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## Hennepin County Medical Center

New Burn Center Providing Intensive, Acute and Rehabilitative Care

# HENNEPIN COUNTY MEDICAL CENTER New Burn Center Providing Intensive, Acute and Rehabilitative Care

By Marian Deegan

**A** CONTAINER OF HOT liquid tips over from an overhead microwave; a playing toddler trips into a smoldering fire pit; a stovetop pan of oil abruptly ignites. Severe burn injuries have a devastating impact. According to the American Burn Association (ABA), 66% of burns catch us off guard in the perceived safety of our homes, and approximately one-third of burn victims are children. The injuries can be excruciating, disfiguring and debilitating, with far-reaching psychological and physiological tolls for patients and their families. As national health care resources are reallocated and centralized, fewer hospitals offer the specialized treatment burn injuries require.

The Hennepin County Medical Center (HCMC) Burn Center has been providing care to patients with burns and other complex wounds for more than 30 years.

“Dr. John Twomey established our burn center when he joined HCMC as a staff physician in 1978,” recalls George Peltier, M.D., plastic surgeon with the HCMC Burn Center. “I joined him in 1980. Our isolation rooms were a huge improvement over the rooms being used at the old Minneapolis General Hospital.”

Today, the HCMC Burn Center is among 57 centers across the country designated by the ABA as Verified Burn Centers, with the multidisciplinary resources and reconstructive surgery expertise to maximize burn recovery. Statistics indicate that accredited burn centers lower the mortality rate of burn patients by providing critical advances in technical resources as well as expertise in transport and treatment. Over the last 30 years, the percentage of burn over a patient’s body resulting in death has risen from 50% in 1960 to 98% today.

“All of our antibiotics, topicals, infection treatments, equipment and dermatomes are different today,” explains Dr. Peltier. “This results in less infection, better outcomes, shorter hospitalizations and lower mortality for patients treated at a certified burn center.”

Nationally, burn centers average 200 annual admissions, while other acute-care hospitals admit fewer than three burn patients per year. HCMC treats 10 to 11 patients every day and expects that number to increase this fall with their planned expansion.

HCMC’s new Ambulatory Burn Clinic opened earlier this year, and in October, the burn center will open its new inpatient unit.

“We’ve always had good outcomes,” explains Anne Lambert, M.D., HCMC Burn Center surgeon, “but our facilities were out of date. The new burn center will be available 24/7/365 with 18 private rooms, more room to handle wound care, amenities that improve the patient experience and an ambulatory clinic to provide burn care expertise to patients who don’t require hospitalization.”

“I’m not aware of any other burn clinics in the States with a burn care specialist on site to see patients seven days a week,” notes Ryan Fey, M.D., who brings fellowship training in pediatric injuries to the HCMC Burn Center. “We have a burn-trained physician or physician’s assistant present every day, including most holidays, all year long.”

Immediate treatment is critical for patients suffering significant burns. Dangers include hypothermia, dehydration,

Dr. Ryan Fey, Dr. Anne Lambert, Dr. George Peltier and Alison Schramm, P.A.



electrolyte imbalance and infection. HCMC has instituted special protocols to speed patient admittance directly to the burn unit. Referring physicians receive direction regarding medications, wound dressing and recommended transport.

“We try to excise burns within 24 and 72 hours of injury,” explains Dr. Lambert. “The longer the wounds are open, the longer they are susceptible to potentially fatal infections of the bone, venous catheter infections or urinary tract infections. For patients who are already compromised, infections can be life-ending. It’s always a race against the clock to cover burns as fast as possible.”

Fluid resuscitation, nutrition and medications are carefully controlled to maximize recovery. Burn patients need twice the core nutritional requirements of resting energy expenditure.

“The metabolism of burn victims is out of control,” explains Dr. Fey. “If you normally would eat 2,000 calories a day, we double that calorie intake for a severe burn to enable the patient to maintain, break even and heal. We also use medications to reduce the amount of protein breakdown and catabolic or deleterious metabolic effects.”

HCMC offers nitrous and conscious sedation for both burn unit and clinic patients during painful procedures, along with aggressive pain management. These capabilities maximize comfort for patient procedures and enable appropriate patients to recover at home, where they do better.

In cases of devastating extensive burns, the development of cultured skin substitutes is significantly improving patient survival rates.

“This treatment is still in its infancy, but we’ve been able to take a small specimen of the patient’s skin, homogenize it and grow an outside layer of skin in the laboratory over a three-week period,” explains Dr. Peltier. “The lab puts a backing on the skin and sends it to us. It’s very thin, and we wish the process was faster, but in situations where we cannot harvest skin and there are no other options, cultured skin substitutes are invaluable.”

Each day at 9 a.m., HCMC Burn Center physicians make rounds with a multidisciplinary team of burn experts, including an adult and pediatric pharmacist, a nurse clinical coordinator, and charge nurse or nurse educator.

“When we have children in the unit, our pediatric intensivist joins us,” says Dr. Lambert. “Once or twice a week, we round with occupational therapy, physical therapy, and both adult



A multidisciplinary team of burn experts — physicians, nurses, occupational and physical therapists, nutritionists, pharmacists, and pediatric specialists — participate in daily rounds for all Burn Center patients.



#### THE PHYSICIANS AT the HCMC Burn

Center emphasize prevention and education.

They encourage care around the following top causes of burn and frostbite injuries:

- + **Fire pits:** Children and adults are admitted weekly during summer months with burns caused by these fashionable but dangerous backyard accessories.
- + **Overhead-mounted microwave ovens:** Dishes containing tea, soup and particularly heat-retaining ramen noodles easily tip from above, sending children and adults to the burn center every week with scalded faces, arms and hands.
- + **Holiday activities:** Fireworks and attempts to deep-fry turkeys for Thanksgiving dinners frequently send people to the HCMC Burn Center.
- + **Alcohol:** During winter months, people who’ve had too much to drink opt to walk home, not realizing they are inadequately dressed, and suffer frostbite as a result.

and pediatric nutritionists. We also have chaplaincy, child life, psychology and psychiatry resources for our patients.

“Psychological issues are addressed at the onset of care,” she explains. “Interestingly, patients are more concerned about regaining function; relatives are more concerned about disfigurement. A fireman with badly burned hands wants to know if he can go back to being a fireman. Patients deal with disfigurement better if they can go back to doing the things that they love to do.”

Because the number of burn centers across the country is on the decline, outreach is a priority. HCMC burn physicians actively educate community health care professionals and conduct burn, fire safety and prevention programs in schools. They are also establishing direct lines of communication, including a proposed telemedicine program, with hospitals, physicians and emergency medical services groups throughout the tri-state area to improve and expedite patient treatment.

“We never turn down an invitation to speak,” says Dr. Lambert. “We see this as part of our jobs. Local physicians know that when they call our burn center, they’ll be directly referred to one of our burn staff. In our world, outreach is important because our patient population isn’t exclusive to the Twin Cities. Significant burn injuries come to us from the states to the west and south of Minnesota. At this moment in the burn unit, I have a little boy from the Montana-North Dakota border, a man from Fargo and another from Grand Forks.

“We have cultivated working relationships with physicians in Fargo and Sioux Falls to handle followup,” she continues. “Yesterday, I grafted a patient from Fargo with a deep, third-degree burn. When he goes home, our colleague in Fargo will take his first dressings down. I give the patient and family my e-mail address, so they are able to send pictures and ask questions from home. It gives them more piece of mind. We are continuing to expand relationships with colleagues outside the Twin Cities, so our patients don’t have to travel so far for follow-up care.”

Acute wound care goes hand-in-hand with burn care, encompassing expertise with emerging improvements in wound treatment, dressing care, advancements in wrapping burns and the speed with which patients reach the operating room. Referrals to the HCMC Burn Center reflect a variety of complicated wounds, including frostbite, necrotizing soft tissue infections, car accident degloving injuries, pressure wounds suffered by quadriplegic and paraplegic patients, and open abdominal wounds.

The HCMC Burn Center is one of the top two authoritative frostbite centers in the nation.

“There’s a paucity of information in the literature on frostbite,” explains Dr. Fey. “In part because of geographic location, we are known for expertise with thrombolytic therapy to reopen blood flow to frozen extremities and decrease the incidence of amputation.”

In an era when health care resources are limited and specialized burn care is scarce, HCMC continues to build on its commitment to provide the Twin Cities and surrounding states



[ABOVE] The main tub room features “lay down” showering to provide head-to-toe care. A hydraulic trolley, ceiling and extremity lift help safely move and position patients. There is also a special tub room for infants and toddlers. All Burn Center rooms have monitoring capabilities. [BELOW] The sit-down shower area is for burn patients who are able to sit up for their wound care. It’s also a transitional area for patients to bathe and begin participating in cares before they are ready to shower on their own in their private rooms.

with highly trained, multidisciplinary care for severe burns, frostbite and complex wounds.

“When I reflect over the last 30 years,” says Dr. Peltier, “I am most proud of our growth. Our center now has four full-time, burn-trained providers dedicated to our patients and supported by an excellent multidisciplinary team of PTs, OTs, social services professionals and more than 30 nurses with Advanced Burn Life Support training.”

“Our burn unit team is the best part of my job,” agrees Dr. Lambert. “And I love my patients. I love seeing them; I love following them as they get better; I love watching their transformations. That’s the best.” ■