

INTCAR

The International Cardiac Arrest Registry

Intensive Characterization of Cardiac
and Coronary Arterial Features of
Out-of-Hospital Cardiac Arrest



Intensive Characterization of Cardiac and Coronary Arterial Features of Out-of-Hospital Cardiac Arrest

- **Investigators:**
- **Michael Mooney, MD: Minneapolis Heart Institute**
- **David Seder MD: Maine Medical Center (INTCAR-Americas administrator through NCS)**
- **Karl Kern MD: University of Arizona**
- **Paul McMullan MD: Ochsner Medical Center, New Orleans**
- **Nainesh Patel MD: Lehigh Valley Medical Center**
- **John McPherson MD: Vanderbilt University**
- **Barbara Unger RN: Minneapolis Heart Institute**
- **Niklas Nielsen MD: Helsingborgs Hospital (INTCAR Administrator)**



Purpose of the Multi Center Research:

To develop and coalesce a research group of US centers and (primarily cardiologist) investigators interested in intensive characterization of the cardiac pathophysiology of patients suffering out-of-hospital cardiac arrest (OHCA).

To create and test a focused "survey" of questions relating to cardiac pathophysiology in up to 500 patients, that could be generalized to the larger INTCAR working group after an initial period of review and consideration.

To more completely define the relationship of "cardiac" features of OHCA such as shock, delay in transfer to cath lab, ECG findings, angiographic findings, echocardiographic findings, cath lab



INTCAR

The International Cardiac Arrest
Registry

What is INTCAR?

- Headquartered in Lund, Sweden
- Registry includes 83 participating hospitals & medical centers worldwide
 - 73 Europe/Asia
 - 10 North/South/Central America
- Web-based registry of unconscious cardiac arrest survivors
- Funded by the **Scandinavian Society for Anesthesia and Intensive Care (SSAI)** and the **Stig and Ragna Gorthon Foundation**
- “Expertmaker” software platform (LUND)

What is INTCAR?

- > 1500 cardiac arrest survivors treated with therapeutic hypothermia
- No charge for institutional participation
- No payment for participation, and no funding to support PI time or data entry personnel
- Primarily European enterprise beginning to expand into North, South, and Central America

Administration

- European Steering Committee
 - Elected representatives from each country
 - Denmark : Michael Wanscher wanscher@rh.dk
 - Iceland : Felix Valsson felix@landspitali.is
 - Norway : Jan Hovdenes jan.hovdenes@rikshospitalet.no, Kjetil Sunde kjetil.sunde@ioks.uio.no
 - Sweden: Hans Friberg hans.a.friberg@spray.se, Sten Rubertsson sten.rubertsson@akademiska.se
 - Austria: Fritz Sterz fritz.sterz@meduniwien.ac.at
 - Germany: Markus Foedisch markus.foedisch@ev-waldkrankenhaus.de
 - France: Nicholas Deye nicholas.deye@lrb.ap-hop-paris.fr
 - Luxembourg: Pascal Stammet stammet.pascal@chl.lu
 - United Kingdom: Andrew Padkin, Royal United Hospital NHS Trust, Combe Park, Bath BA1 3NG

Administration

- Americas Steering Committee
- Neurocritical Care Society (NCS)
 - Cardiac Arrest Clinical Trials group is the current steering committee
 - INTCAR-Americas steering committee will break off at next annual meeting to include representation from active members and the NCS

Hypothermia Network Goals

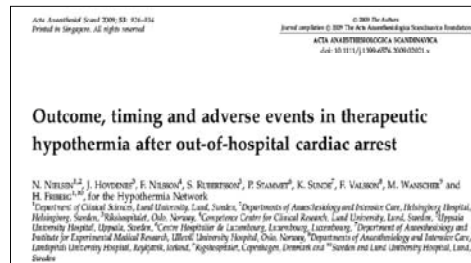
- Promote the introduction of therapeutic hypothermia after cardiac arrest through a continuous update of clinical protocols
- Document the application of therapeutic hypothermia after cardiac arrest in a common registry
 - Evaluate the new treatment paradigm
- Promote common research projects.

Primary Function of the Registry

- Collect data
 - HOW and on WHOM is hypothermia being performed after Cardiac Arrest
 - Characteristics of the patients
 - Utilization of PCI, EEG, MRI, etc
 - Outcomes
- Return reports to member institutions for internal QI purposes, compare outcomes and practices to norms within the registry

Secondary Functions

- Research within the registry
 - Requires approval and cooperation of the steering committees
- “Networking” function to connect centers
 - Research groups
 - Provide support for new sites



Acta Anaesthesiol Scand 2009; 53: 926-934

(Bi-)annual Meeting (Europe)



3rd International Hypothermia Symposium

September 2-5, 2009
Lund, Sweden

Therapeutic Hypothermia - Home

Information

Welcome

Organizing committee

Contact

Important dates

City Hall

Scientific programme

Scientific program

Topics & List of speakers

Speakers

Registration

Information & Fees

Registration Delegates

Hotels

Social program

Pre meeting

Registration after



Therapeutic Hypothermia - Home

It is now possible to download all abstracts from the 3rd International Hypothermia Symposium!
[Click here to download \(16,2 MB\)](#)

Therapeutic hypothermia is presently the most promising neuroprotective treatment of patients with acute brain injuries.

Annual Meeting of INTCAR-Americas

8TH ANNUAL NEUROCRITICAL CARE SOCIETY MEETING

SAVE THE DATE

SEPTEMBER 15-18, 2010

SAN FRANCISCO MARRIOTT, SAN FRANCISCO, CA

Neurocritical Care Society
www.neurocriticalcare.org


INTCAR Commitment

- Identify a principle investigator and data coordinator
- Report ALL unconscious patients admitted to your ICU, ICU group, or hospital with a primary diagnosis of cardiac arrest*
 - Even if not treated with hypothermia
- PI should maintain contact with INTCAR administrator, and must take responsibility for high quality data entry

Registration

- Go to the INTCAR or the Neurocritical Care Society website and follow registration instructions
- Seek exemption from local IRB to enter fully de-identified patient data
- Administrator will contact you by email, conduct a brief telephone interview, and provide you with a logon and password
- Review the “test patient” field
- Discuss data questions with administrator
- Begin entering patient data for ALL comatose survivors of cardiac arrest admitted to your institution

Hypothermia Network



International Cardiac Arrest Registry (INTCAR) is open

[About HN](#)
[Meetings](#)
[INTCAR](#)
[Member hospitals](#)
[Become a member](#)
[Protocols](#)
[References](#)
[Steering group](#)

INTCAR

[INTCAR](#)
(Userid and password required, please go to "Become a member")

Welcome to The INTERNATIONAL CARDIAC ARREST REGISTRY
The International Cardiac Arrest Network is a joint venture of the Hypothermia Network (HN), the Neurocritical Care Society (NCS) and the European Cardiac Arrest Research Network. The mission of the Registry is to:

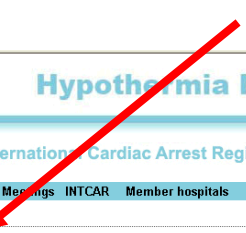
- Gain a better understanding of the process of care and outcomes associated with cardiac arrest, which has traditionally been considered the most devastating and least treatable form of brain injury.
- Promote the appropriate use of therapeutic hypothermia after cardiac arrest through a continuous update of clinical outcomes and process-of-care variables through a common worldwide registry.
- To identify key areas for future research in the treatment of cardiac arrest.

Background
In 2002 two independent studies found that early treatment with induced hypothermia reduces death and disability in victims of out-of-hospital cardiac arrest (NEJM 2002 346(8): 549-556, 557-563). The importance of therapeutic hypothermia is supported by the advisory statement from the International Liaison Committee on Resuscitation (ILCOR), which was published in 2003 (Resuscitation 57 (2003) 231-235, Circulation, 2003; 108:118-121). Global adoption of hypothermia as a standard of care for victims of this devastating condition has been variable. In addition, important questions remain regarding the appropriateness of this therapy for patients resuscitated from PEA or asystole, or in-hospital arrest.
The International Cardiac Arrest Registry (INTCAR) is independent, non-commercial, and devoted to the simple goal of improving outcomes of patients resuscitated from pulseless cardiac arrest.
The International Cardiac Arrest registry also has an ambition to promote, endorse, sponsor, and arrange meetings and workshops related to hypothermia and cardiac arrest for educational and scientific purposes.


Organization of the International Cardiac Arrest Registry

<http://www.hypothermianetwork.com/INTCAR.htm>

CLICK HERE



Hypothermia Network



International Cardiac Arrest Registry (INTCAR) is open

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Organization of the International Cardiac Arrest Registry

<http://www.hypothermianetwork.com/INTCAR.htm>

Hospital code Password

[I forgot my login info](#)

International Cardiac Arrest Registry Portal

Please register at the [Hypothermia Network \(European centers\)](#) or [Neurocritical Care Society \(US centers\)](#) to access site.

CLICK HERE 

<http://www.expertmaker.net/intcar/login.php>

Neurocritical Care Society
Improving outcomes for patients with life-threatening neurological illnesses

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 Advocacy

Welcome

The Neurocritical Care Society is a rapidly growing international organization composed of multiprofessional healthcare providers that are dedicated to improve the care and outcomes of patients with life-threatening neurological illnesses by promoting quality patient care, professional collaboration, research, training and advocacy. We hope that you take a moment to get to know us better by browsing through our web pages.

Stephan A. Mayer, MD, FCCM
 President, Neurocritical Care Society
Romergryko Geocadin, MD
 Chair, Website Committee

NEWS HIGHLIGHTS:

[3/6/10 - NCS Practice Guidelines Development Update](#)
[UCNS Conratulates Diplomates in Neurocritical Care](#)
[91 Diplomates in 2007](#)
[134 Diplomates in 2008](#)

UPDATES

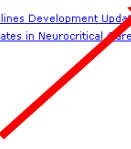
FELLOWSHIP

[2010 Fellowship Match Deadlines & Information](#)

MEMBER PARTICIPATION

[Neurocritical Care Discussion Forum](#)
[Get Involved with NCS](#)
[Shape the 2010 Meeting](#)
[Cardiac Arrest Research & Registries](#)

PUBLICATIONS

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NCS Recommended Cardiac Arrest Registries

Home » NCS Recommended Cardiac Arrest Registries

Welcome to the Neurocritical Care Society Cardiac Arrest Registries page!

The NCS formally endorses two cardiac arrest registries: the **International Cardiac Arrest Registry (INTCAR)** and the **National Registry of Cardiopulmonary Resuscitation (NRCPR)**. Both registries are resources to institutions involved in post-resuscitation care of cardiac arrest survivors, providing standardized data collection resources, individualized institutional feedback and data to participants, access to group data, and the opportunity to help improve survival for patients suffering cardiac arrest by improving the science behind our therapeutic options. The NRCPR is primarily a registry of patients suffering in-hospital cardiopulmonary arrest, while INTCAR currently includes patients suffering both in-hospital and out-of-hospital cardiopulmonary arrest. There is no direct prohibition against participating in both registries.

The NCS strongly suggests that institutions considering participation in these registries contact their institutional review board (IRB) in order to determine the specific regulatory approvals which might be required for their sites to participate.



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International Cardiac Arrest Registry (INTCAR)

Join INTCAR:

[The Americas: If your institution is located in North, South, or Central America, please click here to join.](#)

[All other locations: If your institution is located outside of the Americas, please click here to join.](#)

For questions, please contact info@neurocriticalcare.org.

Cardiac Arrest Subcommittee:
Dave Seder M.D., Chair
Salvador Cruz-Flores M.D.

ENTER YOUR INSTITUTIONAL INFORMATION

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INTCAR Registration Information

Your Name * Title:

Position: Your Email *


Your Phone

Institution:

Institution Location:

Research Coordinator:

Research Coordinator Contact information:



INTCAR research opportunities

- Within the Registry
 - Projects must be approved by the Steering committees
 - Changes in data points must be approved by the Steering committee
 - Slower process, larger data set
- Within the Community
 - Use NCS for networking & development of independent projects



INTCAR : Cardiology-Oriented Data Points

John A. McPherson, MD, FACC, FAHA
Assistant Professor of Medicine
Medical Director, CVICU
Vanderbilt Heart and Vascular Institute

Objectives of our Involvement with INTCAR

- **Create a group of US centers interested in detailed study of the cardiac pathophysiology of patients suffering OHCA**
- **Test initial cardiovascular datapoints in 500 US patients, then apply to INTCAR dataset**
- **Study cardiac aspects of therapeutic hypothermia and post-resuscitation care**



Current Plan

- **Build a survey of additional datapoints initially accessible to the Cardiology sites**
- **Enter retrospective data on 350-500 patients**
- **Continue prospective enrollment**
- **Present preliminary data at ACC 2011**



Cardiology Data Points

- **Where is TH performed?**
 - Cath Lab, ICU, ED, pre-hospital
- **STEMI on presentation?**
- **ED transport, door-to-balloon times**
- **STEMI, ACS Systems of care issues**



ECG Data Points

- **Leads with ST-elevation (location, amount)**
- **Other ST-deviation**



Angiographic Findings

- **Culprit artery, severity of stenoses**
- **Severity of disease (1VD, 2VD, or 3VD)**
- **Stent thrombosis?**



PCI Data

- **Type of intervention**
- **Medications used**
- **ROSC to reperfusion time**
- **D2B time**
- **PCI complications**



Presence of Shock

- **Is shock present?**
- **Treatment (meds)**
- **Device support**
 - **IABP, Impella, Tandem Heart, ECMO, Centrimag**



Etiology of Arrest

- **Cardiac?**
- **STEMI?**
- **Cardiomyopathy?**
- **Primary arrhythmia?**



Cardiac Outcomes

- **LV function (early and late)**
- **EP evaluation/treatment**
- **Revascularization**



Goals

- **Identify detailed aspects of cardiovascular physiology and pathophysiology in the etiology and treatment of cardiac arrest**
- **Lead in generating new hypotheses and research to advance the treatment of patients after cardiac arrest**



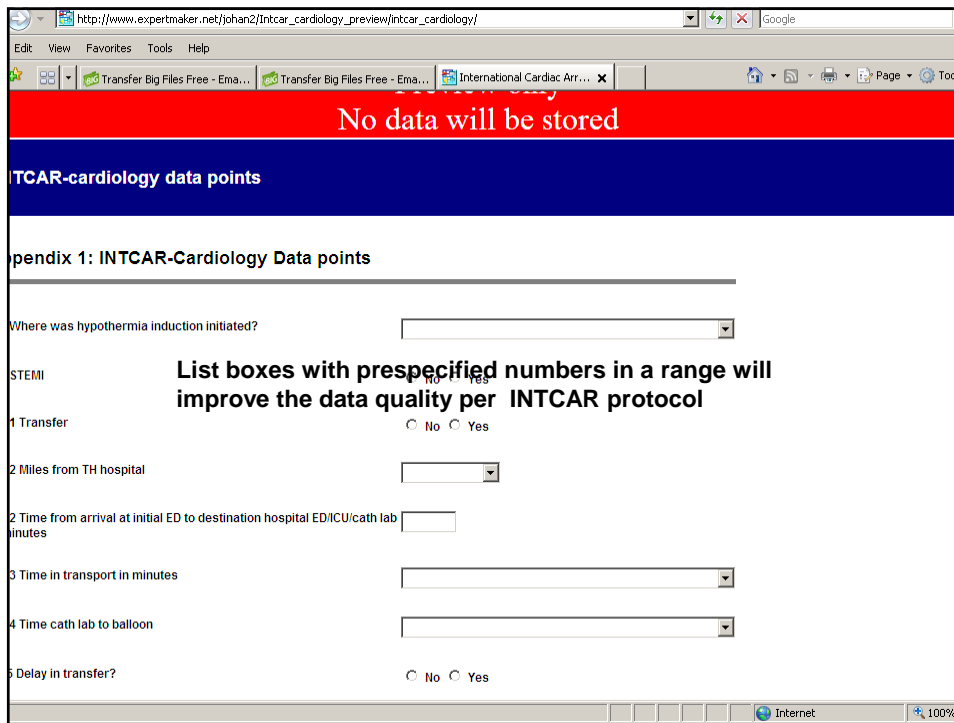
Database Management

- Submit to INTCAR
- Develop a standing database to pull data back locally
- Develop reports to be generated for Quality Improvement
- Research questions addressed by query
- May add fields locally

The screenshot shows a web browser window displaying the Allina Cardiac Arrest Registry. The page title is "Allina Cardiac Arrest Registry". Below the title, it says "Application Owner: Barb Unger" and "International Cardiac Arrest Registry". The main content area is a form with several tabs: "Adverse Events", "Hospital Outcome", "Hypothermia Treatment", "Cardiology", "Other", and "Follow Up". The "Cardiology" tab is selected, and within it, the "ICU Care" sub-tab is active. The form contains the following fields:

- Record Complete?
- Record number** (required field, bold text)
- Date of Discharge (date picker)
- Physician Name (dropdown menu)
- Cardiologist Name (dropdown menu)
- EP Cardiologist Name (dropdown menu)
- ED Physician Name (dropdown menu)
- Intensivist Name (dropdown menu)
- Source: Patient (checkbox)
- MRN (text input field)

At the bottom of the form, there is a legend: "* - Required Field" and "Bold Fields are Unique Identifiers". The footer of the page includes "Copyright © 2009 Allina Hospitals & Clinics IDEA v2.7" and "Contact Us".



IDEA - Windows Internet Explorer provided by Allina Hospitals & Clinics

http://idea/

IDEA

Welcome, A4U5455

Allina

Cardiac Arrest Registry

Application Owner: Barb Unger
International Cardiac Arrest Registry

Demographic	Circulatory Arrest Data	Admission Data	ICU Care	Intervention
Adverse Events	Hospital Outcome	Hypothermia Treatment	Cardiology	Other Follow Up
H.1 1st Site of Treatment at TH Hospital				
H.1a Time of 1st Treatment				
H.2 STEMI				
H.2a Transfer				
H.2b Transfer Hospital Name				
H.2c Other Hospital Name				
H.2.1 Miles from TH Hospital				
H.2.2 Arrival Time at 1st ED to Outdoor (minutes)				
H.2.3 Time in Transport (minutes)				
H.2.4 Time Cath Lab to Balloon (minutes)				
H.2.5 Delay				
H.2.5.1 Reason for Delay				
H.3 Leads with ST Elevation > 1mm 1-3				
H.3.1 Maximum ST Elevation (Lead)				
H.3.2 Maximum ST Elevation (mm)				
H.4 Segment Shape				
H.5 ST Elevation Location				
H.5.1 ST Elevation in Two Contiguous Leads				

H.5.2 Contiguous Leads

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http://www.expertmaker.net/johan2/intcar_cardiology_preview/intcar_cardiology/

Preview only
No data will be stored

TCAR-cardiology data points

leads with ST elevation > 1mm 1-3/

1.1 Maximum ST-elevation is in which lead?

2 Maximum ST-elevation in mm

ST Segment shape for STEMI

ST-elevation location

1 ST Elevation in Two Contiguous Leads

Note regarding the determination of “down time” or “time to ROSC” (INTCAR data point B.10)
*When patients suffer repeated episodes of cardiac arrest during the initial resuscitation, “time to ROSC” should be quantified as the total time recorded without a pulse. For example: A patient arrests and has ROSC after 14 minutes of resuscitation. Five minutes later the perfusing rhythm is lost and 5 more minutes of resuscitation ensue. Eight minutes later the patient has 3 more minutes of CPR, and hemodynamic stability is finally achieved. The total “time to ROSC” should be recorded as 14 + 5 + 3 = 22 minutes. If the same patient were to re-arrest 6 hours later, however, the second arrest would be considered a distinct event with a separate “time to ROSC”.

