The National Research Council’s Board on Human-Systems Integration has organized this session. An initial presentation by the NRC BOHSI will provide information on recent projects and updates. Then a panel will discuss the application of human-systems integration (HSI) to the issue of safety patient handling, an issue of growing concern given the high rate of injuries during patient handling activities. The focus of the panel will be on issues related to the scope of the problem, an HSI perspective of patient handling, and the design and implementation of safe patient handling and mobility programs. We will engage the audience in a discussion of these issues to help refine our project in this area.

**NRC BOARD ON HUMAN-SYSTEMS INTEGRATION**

The panel will begin with an introduction by Barbara Wanchisen, Board Director for the National Research Council’s (NRC) Board on Human-Systems Integration (BOHSI) and Nancy Cooke, Chair of the National Research Council’s (NRC) Board on Human-Systems Integration (BOHSI). The NRC is the operating arm of the National Academy of Sciences and the National Academy of Engineering. Known collectively as The National Academies, along with the Institute of Medicine, this private, non-profit organization provides independent and impartial advice to Congress and the federal Government. BOHSI, formerly known as the Committee on Human-Systems Integration, was established to better equip the National Research Council in its efforts to assist the federal government concerning issues of national policy that involve human factors and human-systems integration approaches. Housed within the division of Behavioral and Social Sciences and Education, BOHSI is a standing board of the NRC and is sponsored by a coordinated consortium of several federal agencies and other organizations. One of BOHSI’s projects concerns safe patient handling and mobility.
HSI IN SAFE PATIENT HANDLING

The movement of patients is a critical and common activity in the health care sector, especially in acute care hospitals and long-term care facilities. The activity involves physically assisting patients during a move, for example from bed to wheel chair or wheel chair to toilet or assisting patients with rehabilitation, such as from sitting to walking. There is a high risk of serious injury to patients and health care providers due to patient falls or the high biomechanical loads. Reducing these risks, involves interventions and coordination within a complex environment. The panel will discuss the systems involved including the evaluation of patient capabilities; training of health care providers, patients, and their families; the use and maintenance of lift systems; maintaining and cleaning inventory of slings and sheets; reporting of near misses and injuries; assignment of responsibilities; system metrics; and incentives for effective systems.

The panelists will discuss factors within systems that are known and those that are not well understood. Experience from the Veterans Health Administration (VHA), which has extensive experience implementing safe patient handling programs will be discussed. The panelists will discuss what is known about the critical elements of successful safe patient handling programs.

Pascale Carayon: Why a Systems Approach for Safe Patient Handling

A systems approach to safe patient handling helps to identify and address the complex multi-level and multi-faceted issues involved in patient mobility and handling. For instance, it is important to understand how staffing decisions made at a unit level can affect resources available for patient care. Understand how system levels influence and are nested with each other can help to develop appropriate and effective interventions. It is unlikely that changing a single element in a work system (e.g., lifting equipment) can have sustainable impact; therefore, safe patient handling and mobility interventions need to tackle multiple system factors and levels, including biomechanical, cognitive and psychosocial work factors. Finally, a systems approach recognizes that safety is an emergent property; therefore, we need to continuously assess safe patient handling and mobility interventions in the real context as work-arounds may develop over time. In this presentation, we will describe a systems approach for safe patient handling based on the SEIPS (Systems Engineering Initiative for Patient Safety) model (Carayon et al., 2006) and the systems ergonomics framework of Wilson (2014).

Barbara Silverstein: Sustainability of Safe Patient Handling (SPH) Programs and Practices

Washington State’s Safe Patient Handling legislation (for hospitals) was passed in 2006, the first in the US. An active steering committee (hospitals, unions, nurses, physical and occupational therapists) work with many stakeholders) to provide support, problem solving, and SPH conferences. This has been a model for other states that have since implemented legislation. The VHA has been a model for SPH implementation and sustainability.

Bill Marras: Biomechanical Issues Relevant to Safe Patient Handling

The biomechanical basis of risk as a function of number of caretakers handling the patient and technique of patient transfer will be discussed. In addition, the biomechanical benefit of mechanical interventions will be considered. Finally, the potential interaction of the psychosocial environment upon biomechanical loading will be considered.

Sara Czaja: Safe Patient Handling in the Home

Issues surrounding safe patient handling are not limited to clinical settings but are also relevant in contexts such as the home. The number of adults with chronic conditions in the U.S. is increasing and given current trends in healthcare many people with chronic conditions are cared for in the home by family members or formal care providers. For example, currently about 22 million adults provide care to an adult relative or friend and care tasks often involve patient handling activities. Informal caregivers typically do not receive training in
patient handling practices, and many times these caregivers themselves are older or have some type of physical limitation. This presentation will focus on issues of patient handling in home contexts and the implications for the design of safe patient handling programs.

Kate McPhaul: Critical Elements of a Successful Safe Patient Handling Program: the Veterans Health Administration (VHA) Experience.

The VHA has made large investments in the development of SPH programs at hospitals around the country. The critical elements of the program will be discussed along with barriers to implementation and challenges with sustainability.

David Rempel: Drivers for Implementing Effective Safe Patient Handling Programs.

Most hospitals have safe patient handling programs; however, incorporating a comprehensive systems approach, investing in overhead lift systems, providing training and other investments requires upper management commitment and resources. What are some of the factors that convince upper management to make these investments? For some, it can be concern about prevention of serious injuries to patients and employees, some may be a convincing business case, and others may require regulations.

This session will allow for plenty of discussion time so that panelists and BOHSI members can solicit perspectives and experiences from the audience. This information will help to guide future projects in this area.

REFERENCES
