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Integrating a multidisciplinary mobility programme into intensive care practice (IMMPTP): A multicentre collaborative

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Summary
Background: ICU immobility can contribute to physical deconditioning, increased ICU and hospital length of stay and complications post discharge. Despite evidence of the beneficial outcomes of early mobility, many ICUs and providers lack necessary processes and resources to effectively integrate early mobility into their daily practice.
Objective: To create a progressive mobility initiative that will help ICU teams to address key cultural, process and resource opportunities in order to integrate early mobility into daily care practices.
Methods: An initiative to integrate the latest evidence on mobility practice into current ICU culture in 13 ICUs in eight hospitals within the US was launched. A user-friendly, physiologically grounded evidence-based mobility continuum was designed and implemented. Appropriate education and targeted messaging was used to engage stakeholders. To support and sustain the implementation process, mechanisms including coaching calls and various change interventions were offered to modify staffs' practice behaviour. Qualitative data was collected at two time points to assess cultural and process issues around mobility and provided feedback to the stakeholders to support change. Quantitative date on ventilator days and timing of physical therapy consultation was measured.
Results: Qualitative reports of the mobility programme participants suggest that the methods used in the collaborative approach improved both the culture and team focus on the process of mobility. There were no significant differences demonstrated in any of the mobility intervention group measurement however, a reduction in ventilator days (3.0 days pre vs. 2.1 days post) approached significance ($p = 0.06$).

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Conclusion: This multi-centre, ICU collaborative has shown that improvements in team culture, communication and resources can improve adoption of early mobility in ICU patients.
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Introduction

Immobility plays a significant role in Intensive Care Unit (ICU) acquired weakness and long term physical dysfunction (De Jonghe et al., 2007; Greenleaf and Kozlowski, 1982; Kortebein et al., 2007; Schweickert et al., 2009). Physical inactivity also contributes to the development of atelectasis, insulin resistance and joint contractures (Clavet et al., 2008; Hamburg et al., 2007). The short-term negative outcomes for critically ill patients included ventilator and hospital acquired pneumonia, delayed weaning related to muscle weakness and the development of pressure ulcers (Morris, 2007; Reddy et al., 2006; Schweickert et al., 2009; Topp et al., 2002; Vollman, 2006). Lack of early ICU mobility was an independent predictor for readmission or death in patients with Acute Respiratory Failure (Morris et al., 2011). The major long term complication is the impact on quality of life after discharge due to the physical de-conditioning that takes place during the ICU stay (Dowdy et al., 2005, 2006; Herridge et al., 2003, 2011; Hopkins et al., 2005)..

Numerous studies support the importance of incorporating early mobility programmes in conjunction with sedation protocols within the ICU to improve outcomes. Early mobility programmes have been shown to result in greater ventilator free days, decreased incidence of Ventilator Acquired Pneumonia (VAP), fewer skin injuries, reduced ICU and hospital length of stay, decreased duration of delirium and improved physical functioning before and after discharge from the hospital (Bailey et al., 2005; Greenleaf, 1997; Morris et al., 2008; Martin et al., 2005; Needham, 2008; Needham et al., 2010; Thomsen et al., 2008).

Mobilisation of critically ill patients must be viewed along a progressive continuum based on readiness, specific pathology, strategies to prevent complications and ability to tolerate the activity/movement. Progressive mobility is a series of planned movements in a sequential manner beginning at a patient's current mobility status with a goal of returning to baseline status. Progressive mobility encompasses a wide breath of mobility techniques ranging from head of bed elevation, range of motion, continuous lateral rotational therapy (CLRT), tilt training, dangling, chair position and ambulation on or off the ventilator (Vollman, 2010). There are a number of barriers to progressive mobility within an ICU environment. Barriers included clinicians' knowledge deficits, sedation practices, lack of human and equipment resources, patient physiologic instability and ICU unit culture (Hopkins et al., 2007; Morris, 2007; Needham, 2008; Stiller, 2007; Vollman, 2010). The gap between research and practice is a consistent challenge in health care (Bodenhimer, 1999), and altering well-established routines and patterns of care requires a comprehensive approach to instituting not only individual behaviour change, but systems that support a shift in group norms (Grol and Grimshaw, 2003). Clinicians burned out by competing demands for change can be susceptible to responding in a minimal, 'ritualistic' manner to new institutional demands (Cole, 2000) rather than investing the energy necessary to adopt the attitudinal and behaviour changes that accompany a shift in clinical practice, such as patient mobility.

A multicentre collaborative was undertaken to introduce an evidence-based progressive mobility programme whilst simultaneously addressing cultural change within the ICU. A collaborative is designed to help organisations close the evidence gap by creating a structure in which interested units, teams or organisations can easily learn from each other and from recognised experts in topic areas where they want to make improvements (Plsek, 2000).

Programme design

The planning and implementation of the mobility initiative took place over 14 months. Importantly, the purpose of the initiative was not the discovery of new knowledge regarding early mobilisation of critically ill patients, but the integration of existing research into daily practice at the bedside. Participant ICUs were from organisations that belong to VHA® Inc., a national alliance of community-owned, not-for-profit healthcare institutions consisting of large academic centres to small rural hospitals and integrated healthcare systems. The VHA® membership represents a quarter of the Unites States (US's) community-owned hospitals, and through the VHA® Critical Care Innovation Network (CCIN), intensive care teams share improvement strategies and participate collaboratively in various clinical initiatives. Some of the previous clinical initiatives included implementation of the ventilator, central line and sepsis bundles. The CCIN group selected progressive mobility through a voting process.

In an effort to facilitate internal buy-in for progressive mobility, VHA® staff and subject matter experts provided local champions with key aspects of the initiative and the information to help build the business case. Executive, physician, unit leadership and staff support were identified as key stakeholders necessary for success in securing commitment. Concurrently subject matter experts in intensive care practice, mobilisation of critically ill patients, programme development and organisational change coaching completed the initial programme design. Thirteen ICU teams ranging from trauma, medical and mixed to surgical and cardiovascular ICUs, and representing eight different hospitals, participated in the mobility initiative. The structure of the initiative included the creation of a progressive mobility tool, a face to face workshop, development of target messaging and continuing education, cultural interventions to support the integration of new practice behaviours, and process and outcomes measurement.

Development of an evidence-based mobility continuum

The Progressive Mobility Continuum tool (Fig. 1) was developed based on a review of the literature and was

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