

HOSPITAL CHARACTERISTICS

## QUEEN OF PEACE HOSPITAL

- ▶ New Prague, MN
- ▶ 25 beds
- ▶ [www.queenofpeacehospital.com](http://www.queenofpeacehospital.com)

Queen of Peace Hospital is a critical access hospital that offers medical services in patient care, diagnostics, and therapy.

### S.T.E.E.E.P.



#### EFFECTIVE

Prior to implementing this program, clinical success rate—i.e., minimal or no neurological impairment—for patients with cardiac arrest was zero. The rate has risen to 25 percent (1 of 4 patients).



#### EFFICIENT

Minimal costs are required to implement the program. If patients fully recover, it decreases costs for long-term inpatient ventilation and rehabilitative care.



#### PATIENT-CENTERED

Previously, patients may have been resuscitated but have brain injury or die. Now patients have a chance to survive and have an unimpaired life.

# THE “COOL IT” PROGRAM: PREVENTING BRAIN INJURY AND DEATH

## The Problem

Standard care for a patient in cardiac arrest has been cardiopulmonary resuscitation, followed by cardiac defibrillation if available, and transport to the nearest hospital where the patient is stabilized. A patient in cardiac arrest arriving at Queen of Peace Hospital is stabilized

and then transferred to Abbott Northwestern Hospital in Minneapolis.

During the transfer time, which could be 30 to 45 minutes, permanent brain injury to the patient or death can occur.

## The Solution

The medical field once thought that irreversible brain injury would occur in patients during the first six minutes of cardiac arrest. Now practitioners know that during those first six minutes a chain of events begins that could ultimately lead to brain death. But this chain of events can be interrupted using resuscitation and defibrillation followed by therapeutic hypothermia, preserving brain function from 6 minutes to about 45 minutes after cardiac arrest.

Collaborating with Abbott Northwestern Hospital, Queen of Peace implemented the “Cool It” program to induce therapeutic hypothermia in patients experiencing cardiac arrest. By inducing hypothermia, a patient's core temperature is reduced to 33 degrees Celsius from 37 degrees Celsius. This process slows the body's metabolism, decreases oxygen consumption, and thus preserves brain function.

When patients in cardiac arrest arrive at Queen of Peace, they are sedated if they are not already unconscious. Nurses apply ice packs to the abdomen, chest, and under the patient's arms, while physicians are

working on the patient. Patients are readied for the transfer and flight to Abbot Northwestern. The flight is about 10 minutes, but the entire preparation process takes about 30 to 40 minutes. Once at Abbott Northwestern, the cooling process continues.

Candidates for the program must meet certain criteria, for example have “downtime” of less than 45 minutes—ideally less than 30 minutes—and have had nontraumatic cardiac arrest with spontaneous return of circulation and a steady heart rhythm.

## Results

In July 2008 the first patient was saved with this process and is doing well. The patient saved in 2008 was diagnosed with a rare genetic heart condition. Through genetic testing, four close relatives were identified with the same condition and received treatment, essentially helping to save more lives now and in future generations.

According to protocol, it takes about four hours to reach the target temperature of 33-34 degrees Celsius. Practitioners at Queen of Peace Hospital have been reaching the target temperature in one to two hours.

## Background

An article on therapeutic hypothermia appeared in the February 2002 issue of the

## TEAM MEMBERS

**Anne Anderson, RN**

Lead Emergency Room Nurse

**Kelly Ashley, RN**

Emergency Room Nurse Director

**Eric Gage, MD**

Emergency Room Medical Director

New England Journal of Medicine. Abbott Northwestern Hospital started implementing the program in 2002, which was the beginning of clinical trials, according to Kelly Ashley, RN, emergency room nurse director at Queen of Peace. Queen of Peace Hospital started the program in 2007. At the time, Abbott Northwestern Hospital, already using the therapeutic hypothermia process, found that more than 75 percent of their "Cool It" patients were transferred from rural hospitals.

The Minneapolis Heart Institute at Abbott Northwestern Hospital worked with Queen of Peace practitioners to create a checklist and order set for guidance and provided education and training in the cooling process. Anne Anderson, RN, lead ER nurse at Queen of Peace, directed implementation of the program at the hospital. She researched the program at other hospitals and revised the Cool It checklist for Queen of Peace, including making it more user-friendly. Eric Gage, MD, ER medical director at Queen of Peace, praised the role of nurses in helping to spread the innovative program. "Nurses have been the driving force in the program," he says.

### **Principles of Performance Excellence**

#### **Reducing Process Variation**

Success implementing the Cool It protocol is based on (1) reaching the target temperature within four hours and (2) determining the patient has minimal neurological impairment when discharged. To help achieve this success, Queen of Peace practitioners use a one-page front-and-back checklist that guides them through the Cool It process. The checklist includes

a list of inclusion and exclusion criteria for evaluating patients, instructions for order set and patient care, a chart to record administration of medications, and a hospital transfer checklist. Practitioners are treating seriously ill patients when every second counts, and the checklist becomes an important part of the care process and achieving success.

#### **Managing Organizational Variability**

Physicians and nurses from Abbott Northwestern and Queen of Peace have collaborated throughout implementation of the Cool It program. Abbott Northwestern provided the initial education and training to Queen of Peace practitioners, who in turn adapted and even improved some aspects of the program, including the checklist. Abbott Northwestern gives regular feedback on every Cool It patient transferred by Queen of Peace. Kelly Ashley and others review this information, which includes neurological markers, cardiac markers, and anticipated quality of life for the patient. The continued collaboration ensures coordinated and seamless care and, ultimately, a greater chance of survival and higher quality of life for cardiac arrest patients being transferred between rural and city hospital settings.

#### **The Patient Experience**

Before the Cool It program, patients experiencing cardiac arrest who arrived at Queen of Peace had "devastating neurological damage and no meaningful recovery," says Dr. Gage. The success of the program means a chance of full or nearly full recovery by patients. "We [used to] resuscitate a lot of people who would need long-term care or have no recovery.

Now these people have significant recovery. The number of patients [at our hospital] will be small, but the impact is dramatic," explains Dr. Gage.

### **Continual Improvement**

At a rural hospital such as Queen of

Peace, the Cool It program can be implemented and sustained with the minimal costs of educating practitioners and buying and maintaining a small freezer with bags of ice. All intensive care unit and emergency room doctors and nurses at Queen of Peace are fully trained in the Cool It

process and prepared to train staff at other hospitals. Dr. Gage says "therapeutic hypothermia is now being used at other hospitals in clinical trials with stroke patients, potentially giving it broader applications in the future.