A visit to the R Adams Cowley Shock Trauma Center, University of Maryland Medical Center, Baltimore, Maryland

By Carole Rush and Shelley Pidruchney

We were fortunate to go on a tour of the R Adams Cowley Shock Trauma Center (known simply as University of Maryland Shock Trauma Center) in Baltimore, Maryland, in conjunction with the 2009 fall scientific assembly of the Emergency Nurses Association (ENA). As two nurses who dream of studying/working at this world-renowned facility, we were excited to have a tour.

History

Our tour was conducted by various staff members (nurses, public relations officer, hyperbaric chamber staff and flight staff) to give us access to most of the facility. We started with a formal presentation of the history of the development of this institution (Table One). Dr. R. Adams Cowley (1917–1991) was the driving force behind the creation and development of the shock trauma center. He described shock as "a momentary pause in the act of death" and was determined to make the process reversible. He coined the concept of the "Golden Hour" of initiating treatment for severely injured patients that we still use today. Dr. Cowley explained his theory as follows: "There is a golden hour between life and death. If you are critically injured, you have less than 60 minutes to survive. You might not die right then—it may be three days or two weeks later, but something happened in your body that is irreparable" (University of Maryland, 2001). Dr. Cowley spent the later part of his career influencing and negotiating the development of the Maryland trauma system, of which shock trauma is the cornerstone. At present, $11 of every driver's licence fee in Maryland goes toward funding the Maryland Trauma System.

Table One. Developmental history of the Shock Trauma Center (Source: www.umm.edu/shocktrauma/history.htm)

Date	Events
1945–1960	Dr. R. Adams Cowley's work as a pioneer in open-heart surgery, prior to use of heart-lung machine U.S. Army awards Dr. Cowley a grant for $100,000 to study shock in humans
1961	Two-bed clinical research unit opened, called the "Death Lab". Patient referrals who were dying from shock
1967	State-wide EMS system plans for Maryland
1969	Creation of the original 32-bed Center for the Study of Trauma
1970	First civilian lands on helipad, down seven floors, then over to separate Shock Trauma building
1973	Governor of Maryland issues an executive order establishing the Center for the Study of Trauma as the Maryland Institute for Emergency Medicine
1989	New R Adams Cowley Shock Trauma Center (eight storeys) with state-of-the-art equipment opened, with the philosophy, "Build it and they will come"

Patient access

The current facility is a free-standing trauma hospital centre, and is part of the University of Maryland Medical Center (UMMC) (Figure One). All patients arrive by either ground ambulance (Figure Two) or helicopter (Figure Three) from all over the state of Maryland. Impressive to note, there is a fleet of 12 helicopters to provide pre-hospital critical care and transport of patients to Shock Trauma. We noticed that there are no public entrances from the outside to Shock Trauma. A "walk-in" or "drop-off" trauma patient who presents to the emergency department of UMMC would have to be transferred to Shock Trauma.

Figure One. R Adams Cowley Shock Trauma Center. ***(Photo Courtesy of MIEMSS)***

Flow of patient care

Patients are first transported to the Trauma Resuscitation Unit (TRU) (Figure Four) where a multidisciplinary team performs initial assessment and stabilization. The TRU is a locked unit and never on diversion. Nurses who work in the TRU must have extensive critical care experience. The TRU has the most detailed trauma flow sheet (10 pages) we have ever seen! Depending on the situation, patients are then taken to either one of six operating rooms (adjacent to the TRU) or upstairs to one of the inpatient units. There are several floors of inpatient intensive care and intermediate care and several specialty units caring for traumatic brain injury, spinal cord-injured patients and those with complex musculoskeletal injuries. Rehabilitation takes place at other facilities.

Figure Two. Carole and Shelley outside the ambulance bay.

Figure Three. Carole and Shelley on the rooftop helipad.

Shock Trauma boasts a 97% survival rate to discharge and has a large organ donation program. Table Two outlines the resources that are available at all times.

Patient population and testimonials

Shock Trauma is an adult facility. Pediatric patients are treated at Johns Hopkins Hospital and burn patients are cared for at Johns Hopkins Bayview Medical Center. The patient population is beginning to expand to include critically ill patients with complicated wounds, sepsis and necrotizing fasciitis. The facility's website has a wealth of trauma resources, but the most powerful information is the collection of patient stories and testimonials at http://www.umm.edu/shocktrauma/patient_stories.htm

Figure Four. Trauma Resuscitation Unit (TRU).

Table Two. Services available on site, 24/7 at Shock Trauma Center

Trauma Resuscitation Unit
Trauma Surgeons and ORs (x 6) always ready
Anesthesia
Neurosurgery
Orthopaedics
Specialty nurses and support staff
Radiology / CT
Angiography
STAT Lab (results within 10 minutes)
Blood Bank (10 units 0+, 4 units 0-)
Pharmacy
Recovery Room
Critical Care Units
Intermediate Care Units
Acute Care Units
Pastoral Care

Hyperbaric chamber

The hyperbaric chamber at Shock Trauma is huge—it could treat up to 23 patients at one time! The chamber can be separated into three sections, each with different "dive" conditions. A physician trained in hyperbaric medicine is on site at all times (Figure Five). Nurses care for a wide variety of patients inside the chamber (Figure Six), from ambulatory patients with wounds to critically ill ventilated patients. Referrals are again from the entire state of Maryland.

Research and educational opportunities

The Shock Trauma Center is the principal trauma care teaching site for the state of Maryland and the "hub" for trauma clinical research. People come from all over the world to learn and work there. The United States Air Force has a teaching program for trauma at this facility known as the Center for the Sustainment of Trauma & Readiness Skills (C-STARS). Information on the variety of physician, nursing and nurse practitioner educational programs can be accessed at http://www.umm.edu/shocktrauma/pcs_education.htm.

Shock Trauma recently received the prestigious Magnet Hospital designation. The Magnet Recognition Program® was developed by the American Nurses Credentialing Center (ANCC) to recognize health care organizations that provide nursing excellence. The program also provides a vehicle for disseminating successful nursing practices and strategies (American Nurses Credentialing Center, 2010).

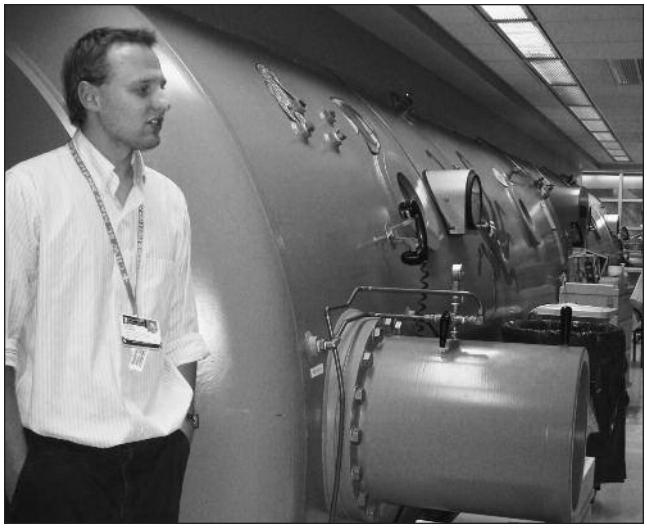

Figure Five. Outside of hyperbaric chamber.

Figure Six. Inside of hyperbaric chamber.

Many of the staff at the Shock Trauma Center have shared their knowledge and skills in areas of need such as war-torn Afghanistan and after the large earthquake in China. Detailed information about research at Shock Trauma can be found at http://www.umm.edu/shocktrauma/trauma_research.htm

Injury prevention programs are strong

The main focus of Shock Trauma is clinical patient care, but staff also has a strong belief in injury prevention. Injury prevention programs are conducted through a strong partnership with the American Trauma Society. A strong focus of such programs is violence prevention.

What's with the pink scrubs?

We noticed that clinical staff that works at Shock Trauma wears pastel pink scrubs (Figure Seven), and learned that pink was chosen as the colour for trauma staff. This made them unique and distinctive from the rest of the hospital.

References

American Nurses Credentialing Center. (2010). **Magnet Recognition Program Overview.** Retrieved February 18, 2010, from http://www.nursecredentialing.org/Magnet/ProgramOverview.aspx

University of Maryland. (2001, November). **R Adams Cowley Shock Trauma Center, Tribute to R. Adams Cowley, M.D.** Retrieved February 17, 2010, from www.umm.edu/shocktrauma/history.htm.

Acknowledgements

University of Maryland Shock Trauma Center

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Figure Seven. Everyone wears pale pink scrubs!