

# Healthcare Environments Baseline Assessment for Safety & Quality



## ENVIRONMENTS BASELINE FOR SAFETY & QUALITY (HE-BASQ)

The Portfolio and Planning Management Division, Office of the Assistant Secretary of Defense, Health Affairs is funding a baseline study exploring links between design and outcomes in the existing four National Capital Region (NCR) military treatment facilities (Walter Reed Army Medical Center, National Naval Medical Center - Bethesda, Malcolm Grow Medical Center at Andrews AFB and Fort Belvoir's DeWitt Army Community Hospital) and up to three non-military hospitals, including Dublin Methodist Hospital in Ohio. The overall goals of this study are to:

- 1) Provide a baseline assessment to compare with the new facilities (due to open in 2011) and to assess to what extent they provide the world-class outcomes that were targeted in the design process;
- 2) Gather evidence now that can be used to improve design and outcomes in the large group of treatment facilities that will be planned and designed over the next few years;
- 3) Identify opportunities for improvement of existing policies, processes and guidance documents.

This is a joint effort including: teams from each facility, the Department of Defense (DoD) Patient Safety Analysis Center, the US Army Public Health Command (provisional) Ergonomics Group, Noblis and Georgia Tech. Craig Zimring is overall Principal Investigator (PI), Julie Mann-Dooks is co-PI and Noblis lead, and Erin Lawler is the DoD Patient Safety Analysis Center (PSAC) lead.

Each DoD facility has a local PI. A larger team of clinicians, methodologists and researchers are making substantial contributions.

## KEY OUTCOMES

**Falls:** Patient falls are a leading harm event reported to the Department of Defense Patient Safety Analysis Center. This study will support research-based decisions about design, processes and procedures to reduce falls.

The falls study has both retrospective and prospective components. The retrospective study explores the contribution of physical design to falls, over and above demographics and other intrinsic factors and technologies such as fall prevention programs. The team will study all falls from 2007-2009 using a case-control method, and will analyze the design of the physical environment of fallers and non-fallers. For the prospective study, a new falls reporting form will be piloted on which nurses can indicate exact locations of and temporary conditions that contribute to falls. Nurses and nurse managers will describe their current fall prevention activities and how they react to falls, and the team will shadow nurses and conduct behavior mapping in order to understand how nurses respond to high-fall-risk patients. The methodology for this study was developed by task leads YoungSeon Choi of Georgia Tech and Erin Lawler of the PSAC, with assistance from the rest of the team.

**Noise:** Hospital noise levels have been increasing nationally over the past 20 years, and noise contributes to stress (for patients, families and staff), errors, lowered satisfaction, and other outcomes. The noise study assesses whether the new NCR facilities reduce noise levels, and findings will inform future design decisions to reduce noise and negative conditions associated with noise.

This study will record noise at key locations continuously for seven days and up to two weeks in the ED, ICU, and 1-2 nursing units of each hospital. The detailed noise assessment will not only allow description of overall average sound levels (as in the World Health Organization guidelines), but will also assess other, more specific measures that impact the provision of health care, such as speech discrimination, speech privacy, stress and well-being. This study will link the sound environment to outcomes from a survey of staff, patients and families that measures well-being, effectiveness in providing care, and satisfaction. Dr. Erica Ryherd and her team at Georgia Tech are leading this study.

**Patient-handling injuries:** Nurses have more back injuries than truck drivers, and injuries in a single intensive care unit can cost hundreds of thousands of dollars per year. The patient-handling study will contribute to the evidence-based selection of equipment and procedures that help reduce adverse outcomes among both nurses and patients. Ceiling-mounted patient lifts are expected to reduce back injuries due to patient handling.

The US Army Public Health Command's ergonomists have developed a study methodology that includes a baseline assessment of equipment, procedures and self-reported staff outcomes (on injuries, physical discomfort and risks) as well as a review of the associated costs (FECA claims and lost duty days). This study is being coordinated by Julie Mann-Dooks at Noblis with content expertise from COL Myrna Callison and Kelsey McCloskey.

**Intra-Hospital Patient Transfer and Transport:** There is growing evidence that patient transfer and transport can have significant negative impacts on patients, especially on the most vulnerable patients. These include increased infection, dissatisfaction among family members, technical mishaps and increased costs of care. New Military Health System facilities are seeking to reduce transfers and transports through key room design and building layout features. The transfer and transport study will lead to research-supported design recommendations to reduce the frequency and duration of transfers and transports.

This study will associate features of the physical environment with the number and duration of transfers and transports within Military Treatment Facilities and provide a baseline against which to compare future facilities. Julie Zook at Georgia Tech is leading this effort.

**Healthcare-acquired infections (HAI):** Healthcare-acquired infection poses a risk to patient populations everywhere. The HAI study will explore research-validated designs and processes that reduce the risk of HAI in MTF settings.

The MHS is seeking to reduce HAI through procedures and design measures such as better (HEPA) air filtering, ultraviolet treatment of air (UVGI) and creating "unavoidable" opportunities for hand cleansing. Working with infection control experts Judene Bartley, Russell Olmsted and others, this study is assessing air quality, hand washing compliance and cleanability using existing surveillance, observation, and monitoring. Erin Lawler at the PSAC is coordinating this effort.

**Patient, family and staff satisfaction:** Satisfaction is increasingly viewed as a key performance metric. The satisfaction study will help the MHS reliably measure satisfaction and link it to design and operational decisions. The satisfaction team is reviewing satisfaction measurement methodologies inside and outside the MHS, with the intent of adding validated items to measure satisfaction with the built environment to the existing MHS survey tools (which already measure satisfaction with service and clinical care). One goal is to create satisfaction measures that patients and families can complete during the course of stay, while respondents are actually experiencing the setting. These built environment satisfaction measures will eventually be linked to the new Post Occupancy Evaluation process within the MHS. Julie Mann-Dooks at Noblis is leading this effort.

## CONTACT INFORMATION

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