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# An Evolving Emergency Department

## Witnessing a Paradigm Shift in Patient Handling Equipment

By Lori Vandersloot, RN, BSN, MBA, CEN  
Yuma Regional Medical Center, Yuma, AZ

**P**rior to 2007, the typical patient transport process in the acute care area of Yuma Regional Medical Center's (YRMC) Emergency Department was as follows:

1. Upon arrival, the ambulatory patient was triaged and then placed on a standard stretcher in one of the patient treatment areas.
2. If tests requiring diagnostic imaging were ordered on the patient, the ambulatory patient was transferred off the stretcher and placed in a wheelchair and transported to testing area. If the patient was non-ambulatory, they were transported to the testing area on the stretcher and then patient would be laterally transferred either by self or staff onto the x-ray or CT tables.
3. Upon completion of tests, the ambulatory patient was transported back to treatment area and transferred from wheelchair back onto the stretcher, and the non-ambulatory patient was laterally transferred back onto the stretcher and transported back to the treatment area.
4. The patient would remain on the stretcher until dispositioned by the emergency department physician.
5. If the patient was admitted to hospital, the patient was either transported on the stretcher, or if ambulatory, transferred off the stretcher into a wheelchair for transport.

In 2006, the Emergency Department director at Yuma Regional Medical Center conducted a comprehensive re-evaluation of patient transport practices in order to determine which type of stretcher would benefit both patients and caregiver.

### YRMC Profile

Patients per year: .....	65,000
Treatment rooms: .....	37
Attending physicians:.....	23
RNs: .....	52.15
Total staff: .....	117.89

The investigatory team established the following goals:

To ensure the safety of both patient and caregiver

- (1) To improve the quality of patient care
- (2) To maximize department resources, including personnel, physical space, and budget
- (3) To minimize operational inefficiencies

The special focus of their investigation was patient handling equipment. YRMC recognized that the primary ED patient transport device – the stretcher – had remained unchanged for decades, while patient demographics and treatment practices had significantly evolved. These trends, included:

- Changes in patient population
- Changes in RN demographics
- Changes in principal reason for patient visit
- Changes to treatment protocols
- Overcrowding in the ED

**Changes in Patient Population:** Like most hospitals nationwide, the YRMC ED observed that its presenting patients were getting heavier. According to the CDC, the average weight for men aged 20-74 years rose dramatically from 166.3 pounds in 1960 to 191 pounds in 2002, while the average weight for women the same age increased from 140.2 pounds in 1960 to 164.3 pounds in 2002. (*Mean Body Weight, Height, and Body Mass Index, United States 1960-2002.* <http://www.cdc.gov/nchs/data/ad/ad347.pdf>)

For YRMC staff, lifting patients from a stretcher to diagnostic and treatment equipment during a typical ED visit posed increased safety risks to both caregiver and patient – a concern recently reinforced by Goal #9 of the Joint Commission's 2010 Patient Safety Goals. (*The Joint Commission. Accreditation program: hospital; National Patient Safety Goals. 2010.*

[http://www.jointcommission.org/NR/rdonlyres/A643182A-8BA9-4673-8A5D-2E011A21E2F8/0/NPSGChapterOutline\\_FINAL\\_AHC\\_2010.pdf](http://www.jointcommission.org/NR/rdonlyres/A643182A-8BA9-4673-8A5D-2E011A21E2F8/0/NPSGChapterOutline_FINAL_AHC_2010.pdf))

**Changes in RN Demographics:** A shortage of nurses at YRMC was also affecting patient care delivery in

the ED. One reason for this is RN demographics. The nation's skilled nursing staff is growing older each year. In 2004 the average age of an RN was 46.8 years of age, and the RN population under the age of 30 had dropped from 9% in 2000 to 8%. (*2004 National Sample Survey of Registered Nurses, Federal Division of Nursing, February 2007*. <http://bhpr.hrsa.gov/healthworkforce/rnsurvey04>). In 2006, the average age of an RN at YRMC was 44.29, and in 2010, it was 45.33. Over the next 20 years, the average age of the RN will continue to increase, and the size of the workforce will level off, as large numbers of RNs retire. (*Journal of the American Medical Association, November 26, 2008*) Currently, over 25% of YRMC nurses are over the age of 65. With the average cost of a new hire at \$22,000, recruiting replacements is a significant financial burden. (*National Institute of Health 2003, An International Examination of the Cost of Nurse Turnover*).

Another reason for the nursing shortage is workplace injury, often the result of lifting today's heavier patients. In 2006, there were 22 reported workplace injuries involving sprains and/or contusions to emergency department staff at YRMC, and this figure increased to 30 in 2009. The most current statistics from the American Nurses Association state that 52% of nurses complain of chronic back pain and that 12% leave the profession each year citing back pain as a major factor. (*American Nurses Association Journal, June 2006*)

Bottom line, the need for RNs is projected to grow dramatically, resulting in a shortage of 260,000 nurses by 2025. (*Buerhaus, Dr. Peter, Health Affairs July/August 2009*) YRMC hoped to find a patient handling device that could prevent nurse injury and let the ED do more with fewer caregivers, both of which could impact the facility's bottom line.

**Changes in the Types of Presenting Cases:** Fifty years ago the majority of patients arrived at the ED in critical condition -- often suffering from heart attack, stroke or severe injury -- and required transport by stretcher. Today at YRMC as well as nationwide, 75% of ED patients are ambulatory, with symptoms that are classified as simply urgent (*such as a broken bone or laceration*) or even non-urgent (*such as a toothache or cold*). In 2001 abdominal pain, chest pain, fever and headache were the leading patient complaints, accounting for nearly one-fifth of all visits. And acute upper respiratory infections, open wounds (*excluding head*), contusions, and abdominal pain were the leading illness-related diagnosis. (*National Hospital Ambulatory Medical Care Survey: 2001 Emergency Department Summary*) YRMC staff observed that stretchers did not seem suitable or indeed comfortable for these non-critical patients, who were more comfortable waiting for treatment in an upright or semi-reclined position.

**Changes to Care Delivery Protocols:** Today's EDs are mandated by federal and state governments, as

well as hospital administrators, to follow strict treatment protocols. The goal is to help reduce the likelihood of an adverse outcome. For example, since 1987 gloves have been mandatory for caregivers to reduce the possible transmission of disease. More testing is ordered and more medications are prescribed than ever before, in a "belt and suspenders" approach to safeguard success and reduce potential litigation. But more testing also means more movement from department to department, and more patient transfers. In an effort to make this process as efficient as possible, YRMC hoped to find a single transport vehicle that could accommodate a wide range of procedures across multiple treatment areas.

### Overcrowding in the ED

A new study by the CDC shows that 40% to 50% of emergency departments experienced overcrowding in 2003 and 2004. (*Staffing, Capacity, and Ambulance Diversion in Emergency Departments: United States, 2003-04*) YRMC also experienced overcrowding with a 3.6% increase in patient population. According to a General Accounting Office survey, several conditions contributed to patients being diverted to other hospitals due to overcrowding. They included an inability to transfer to an ICU/CCU (38%), an inability to transfer to telemetry beds (34%), an ED whose overall capacity had been exceeded (38%), and an inability to transfer to other inpatient beds (17%). (*GAO survey of hospitals, 2002. GAO-03-460 Emergency Department Crowding pg. 53*) The GAO also found that hospitals employed a range of solutions to ease overcrowding, all of which had negative cost implications: 82% asked staff to work overtime, 29% canceled elective procedures, 47% used an on-call system for additional staff, 26% moved patients to other facilities, and 53% used the hospital float pool for additional staff. [GAO survey of hospitals, 2002. GAO-03-460 Emergency Department Crowding, page 54] YRMC staff reasoned that a compact, multi-purpose transport and treatment vehicle might improve throughput, free up space, and ease overcrowding.

### Methodology and Initial Findings

The team at YRMC evaluated the following types of patient handling equipment in an effort to help respond to these important workplace trends:

- **Transport stretchers**
- **Recliner chairs**
- **Stretcher-chairs**
- **Other transfer systems, including mats, sheets and boards**

After a thorough selection process, the team determined that an emerging type of patient handling equipment -- the stretcher-chair -- provided key features and benefits that could help address the ED's key patient care issues.

The stretcher-chair is a patient transport device that has the ability to adjust from a fully upright to a prone position, allowing patients to go from admitting to discharge all on a single surface. Basic stretcher-chairs can have controls that are manual, pneumatic, hydraulic, or combinations of two or more of these options. However, there are also stretcher-chairs that offer full motorized positioning with hand-held controls -- a sophisticated solution that offers exceptional patient positioning options.

### Operational Implications

YRMC's research into this patient transport category proved that the stretcher-chair had clear benefits that addressed important issues and trends.

- **Reduced Nurse and Patient Injuries:** Since a stretcher-chair can potentially reduce patient transfers to zero, it can eliminate the risk of injury to both nurses and patients. This can help reduce nurse attrition, reduce worker's compensation claims and costs, and help the ED comply with the Joint Commission's Goal #9.
- **More Comfortable Patient Experience:** The stretcher-chair has the ability to transform the patient experience in the ED. It allows the majority of the ED's patients – those that are ambulatory – to rest in an upright or semi-reclined position while they wait for or undergo treatment. In short, the stretcher-chair can contribute to a positive, healing environment.
- **Flexible Treatment Surface:** A stretcher-chair allows patients to remain on the same surface for multiple types of tests in multiple departments, ranging from a blood draw, to an I.V., to simple sutures. Certain stretcher-chairs also have radiolucent backs to accommodate an X-ray or C-arm. Some even have accessories that permit a pelvic exam.
- **Less Crowding and Greater Throughput Potential:** The stretcher-chair's single-surface solution eliminates time-and staff-consuming patient transfers. This can help EDs treat each patient more efficiently, and can eliminate overcrowding that results when standard treatment surfaces are not available. And its compact, upright footprint lets an ED use its limited space more productively.

### Initial Results

Based on the above findings, Yuma Regional Medical Center's Emergency Department purchased six motorized stretcher-chairs in January 2007. Staff members confirmed that the chairs' flexible positioning allowed them to customize the treatment experience for each patient to promote a healing atmosphere. The Department also noted improvements in patient throughput. The stretcher-chairs took the place of four standard stretchers in the Staging Area, an area used to care for those patients who had already been seen by a physician and were awaiting diagnostics and final disposition. This allowed staff to prepare and treat more patients within the same space.

The stretcher chairs also were easier to maneuver in the cramped Staging area than standard stretchers making transfer of patients from this area to other departments less problematic for the staff. Pleased with these results, the Department purchased four additional stretcher-chairs in 2010.

### Summary

The realities of today's Emergency Department include a changing patient population, a nursing shortage, increasingly ambulatory patients, changing treatment protocols, and overcrowded conditions. The standard stretcher, an ED staple for over 50 years, does not have the operational flexibility that these conditions require. In contrast, a stretcher-chair provides clear operational benefits to patients, caregivers, and department managers: reduced patient transfers, reduced risk of injury, improved patient comfort, and greater potential throughput.

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