

## *Ann & Robert H. Lurie Children's Hospital of Chicago: Advancing Evidence-Based Hospital Design*



Photo by Nick Merrick © Hedrich Blessing 2011

*Inpatient unit design at Lurie Children's features a nursing workstation in front of every 2 patient rooms to increase time spent in direct patient care.*

Children's Memorial Hospital is getting ready to move to its state-of-the-art facility, **Ann & Robert H. Lurie Children's Hospital of Chicago**, in June 2012. Not only does Lurie Children's design reflect evidence-based features intended to improve patient outcomes, the hospital will add to the latest research findings on how healthcare facility design impacts children and the staff who care for them.

Two studies recently received funding to evaluate the effects of specific elements of building design by using data from the current facility as baseline for comparison with data to be collected at Lurie Children's after it opens. The 23-story Lurie Children's located at 225 E. Chicago Avenue is just west of

Northwestern Memorial Hospital's Prentice Women's Hospital between Chicago Avenue and Superior Street.

Evidence-based design features at Lurie Children's include all private inpatient rooms to reduce infection, acuity adaptable rooms in the Regenstein Cardiac Care Unit to eliminate transfers to another unit when the patient's condition changes, decentralized nursing stations to increase staff time spent in direct patient care, as well as access to sunlight and views of nature to reduce stress. Many other design decisions for Lurie Children's were based on research into how a physical environment contributes to healing.

Lurie Children's will add to the latest research findings on how healthcare facility design impacts children and the staff who care for them.

### Facility design impact on trauma of hospitalization in children

Jenifer Cartland, PhD, Director of the Child Health Data Lab at Children's Memorial Research Center, received funding for a pilot study from the Center for Health Design, a leading nonprofit organization dedicated to improving patient outcomes through evidence-based design. Her project will set the stage for a larger study on the role of hospital design in children's and families' emotional experience of hospitalization.

The stress of hospitalization can lead to symptoms of psychological trauma, such as sleep disruption and separation anxiety, for months after the child goes home. Cartland's study will show if elements of hospital design can add to a supportive child-centered toolkit children's hospitals can use to make the experience less traumatic for children. The pilot study started in the spring of 2011 will develop valid and reliable measures of parental and child coping, stress, and distress following hospitalization and associate these outcomes with specific hospital design features.

Examples of design elements in Lurie Children's that are hypothesized to reduce child and parent stress include private rooms with control over light and artwork, family amenities, child-friendly creative features on each floor offered through partnerships with the city's cultural institutions, and respite spaces such as the Crown Sky Garden located on the 11th floor and completely enclosed by glass.

In future studies, Cartland hopes to evaluate in greater depth the stress-reducing impact of designs for the Crown Sky Garden, Emergency Department and the Psychiatric Unit at Lurie Children's.

### Centralized vs. decentralized nursing stations: effect on nursing staff

The study comparing caregiver communication, teamwork, stress, and quality of care on units with a centralized nursing station at the current hospital and a decentralized design at Lurie Children's is led by Associate Chief Nurse Executive Sherri Ewing, MSN, RN, NEA-BC, and Karen Richey, MBA, RN, Administrator of Acute Care Services.

Centralized unit designs typically include a large nursing station that concentrates all patient charts, computers, medications, and all the staff that need access to this information in one location. A decentralized unit design brings nursing staff and supplies closer to patients. At Lurie Children's, the units will have a nursing workstation with a chair and computer for every 2 patient rooms and 4 care team stations distributed at different ends of the unit.

Previous hospital design research has mostly focused on benefits to patients, with few studies looking into unit design improvements from the caregiver perspective. Funding by the Shaw Faculty Collaborative Research Grant is providing support for Phase I data collection of nurse perceptions of the care environment within the current hospital's unit design, as well as data on quality outcomes. Phase II of the study will evaluate the same measures at Lurie Children's 6 months after the move and then 1 year later.

The results of this study will provide important evidence on how patient care unit design impacts nursing staff performance and quality of care.

### Center for Health Design's Pebble Project

Findings from these studies will contribute to the Center for Health Design's Pebble Project, an international collaboration of hospitals that built new facilities and share their pre-to-post occupancy research in order to advance evidence-based design. In addition to Children's Memorial, only 3 other pediatric hospitals are participating. More studies to evaluate outcomes related to the design of Lurie Children's are in development.



Photo by Nick Merrick © Hedrich Blessing 2011

*Reducing stress of hospitalization: Play area for families on the 12th floor includes a fire truck cab emerging from a replica of the historic Chicago Fire Station 98 located directly across Chicago Avenue from Lurie Children's. Donated by Pierce Manufacturing.*