in the documents accompanying the medical devices. The personnel of healthcare establishments are responsible for the proper use and maintenance of these medical devices.

Hill-Rom reserves the right to make changes without notice in design, specifications and models. The only warranty Hill-Rom makes is the express written warranty extended on the sale or rental of its products.

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