

MN RESUSCITATION CONSORTIUM

2nd/3rd Quarter 2015

INSTITUTE OF MEDICINE REPORT STRATEGIES TO IMPROVE CARDIAC ARREST SURVIVAL

June 30, 2015 marked the day that the Institute of Medicine (IOM) released the report: *Strategies to Improve Cardiac Arrest Survival: A Time to Act*.

"After years of efforts, it is finally here! The IOM recognizes sudden cardiac death as a very important problem ~ off to a new start for science and patient care!", Demetris Yannopoulos, MD, Director MN Resuscitation Consortium.

The MN Resuscitation Consortium (MRC), the Minnesota Sudden Cardiac Arrest Survivors Network and many others across the nation, eagerly awaited the release of the IOM report on sudden cardiac arrest. This report is a strong validation of the work that is being done in Minnesota and in other HeartRescue states. The IOM report provides a roadmap of directions that high performing systems can use to improve outcomes from sudden cardiac arrest.

Here are some of the ways that the MRC and its partners statewide have implemented and will continue to work on many of the key report strategies.

1. Establish a National Cardiac Arrest Registry. A cornerstone to the HeartRescue project and future emphasis is placed on the Measure - Improve strategy. The MRC has been engaging Minnesota hospitals and EMS to participate in CARES (Cardiac Arrest Registry to Enhance Survival). Data collection of cardiac arrest is a necessary component of improving patient care and system response to cardiac events. Currently, the MRC, through CARES, is collecting from agencies covering approximately 75% of the population of Minnesota. (www.mycares.net)
2. Increased Public Awareness and CPR training. This is being promoted in Minnesota through the Heart Safe Community Designation. This program offers tools for public safety and citizens to earn recognition for Heart Safe activities. These include: CPR and AED training, mapping and registering AEDs, identifying response times and promoting awareness. Currently, over 100 Minnesota communities are designated or in the process of becoming designated as Heart Safe. (<http://www.health.state.mn.us/cvh/heartsafecommunities.html>) Training through the MN SCA Survivors network and the learnCPRnow.org website has engaged over 50,000 Minnesotans to learn CPR.
3. Enhancing the Capabilities and Performance of EMS Systems. The MRC continues to support EMS agencies and the development of improving care processes. The physician team representing EMS agencies is focused on evaluating provider care and the impact on outcomes.
4. Set National Cardiac Arrest Accreditation Standards Related to Cardiac Arrest for Hospitals and Health Care Systems. The MRC is actively working to assist with evaluation and improvements in the processes for cardiac arrest patients as they transition from EMS to hospital care.

[Con't page 3]



MN Resuscitation Consortium

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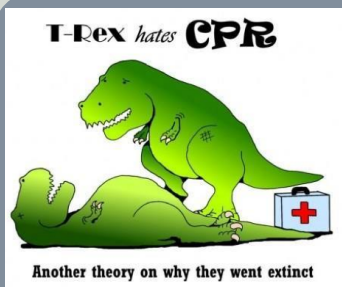
Connecting bystander, pre-hospital and hospital initiatives to improve survival from Sudden Cardiac Arrest.

If you are interested in being a part of this initiative - contact the MRC to find ways you or your organization can be involved:

612-626-1382

mrc@umn.edu





The MRC has had many opportunities to train in the community, thanks to our wonderful partners. It is great to meet and chat with so many groups that have a passion and drive to provide safety education for their employees, volunteers, and participants.

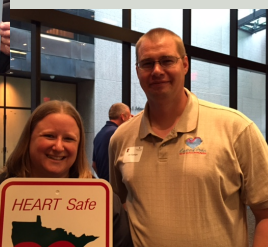
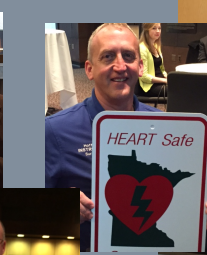
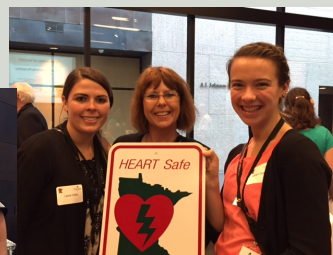
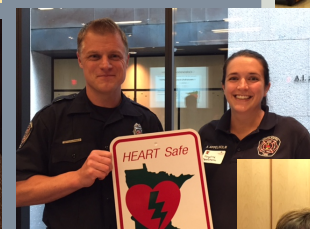
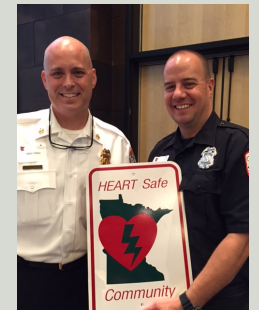
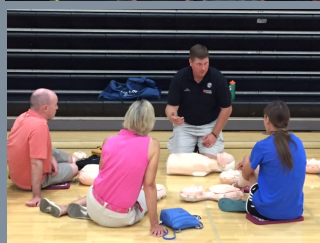
★ Heart Safe Designation Event - “100” Communities are Heart Safe!! In June, we gathered at the U of M McNamara Center to recognize the first 100 Minnesota communities. Minnesota Health Commissioner Ed Ehlinger was there to deliver the opening speech on behalf of the Governor’s office.

★ Allina Heart Safe Survivors Dinner - More than 40 survivors and their families attended the annual Heart Safe dinner at the Minnesota History Center. This wonderful celebration event is a good way to connect survivors, rescuers and health care providers. Thanks to Allina Health EMS for their ongoing commitment to cardiac arrest efforts.

★ National CPR & AED Week - June 1-7
Don't just take our word for it - Governor Mark Dayton supports CPR. See the 2015 Proclamation!
Sudden cardiac arrest strikes 42 men, women and children in the United States every hour, usually without any prior symptoms.
#LearnCPRNow #CPRWeek

★ Lake Area Heart Safe Communities - Washington County Parks Lifeguards are Heart Safe. They know how to save a life and the back of their shirts can tell you how to save a life too! Thanks for sharing the great picture!!

★ Training, Training and more Training...



IOM REPORT CON'T

5. Adopt Continuous Quality Improvement Programs. Agencies and hospitals participating in CARES receive one-on-one consultation to evaluate their CARES reports and utilize them to improve training and patient care. Currently, agencies receive reports semi-annually and can request them more frequently and specialized to highlight specific areas of care.

6. Accelerating Research on Pathophysiology, New Therapies and the Translation of Cardiac Arrest Science. Dr. Yannopoulos and his research team work with the MRC and their committees to ensure that the latest research is communicated and promoted within EMS and hospital systems in Minnesota.

7. Accelerate Research on the Evaluation and Adoption of Cardiac Arrest Therapies. The MRC and Resuscitation Research Lab at the University of Minnesota, along with many partners have been evaluating and promoting implementation of proven cardiac arrest technologies and therapies. The MRC and Resuscitation Research Lab are actively pursuing grant opportunities to hold randomized controlled clinical trials to prove the efficacy of research that has been successful in the lab and show through data collection.

8. Creating a National Cardiac Arrest Collaborative. The MRC is involved with several local and national cooperative programs working toward improving outcomes from sudden cardiac arrest. The MRC supports the development of a National Collaborative group to give a voice to efforts throughout the country.

CARES also released a statement regarding the IOM report: ATLANTA – A new report from Institute of Medicine (IOM) recommends participation in a national registry to track and improve out-of-hospital cardiac arrests (OHCA) survival and bystander intervention rates. The report highlights that “A national responsibility exists to improve the likelihood of survival and favorable neurologic outcomes following a cardiac arrest. This will require immediate changes in cardiac arrest reporting, research, training, and treatment.”

The Emory-based CARES (Cardiac Arrest Registry to Enhance Survival) Program is an OHCA registry that has the potential to serve as the recognized registry for the US.

CARES, established through a collaborative effort between Emory and the Centers for Disease Control and Prevention (CDC), began in 2004 and has since expanded both nationally and internationally. Currently more than 800 EMS agencies and over 1,300 hospitals in 36 states representing a population footprint of 80 million people participate in the program.

THE FUTURE OF HEARTRESCUE NATIONAL MEETING AND INTERNATIONAL VENTURES

📍 HeartRescue held its annual meeting in Napa Valley, CA during June. Partners from across the U.S. attended to discuss current projects and future goals. This meeting has been a great resource and information sharing time for the five years that the MRC has been part of the HeartRescue Project grant.

📍 Future of HeartRescue Project - expansion of HeartRescue states has been in progress for the last couple of years, with Washington leading the way by expanding to include Alaska and Oregon, becoming the Pacific Northwest Partner. A consortium of U.S. partners will work to include additional states across the country with a focus on Measure - Improve. New states will be asked to focus efforts on implementing CARES and Resuscitation Academies as key strategies to finding areas that need improvement to increase survival in their state. This allows new states the opportunity to use the resources from the Resuscitation Academy and implement them in ways that make sense for their specific communities.

📍 Future of Resuscitation Academies - the MRC continues to hold its annual academy and is eagerly looking forward to better utilization of the Online Resuscitation Academy. This was developed at the University of Washington and includes speakers from many of the HeartRescue sites. The online academy runs for 5-weeks requiring about 3 hours per week. The first session started on October 12, 2015 and exceeded 200 registered participants. We will send out notices as we learn of new sessions. This is a wonderful option for agencies in Minnesota with limited staffing and travel budgets.

📍 International HeartRescue sites - U.S. partners have been working with India and China as they develop goals to improve survival in their countries. They are assisting with needs assessments and interventions for pilot sites in each country.

📍 JEMS Supplement - watch for HeartRescue partner stories to be featured in the JEMS supplement in upcoming issues.

DR. DEMETRI YANNOPOULOS RECEIVES DEAN'S DISTINGUISHED RESEARCH LECTURESHIP

Each fall the Medical School at the University of Minnesota celebrates the outstanding research achievements of two faculty members. Awardees deliver a presentation at an annual ceremony detailing the story of their research. Dr. Yannopoulos was recognized for his work in the field of cardiac arrest and resuscitation. His work in establishing a translational research program which uniquely encompasses both preclinical and clinical aspects was highlighted. Notably, his research in a large animal model of cardiac arrest has established that a combination of sodium nitroprusside (a potent vasodilator) and mechanical, non-invasive CPR adjuncts can normalize CPR-generated blood flow to the heart and brain. His team has demonstrated that this innovative CPR approach improves resuscitation rates as well as cardiac and cerebral function after resuscitation.

Additionally, his research is elucidating the effects of ischemic post conditioning (controlled pauses of blood flow by intermittently stopping chest compressions) and the use of pharmacological agents such as sevoflurane and Poloxamer188 to mitigate reperfusion injury after prolonged ventricular fibrillation. Results have demonstrated remarkably improved heart response and mitochondrial function through the application of these techniques following 15-20 minutes of untreated ventricular fibrillation. Data gleaned from his preclinical endeavors can be directly translated to CPR applications in clinical trials thus advancing the knowledge gained with his research to the clinical arena.

Continued research on the mechanism, safety, and efficacy of these novel CPR approaches will fundamentally change traditional paradigms in the field of resuscitation science and offers extraordinary promise of neurologically intact survival for tens of thousands of patients each year.

(med.umn.edu/research/deans-distinguished-research-lectureship)



Spotlight on.....

PLAY FOR PATRICK HEART FOUNDATION

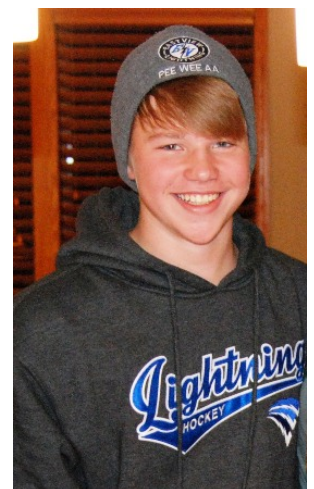
Patrick and his Eastview teammates were playing in the Blue Ox Hockey Bantam AA Tournament in Brainerd, MN. Patrick scored the game's first goal and collapsed moments later on the ice. First responders were unable to revive him. It was later determined Patrick had numerous heart defects that caused his early death.

Patrick was a fun loving teenager who is loved and respected by many. Patrick was a gentle giant. He was the "anti-bully" at school and stood up for those who could not. He made kids feel welcome with his smile and kindness. He was a great teammate and brought laughter and life to the locker room. He will forever be missed but never forgotten, and his legacy will live forever through the Play For Patrick Foundation.

Patrick's heart condition was never detected during exams or physicals. The Schoonover family is working with the University of Minnesota Physicians Heart clinics to educate and inform families about heart defects and to help make heart scans more accessible and affordable.

Patrick's passing stopped the world of Minnesota Youth Hockey November 14th, 2014. It forever changed our lives, and we hope we can reduce or eliminate sudden death due to heart defects and save other parents from the pain and anguish we are feeling.

The foundation is holding its second youth screening in October. Please visit their website to learn more about the foundation, screening events and to volunteer. www.playforpatrick.org



Upcoming Events and Notes from Committee Meetings

Committees: Bystander/Community; Pre-hospital; Hospital; and Advisory. Goals/Minutes for each committee are available by emailing mrc@umn.edu.

2nd and 3rd Quarter have been very busy with new partnerships and activities. With strong support from the University and Dr. Yannopoulos' effort in the research lab, the MRC continues to work on many projects and outline new goals. The HeartRescue U.S. Consortium is finalizing plans for upcoming years and the MRC will be involved in expanding CARES to neighboring states. The U.S. Consortium will be focusing on a Measure-Improve concept that includes participation in CARES and use of Resuscitation Academies to improve systems.

The various committees have been busy working on new and exciting initiatives; but there is always more work to be done. If you would like to participate on a committee, please email us with your interest. The bystander committee meets every other month and the pre-hospital and hospital groups are moving to one meeting per year with specific work groups periodically as needed.

Bystander- CPR & AED awareness tools online and at www.learnCPRnow.org. Finalizing details for SCA Survivor 'kits' to be distributed at Minnesota PCI centers in early 2016.

Pre-hospital & Hospital - Re-evaluating committee meetings, currently workgroups are meeting as needed on specific topics.

Statewide Resuscitation Education- Developing resources for new guideline roll-out.

CARES- Working to include all Minnesota agencies into CARES. Six month reports are out and the MRC can help you utilize your CARES reports for education and

U OF M RESEARCHERS DEVELOP PLASTIC HEART PATCH

KARE 11 Report – A trio of University of Minnesota professors crossed disciplines to create research that may lead to a new method of stopping heart attacks in their tracks. The research is on the verge of human trials in Europe.

Frank Bates, Regents Professor of Chemical Engineering, Joseph Metzger, Visscher Endowed Chair in Physiology and Cardiologist Demetri Yannopoulos collaborated on the project. Metzger walked across Washington Avenue in 2008 from the medical campus to the Chemistry Department in Amundson Hall to pitch his idea to Bates.

"We call it the Trans-Washington Avenue Collaboration," said Metzger, "And it is a great collaboration."

"We did not know each other," said Bates. "He knocked on the door. He said 'you know something about polymers, blockopolymers?' I do. We started talking. He had done research in using this kind of polymer or big macro molecule to help alleviate problems with an illness called Duchenes disease. It occurs in boys. He wondered if we could come up with a way to combine my expertise in chemistry and chemical engineering and material science with what he understood in terms of physiology. We cooked up a program. We wrote a grant to the University." Basically, the idea is to use plastic (polymers) to patch holes in cell membranes, which threaten the health and life of each cell. The polymers are injected into the bloodstream of the patient, travel to the damaged cells, including in a heart-attack patient, and repair the damage. Metzger calls it a "Molecular Band-Aid." Metzger and Bates said the research should continue.

"We do not exactly understand what that interaction is," said Bates. "We know it has a favorable effect in certain of these diseases, but we do not understand the nature of the chemical interaction."

"On the roof of your house," explained Metzger, "if you lose some shingles, then the stability of your house comes into question. So, in a way, you can think of these molecular Band-Aids as providing these extra shingles that give integrity to your house, so your house will not be destroyed. Same way, by analogy, is what we think is happening mechanistically in terms of injecting these molecular band-aids into the bloodstream and they target the outer membrane of cells in your heart and your muscles to preserve their functionality."

The researchers say the project demonstrates the importance of individual staff and student ideas in practical applications. Metzger said it does not hurt that Bates is "the world's leading authority in polymer chemistry."

The technology has been successful in pigs. Now it has been licensed for use in Europe for patients with Duchene Muscular Dystrophy at the discretion of the physician.

"I am going to be heading to England around Thanksgiving to give some talks at various institutions and Universities there," said Metzger. "We are advancing now from the bench to the bedside in Europe and we hope that we can gain traction from those types of studies to apply now to children in the United States."

Cardiac Registry to Enhance Survival



CARES in Minnesota partnered with the Minnesota Department of Health, Helmsley Foundation LUCAS grant implementation to extend CARES in rural Minnesota. With the exception of one larger agency in Minnesota, our primary gaps have been rural areas and with transporting BLS agencies. As the Department of Health begins their role out of LUCAS grants, the MRC is following them around the state and participating in the training and recruiting agencies into CARES. In May, devices and training took place in the in the NW and NE EMS regions of Minnesota and in September the NW Central region.

These events are designed by Physio-Control through their partnership with the Helmsley grants to ensure that as LUCAS devices are delivered, receiving agencies are getting a thorough set of tools to take back to their providers to maintain high quality education as they implement LUCAS into their care processes.

The MRC is working with MDH to provide a comprehensive service to rural agencies for improving cardiac arrest care quality improvement. The MRC will soon have the CODE STAT software and be able to provide feedback to agencies along with outcomes from CARES. The comprehensive program will assist agencies that have Physio-Control products and can directly upload to the MRC site. CODE-STAT data review software helps ensure that your teams get the information they need in order to learn from every resuscitation. Instructions are below to add MRC as a site to upload. Contact mrc@umn.edu with questions.

Participation in CARES and utilizing CODE-STAT are optional but important tools, along with the LUCAS device, to improving outcomes from sudden cardiac arrest. Agencies that receive a LUCAS device through the MDH grants must return their training verification and report any LUCAS use to the University of North Dakota evaluation team (1-800 shown below).

If you have any questions on the LUCAS grant program, contact Jodi Millner at jodi.millner@state.mn.us.

ATTENTION! If you use this device
Call the LUCAS evaluation team at:
844-4LUCAS2 or
LUCAS@med.und.edu

Instructions for adding a site to your LIFEPAK® Device

- On your LIFEPAK device, press **On** and simultaneously hold down the **Options** and **Event** buttons to enter setup mode
- Enter the passcode defined for your system (default is 0000)
- Select **Transmission**
- Confirm **Default Report** is 12-Lead and **Wireless** is turned OFF
- Select **Sites**
- Add a new **SITE** and Name it **CODE STATMN** (be sure you enter a space between CODE and STATMN)
- Select **END** and Confirm that the **Output Port** to **Direct Connect** and power off the LIFEPAK device

For LIFENET® System questions, please contact the LIFENET SmartDesk at 800.732.3081



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For more information on the MN Resuscitation Consortium - check out our website at www.mrc.umn.edu or find us on Facebook, Twitter, and LinkedIn



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