

SARVER HEART CENTER

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“My new heart missed its flight”



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Adventurer, Artist and Philanthropist: In Memory of Robert Reininger



Kiss the ‘Kiss of Life’ Goodbye

Landmark study proves Continuous-Chest-Compression Resuscitation without mouth-to-mouth is better for cardiac arrest.

“Come quick! Bob Hurt died again!” – Retired Phoenix cardiologist Robert Bullington, MD, couldn’t believe his ears. He was on the sixth fairway of the Phoenix Country Club golf course when he turned around and saw a fellow golfer waving for help. About a hundred yards from where Dr. Bullington was getting ready to hit a shot, a man had collapsed into unconsciousness after his heart had stopped beating.

Only nine months before, Dr. Bullington had saved the same man’s life, on the same golf course, on the same day of the week, by performing continuous chest compressions after he collapsed in cardiac arrest. “This time it was more serious,” Dr. Bullington recalls. “I pressed on his chest for 15 minutes until the paramedics finally got there.” The man who sur-

vived for a second time and considers himself “the luckiest golfer alive” was Bob Hurt, senior sports writer for the *Arizona Republic*. Hurt was referred to UA Sarver Heart Center Director Gordon A. Ewy, MD, who successfully treated his severe arrhythmia. Hurt attributes his survival to Dr. Bullington’s

fast response and the use of continuous chest compressions without mouth-to-mouth ventilation, a technique pioneered by the Resuscitation Research Group at the UA Sarver Heart Center. As a former member of the center’s advisory board, Dr. Bullington was aware of the new technique.



Sarver Heart Center Director Gordon A. Ewy, MD, is being recorded at the UA KUAZ studio during an interview about the latest report on bystander-initiated resuscitation with the BBC in the UK.



are almost twice as high if bystanders perform chest-compression-only resuscitation instead of traditional cardiopulmonary resuscitation (CPR) with mouth-to-mouth breathing. Led by Ken Nagao, MD, from the Nihon University Surugadai Hospital in Tokyo, the authors analyzed the outcomes of 4,068 cases of witnessed collapse of adults

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...from the Director

“Is there a doctor on the plane?” Dr. James Young, chairman of the Division of Medicine at the Cleveland Clinic, was on his way from Seattle to Cleveland, when he heard the dreaded call over the intercom. A few months before, he attended a lecture on continuous-chest-compression resuscitation for cardiac arrest I gave at Cleveland Clinic. Dr. Young found the individual in the galley, obviously near death in cardiac arrest. A nurse and a fellow passenger were trying to give ventilations. “Mouth-to-mouth breathing is no longer required” he told them, “just press on the chest.” Fortunately, the patient responded to the first shock from the plane’s defibrillator and is now doing well. In our effort to share our new and more effective approach to resuscitate patients from cardiac arrest, we, the members of the Sarver Heart Center Resuscitation Research Group, are happy about any invitation from colleagues all over the world. As I write this, Dr. Karl Kern is presenting in Australia, Dr. Bob Berg just returned from Tokyo, while Dr. Art Sanders spoke at recent emergency medicine meetings and Dr. Charles Otto spread the word at critical care medicine and anesthesiology conferences. No doubt it will take some time to get the national and international guidelines to recommend chest compressions alone for sudden unexpected collapse while reserving cardiopulmonary resuscitation (CPR) for the rare cases of respiratory arrest, e.g. drowning. In the meantime, we continue to present our important research findings to any interested medical group. For the public, we continue to offer a free monthly education program at UMC and are planning a similar program in Phoenix. Contact Daniel Stolte at (520) 626-4083 to learn how you can “Be a Lifesaver.”



Martha Lochert


GORDON A. EWY, MD
Director, UA Sarver Heart Center

Kiss of Life *continued from page 1*

in the Kanto area in Japan.

“The findings are another confirmation that what we learn in our animal experiments applies to humans as well,” says Dr. Ewy. “Bystander-initiated continuous chest compressions without mouth-to-mouth breathing are the preferable approach for witnessed unexpected collapse, which is usually due to cardiac arrest.”

As is common practice with study reports deemed of utmost significance, the editors turned to the leading authority in the field for a guest commentary – *The Lancet* invited Dr. Ewy to write an editorial to accompany the study report and put its implications into perspective. In his article, “Cardiac Arrest – Guideline Changes Urgently Needed,” Dr. Ewy notes that eliminating the need for mouth-to-mouth ventilation not only is more effective but should dramatically increase the incidence of bystander-initiated resuscitation efforts.

The numbers published in *The Lancet* rocked the medical community and made headlines worldwide. Following the publication, Dr. Ewy became a “Most Wanted” with reporters and news producers. National and local media were anxious to share the unexpected news with their readers, listeners and viewers, among them the *Associated Press*, *The New York Times*, *The Chicago Tribune*, *The Los Angeles Times*, *USAToday*, NBC and CNN. Within two days, Dr. Ewy’s comments spread to other parts of the world, including Canada, Great Britain, France, Italy, Germany, Austria, India, and Australia, to name but a few.

“For cardiac arrest, the term ‘rescue breathing’ is actually a paradox,” says Dr. Ewy. “We now know that not only is it not helpful, but it’s often harmful.”

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‘My new heart missed its flight’

On a Saturday in October 2001 at 8 p.m., John Kressaty and his wife, Kim, received the phone call they had awaited for a long time. A donor heart had become available. Stricken with a defective heart since his youth, John was in his early fifties when he developed an infection that caused his heart to enlarge to three times its healthy size and severely damaged his mitral valve. After a conversation with Jack G. Copeland, MD, professor of Cardiothoracic Surgery and co-director of the Sarver Heart Center, “It was clear that I needed a transplant, and I would have gone nowhere else for this surgery,” John says.

When he got the call, John wasted no time. “I was too excited to just ride along in the passenger seat, so I drove the two hours from Mesa to Tucson myself. When we got to University Medical Center, the staff was working just like clockwork, but my donor heart had missed its flight!”

As a teenager, John was diagnosed with a heart murmur caused by malfunctioning heart valves. The doctors told his parents there was nothing they could do about it at the time and that John would be fine. At age 18, John’s leaky heart valves had further deteriorated. Like a worn-out engine, his heart no longer operated smoothly. John began to hear and feel his heart beat, but, like most teenage boys, ignored it. For the next 20 years he lived a fairly normal life, but by his late forties, the thumping in his chest started to sound like impending doom. “My father’s side of the family has a history of heart disease,” John says. He underwent the first of several surgeries to repair the valves in his failing heart. Shortly after, while he was working out at his company’s gym, John’s heart stopped. “They tell me that I just went down. Thankfully there

was a nurse on staff who grabbed the crash cart and delivered nine shocks to keep me alive.” In the hospital, John was fitted with an implantable defibrillator that could deliver a life-saving shock to his heart if needed.

As John moved into his fifties, his heart was still not well. That was to change when he received his transplant. John remembers waking up after the procedure, looking around and thinking, “I can’t feel my heart beating anymore!” He was committed to not wasting the opportunity he had been given. “Within a week I was able to walk around,” he says. “The nurses caught

me jumping onto my IV roller and skating down the hall!” Just one month earlier, John had not been able to summon enough energy to stand up and shave at the same time.

In addition to serving on the Sarver Heart Center Advisory Board, John has spoken at the annual ‘El Tour de Tucson’ bike race about his experience and his life with a new heart. He volunteers at his local hospital’s cardiac care unit.



John Kressaty, second from right, receives the Medtronic Return to Full Life Award for his determination and advocacy on coping with severe heart failure and transplantation. From left: Sarver Heart Center Co-Director Jack G. Copeland, MD, Mark Johnson of Medtronic, Inc. and Sarver Heart Center Director Gordon A. Ewy, MD.

But perhaps his most inspiring efforts happen on his frequent trips to Tucson: John always stops by to talk with those waiting for a transplant or those who have recently received one at University Medical Center.

When asked what returning to a full life means to John and his family, he says, “We are not constantly worrying about me having to go to the emergency room. We can do things as a family with very few limitations and we can make plans for the future. Being a part of the Board and being donors makes us feel like we are giving back to those who saved my life. We have made some good friends and find that we all have something in common that connects us in the fight against heart disease.” ♥

HEALTHY HEART 2007

February 10, 2007

University Medical Center • Tucson, AZ



Maxed out: 340 participants gathered at University Medical Center for the Healthy Heart 2007 Public Education Experience to hear Sarver Heart Center experts speak about cardiovascular risk prevention, heart disease in women, latest imaging technologies, arrhythmias and diabetes.



Mary Anne Fay, who chairs the Sarver Heart Center Women's Heart Health Education Committee, introduces presenter Lori Mackstaller, MD.



Peter Ott, MD, explains how the heart's pacemaker cells, like spark plugs, generate the heartbeat.



Pop quiz: The speakers answer questions collected from the audience.

Registered Nurse Vivian Standage at the blood pressure screening table where participants could have their blood pressure checked.



Recent Awards for Sarver Heart Center Members



Robert Berg, MD, Sarver Heart Center investigator, pediatric intensive care specialist, professor of pediatrics and associate dean for clinical affairs at the UA College of Medicine, was honored with the “2006 Resuscitation Science Symposium Lifetime Achievement Award for a Cardiac

Resuscitation Scientist” by the American Heart Association. The award recognizes international leadership in cardiac arrest and CPR research.

Gordon A. Ewy, MD, and Frank Marcus, MD, were commended by Arizonans Concerned About Smoking, Inc. (ACAS), for their support in creating smoke-free environments in Arizona. “Both Dr. Ewy and Dr. Marcus went out of their way and stood up as pioneers to make a difference on the journey toward a smoke-free Arizona,” said ACAS President Leland L. Fairbanks, MD, MPH. “They were the first to challenge the status quo at a time when smoking was much more tolerated than it is today.” Started as ‘Smoke-free Tucson’ in 1985, the initiative grew statewide in subsequent years and finally led to the passing of proposition 201, which bans smoking in bars and restaurants in Arizona.



Robert Preble, Sarver Heart Center volunteer coordinator, accepts the 2nd Annual Brian Bateman Superb Service Award. Mr. Preble has provided valuable service to the patients, donors and friends of the Sarver Heart Center for more than four years.

‘I love to see that light bulb go on’

Julia Indik, MD, PhD, has been honored with the Proctor Harvey, MD, Young Teacher Award by the American College of Cardiology (ACC). Three awards are presented each year to young members of the College who have distinguished themselves by their dedication and skill in teaching.



The purpose of the award is to stimulate the awardees to continue their careers in education. Dr. Indik is the only awardee from the field of electrophysiology (EP). EP cardiologists study the role of the heart’s inbuilt electrical circuitry in controlling heart rhythm. Their clinical expertise includes implantation of pacemakers and defibrillators. “I was ecstatic when I learned I would receive the award,” recalls Dr. Indik, who teaches the medical applications of electrophysiology, such as electrocardiograms, to medical students and residents at the UA College of Medicine. “I enjoy seeing that light bulb go on in my students’ heads when they understand a complex subject.”

As a holder of the Proctor Harvey, MD, Young Teacher Award, Dr. Indik will participate in activities of the American College of Cardiology such as developing curricula and teaching sessions and workshops at the ACC conferences. ♥

Charles W. Otto, MD, professor of anesthesiology and member of the Sarver Heart Center Resuscitation Research Group (right), was selected to deliver the Asmund S. Laerdal Memorial Award Lecture at the Society of Critical Care Medicine Annual Meeting in Orlando in February 2007. The award includes a \$5,000 cash reward, which Dr. Otto donated to the Sarver Heart Center for the purpose of CPR research.



Diabetes Research

The article, Fighting Heart Disease through Innovative Research, in the previous issue of the newsletter fell short of including the Mark and Emma Schiffman Endowment grant, which was given to Sarver Heart Center member **Betsy Dokken, NP, PhD, CDE**, for her project “Postconditioning with GLP-1 in the Diabetic Heart,” a research project that will help our understanding and treatment of diabetes.

Kiss of Life *continued from page 2*

Studies showed that because current CPR guidelines call for mouth-to-mouth ventilations, the majority of people would not perform CPR on a stranger, partly out of fear of contracting diseases. Chaired by Karl B. Kern, MD, the UA Sarver Heart Center Resuscitation Research Group discovered that even if bystanders *are* willing to perform mouth-to-mouth ventilation, it takes too much time away from chest compressions, which have to be near continuous to improve the chance of survival.

“We have found that the survival rate is higher even if the blood has less oxygen content but is moved through the body by continuous chest compressions, than if the blood contains a lot of oxygen but is not circulated well because chest compressions are interrupted for mouth-to-mouth ventilations,” Dr. Kern says.

All studies on out-of-hospital cardiac arrest have shown that the chance of survival is greatest in patients whose heart is in a condition that allows paramedics to shock it back into a normal rhythm with a defibrillator. Among these patients, the Japanese researchers found that almost twenty percent survived with a favorable neurological outcome if bystanders gave chest compressions without mouth-to-mouth ventilations. In contrast, this rate was only 11 percent for those who received chest compressions and mouth-to-mouth breathing.

While the study provides evidence that chest-compression-only resuscitation boosts survival rates for out-of-hospital cardiac arrest, Dr. Ewy points out that for respiratory arrest (drowning, drug overdose or choking) CPR consisting of 2 breaths after every 30 chest compressions is still the appropriate method.

“This study confirms how critically dependent the outcome of out-of-hospital cardiac arrest is on the willingness of bystanders to activate emergency

medical services and promptly initiate continuous chest compressions in a case of witnessed unexpected collapse in an adult,” Dr. Ewy says.

The Resuscitation Research Group at the UA Sarver Heart Center has advocated continuous chest compressions without assisted breathing as the appropriate method for cardiac arrest for years. Encouraged by the positive outcomes they observed in laboratory experiments, our researchers have promoted the new technique in the Tucson community. In addition to offering free training classes to the public, a program to promote the distribution and use of Automated External Defibrillators (AEDs) was initiated: SHARE – “Save Hearts in Arizona Registry and Education.”

“When we started SHARE as a regional program in 2000, our goal was to improve the outcomes of out-of-hospital cardiac arrest in Pima County,” says Lani Clark, the program’s coordinator. “We oversaw the placement and use of AEDs, offered training assistance and reviewed the events when they were used.”

A few years later, the state Bureau of Emergency Medical Services and Trauma approached the Sarver Heart Center, seeking to expand the program statewide and include public education in cardiac resuscitation and professional training for Emergency Medical Services.

During the past two years, members of the UA Sarver Heart Center have brought the simplified bystander resuscitation technique to countless groups and entities in Arizona such as companies, public administration offices, mobile home resorts and church groups. The monthly free demonstration and training sessions held at University Medical Center (UMC) continue to attract large numbers of people of the Tucson community. Continuous-chest-compression resuscitation is only the first step in an entirely new protocol, called Cardiocerebral Resuscitation, that the Sarver Heart Center is advocat-



Art Sanders, MD, of the Sarver Heart Center Resuscitation Research Group demonstrates the proper placement of the hands for effective continuous-chest-compression resuscitation.

Martha Lochert

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Robert Reininger: Adventurer, Artist and Philanthropist

“He was a gallant and great gentleman who was genuinely interested in everybody,” recalls his wife Stephanie. Throughout his career and life Robert strived to live honestly and to improve the lives of others. “He also had a great respect for good health. This is why he admired and believed in the work of the Sarver Heart Center.”

“Robert was never able to stay still for very long,” says Stephanie. Just five years old, Robert looked up at his parents, who were living in Philadelphia at the time and said: “Alright, let’s get the heck out of here!” He was ecstatic when his family moved to Colorado. Seeking a life of adventure, he got a tattoo at age 14, hoping to trick the army recruiters into believing he was old enough to enlist. That plan failed, but in 1934 Robert left Colorado to seek his fortune in Honduras. He began his career in



During their travels, Robert and Stephanie would keep the staff at the Sarver Heart Center up to date on their adventures with postcards that included a piece of Robert’s painting.



the mining and petroleum industry, during which he would travel the world and help to create a legacy in the mining industry. He was a founder, life member and trustee of the National Mining Hall of Fame and a founder of the Silver and Gold Institutes. Robert retired in 1982, but only from his mining career. He took up skiing at 50, flying at 60 and in his 70’s he learned French and took up water color painting. “Though

Robert has passed on, his generosity continues to inspire us all,” says Gordon A. Ewy, MD, director of the UA Sarver Heart Center. “His kind support of the Sarver Heart Center

is greatly appreciated and we are very honored to be included in his estate planning. It will allow us to engage in continued scientific discovery – an adventure I know Robert would appreciate.”

If you would like to make a provision in your estate plan, or would like more information on planned giving, please contact the UA Sarver Heart Center Office of Development at (520) 626-4146. ♥

Kiss of Life, *continued from page 6*

ing for cardiac arrest. The first encouraging results are currently under review for scientific publication and will be featured in one of the upcoming newsletters.

The many major contributions of the Sarver Heart Center to resuscitation research have not gone unnoticed. The highly respected Laerdal Foundation for Acute Medicine in Norway, dedicated to improving resuscitation education, recently made a significant gift to support the efforts of the Resuscitation Research Group. “We are honored to receive this gift,” said Dr. Kern, “even though it comes with the understanding that we have to raise matching funds to support this critically important research and education effort.” Because continuous-chest-compression resus-

citation is not only more effective but also much easier to learn and remember than traditional CPR, it is more likely to be accepted by the general public. Already, the study from Japan offers a glimpse into how people may think about resuscitation. Says Dr. Ewy: “It is very interesting to find how a sizeable group of lay people, by spontaneously performing a technique that has neither been taught nor formally endorsed, achieved better outcomes than with a technique that has been advocated and taught at a cost of millions of dollars and millions of man-hours.”

“One of our many challenges now is to figure out how best to disseminate this technique to the public.” ♥

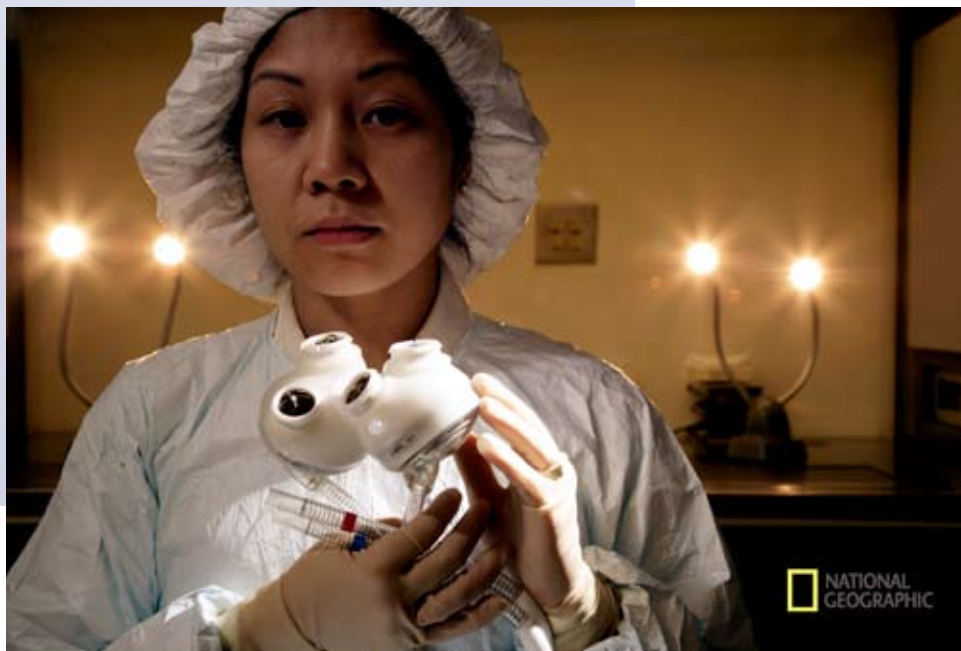
Information on the Web: www.heart.arizona.edu

National Geographic Highlights Artificial Heart

The only device of its kind in the world, the temporary Total Artificial Heart (TAH-t) has saved hundreds of patients with end-stage heart failure. Serving as a bridge to transplant, the TAH-t keeps patients alive until a donor organ becomes available.

The February issue of *National Geographic* magazine documents the struggle of 62-year-old Siegfried Streiter of Berlin, who was dying from end-stage biventricular failure. UMC and UA Sarver Heart Center surgeons were first in the world to successfully use a totally artificial heart as a bridge to transplant. In 2004, they were the first to win approval from the U.S. Food and Drug Administration (FDA) for that same device. The TAH-t was named the greatest medical advance by the American Heart Association for the same year. As of January, the cardiothoracic surgery team at University Medical Center has implanted 94 Total Artificial Hearts. The Cardiothoracic Surgery Program is led by Jack G. Copeland, MD, co-director of the UA Sarver Heart Center and holder of the Jack G. Copeland, MD Endowed Chair of Cardiothoracic Surgery.

Read the story and watch a video online at: <http://www7.nationalgeographic.com/ngm/0702/feature1/multimedia.html> ♥



Robert Clark

Save the date!

October 13, 2007
Registration starts at 11:30 am
Skyline Country Club, Tucson

The Heart of the Matter

An educational luncheon seminar dedicated to everything women need to know to prevent cardiovascular disease and stroke.

Organized by the Sarver Heart Center Women's Heart Health Education Committee.

Admission is \$25 and includes lunch.

To pre-register, please email stolte@u.arizona.edu or call (520) 626-4083.



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