



# Society for Technology in Anesthesia

## Syllabus

# 2014 Annual Meeting January 15-18, 2014 Orlando, Florida

15.75 AMA PRA Category 1 Credits™



Anesthesiology Conference on  
Innovation and Entrepreneurship  
(ACIE) 2014 Meeting  
January 18, 2014 • Orlando, FL

Join anesthesiologists, inventors and industry  
members for a one-day "bootcamp" on innova-  
tion and entrepreneurship. Stay through the  
STA Annual Meeting and join the ACIE 2014  
on Saturday, January 18, 2014

**Rosen Plaza Hotel**

9700 International Drive, Orlando, Florida

[www.rosenplaza.com](http://www.rosenplaza.com)



# Welcome

Dear STA Annual Meeting Attendee,

On behalf of the Society for Technology in Anesthesia (STA) Board of Directors, we would like to welcome you to this year's STA Annual Meeting.

The STA Annual Meeting affords an opportunity for clinicians, technicians, engineers and industry specialists at all levels to meet and exchange ideas on the future of anesthesia and healthcare related technologies. We hope that you all take advantage of this unique venue and take the time to meet with your fellow attendees during the meeting.

Again this year, we are very excited to be partnering with the Foundation for Anesthesia Education and Research (FAER) to present a special session on Thursday.

We would like to thank Dr. Joan Spiegel and Dr. Brian Rothman, 2014 Meeting Co-Chairs, for organizing the meeting and securing the outstanding faculty, and all of those whom have generously given their time to prepare and present their lectures and demonstrations.

With the increasing fiscal and political challenges that face healthcare and industry, STA will continue to support innovation in the quest to create sustainable health systems that meet the needs of our patients. We hope you find the meeting topics and discussions timely and informative.

Thank you for joining us. We look forward to a successful meeting.

John Pawlowski, MD, PhD  
President  
Society for Technology in Anesthesia

## Mission Statement

The Society's mission is to improve the quality of patient care by improving technology and its application. The Society promotes education and research, collaborates with local, national, and international organizations, sponsors meetings and exhibitions, awards grants, and recognizes achievement.

## Save the Date!



### 2015 Annual Meeting

January 14-17, 2015  
Phoenix, AZ USA



# Accreditation Information

## Activity Overview

The STA 2014 Annual Meeting will provide information on the future of technology within the field of clinical anesthesia. The Annual Meeting will address the use and implementation in consideration of bringing research to market, technology and safety, closed loop anesthesia management, non-invasive hemodynamic monitoring and Anesthesia Information Management Systems (AIMS).

## Target Audience

This program is designed for a national and international audience of physicians, engineers or other practitioners in the field of anesthesia seeking an update on the current and possible future state of anesthesia technology.

## Educational Objectives

As a result of participation in this CME activity, learners should be able to:

- Recognize problems and potential solutions in the anesthesia work space with a special emphasis on exploring new developments in drug delivery, information management, and patient monitoring;
- Recognize key factors required for effective translational medical research, including management of conflict of interest issues and implementation of successful strategies to develop technologies;
- Recognize barriers and potential solutions in order to bring new and safe technologies to the clinical practice with a special emphasis on patient monitoring, information management, patient safety and improved patient outcomes;
- Discuss opportunities to advance and enhance environmentally responsible practices within anesthesia care; and
- Discuss opportunities to advance automated anesthesia systems with the goal of improving patient safety and outcomes.

## Accreditation Statement

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the International Anesthesia Research Society (IARS) and the Society for Technology in Anesthesia (STA). The IARS is accredited by the ACCME to provide continuing medical education for physicians.

## American Medical Association (AMA) Credit Designation Statement

The International Anesthesia Research Society designates this live activity for a maximum of **15.75 AMA PRA Category I Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## Disclosure

The IARS complies with ACCME Essential Areas, Standards and Policies regarding industry support of CME Activities. The IARS has implemented policies and practices with respect to the planning, implementation and presentation of this activity to identify and resolve potential conflicts of interest for all persons in a position to control content.



# Planning Committee & Faculty

## Planning Committee

### **John Pawlowski, MD, PhD**

STA President

Beth Israel Deaconess Medical Center

- *No Disclosures*

### **Brian Rothman, MD**

Program Co-Chair

Vanderbilt University Medical Center

- *No Disclosures*

### **Joan Spiegel, MD**

Program Co-Chair

Beth Israel Deaconess Medical Center

- *No Disclosures*

### **Jane Svinicki, CAE**

STA Executive Director

- *No Disclosures*

### **Marie Marinello**

STA Account Director

- *No Disclosure*

## Faculty (with disclosures)

### **Basem Abdelmalak, MD**

Cleveland Clinic

- *No Disclosures*

### **Paul Addison, PhD**

Covidien

- *Covidien, Employee*

### **Aymen Alian, MD**

Yale University School of Medicine

- *No Disclosures*

### **Dave Arney, BA**

Massachusetts General Hospital

- *Partners Healthcare, Employee*

### **Charlotte Bell, MD**

Milford Anesthesia Associates

- *Lerner Medical, Stock Shareholder*

### **Lauren Berkow, MD**

Johns Hopkins School of Medicine

- *Masimo, Consultant & Scientific Advisory Board*

- *Teleflex, Consultant & Scientific Advisory Board*

### **D. John Doyle, MD, PhD**

Cleveland Clinic

- *No Disclosures*

### **Jesse M. Ehrenfeld, MD, MPH**

Vanderbilt University

- *No Disclosures*

### **Richard H. Epstein, MD**

Jefferson Medical College

- *No Disclosures*

### **David Feinstein, MD**

Beth Israel Deaconess Medical Center

- *No Disclosures*

### **Jeffrey Feldman, MD, MSE**

Children's Hospital of Philadelphia

- *Draeger Medical, Consultant*

### **Julian Goldman, MD**

Massachusetts General Hospital/  
Harvard Medical School

- *No Disclosures*

### **Robert Jarrin, JD**

Qualcomm

- *Qualcomm, Employee*

### **Curtis Kennedy, MD, PhD**

Baylor College of Medicine

- *No Disclosures*

### **Samsun Lampotang, PhD**

University of Florida

- *CAE Healthcare, Royalty Received*

### **Matthew Levin, MD**

Mount Sinai Hospital

- *No Disclosures*

# Faculty cont.

**Jeff Mandel, MD, MS**

University of Pennsylvania

- Mylan, Speaker

**Richard Melker, MD, PhD**

Xhale, Inc

- Xhale, Inc, Stock Shareholder, Employee

**Michael Mestek, PhD**

Covidien

- Covidien, Employee

**Anne Miller, PhD**

Vanderbilt University Medical Center

- No Disclosures

**Andres Navedo, MD**

Boston Children's Hospital

- No Disclosures

**Kenneth Pauker, MD**

- ISRG, MRK, Stock Shareholder

**John Pawlowski, MD, PhD**

Beth Israel Deaconess Medical Center

- No Disclosures

**Jeff Plourde, BS**

Massachusetts General Hospital

- No Disclosures

**Tracy Rausch, MS**

DocBox, Inc

- DocBox, Inc, Stock Shareholder

**Mohamed Rehman, MD**

Children's Hospital of Philadelphia

- No Disclosures

**Brian Rothman, MD**

Vanderbilt University Medical Center

- No Disclosures

**Norma Sandrock, MD**

Beth Israel Deaconess Medical Center

- No Disclosures

**Joseph Schlesinger, MD**

Vanderbilt University Medical Center

- No Disclosures

**Joan Spiegel, MD**

Beth Israel Deaconess Medical Center

- No Disclosures

**Jonathan P. Wanderer, MD**

Vanderbilt University

- No Disclosures

**Dwayne Westenskow, PhD**

University of Utah

- Anecare, Stock Shareholder
- Dynasthetics, Royalty Received

**Michael Wong, JD**

Physician-Patient Alliance for Health & Safety

- Covidien, Carefusion, Masimo, Incline Therapeutics, AcelRx, Grant/Research Support

**Moderators****Charlotte Bell, MD**

Milford Anesthesia Associates

- Lerner Medical, Stock Shareholder

**D. John Doyle, MD, PhD**

Cleveland Clinic

- No Disclosures

**Jesse M. Ehrenfeld, MD, MPH**

Vanderbilt University

- No Disclosures

**Thomas Hemmerling, MD**

McGill University

- No Disclosures

**Brian Rothman, MD**

Vanderbilt University Medical Center

- No Disclosures

**Kirk Shelley, MD**

Yale University

- No Disclosures

**Joan Spiegel, MD**

Beth Israel Deaconess Medical Center

- No Disclosures

**Greg Spratt, BS, RRT, CPFT**

Covidien

- Covidien, Employee



# Schedule of Events

## Wednesday, January 15, 2014

0700 – 0800 **Challenges and Opportunities Registration & Continental Breakfast**

**Salon 3**

0800 – 1200 **Challenges and Opportunities in Developing Anesthesia Products (for industry)**

*Jeffrey Feldman, MD, MSE*

*David Feinstein, MD*

*Norma Sandrock, MD*

**Salon 3**

0800 – 1700 **Exhibitor Registration & Set-up**

**Ballroom D**

1200 – 1315 **Challenges and Opportunities & STA Board of Directors Lunch**

**Salon 9**

1315 – 1700 **A.I.M.S. Workshop**

*David Feinstein, MD & Mohamed Rehman, MD (additional registration required)*

**Salon 4**

1800 – 1930 **Registration & Opening Reception**

**Ballroom D**

## Thursday, January 16, 2014

0700 – 0800 **Registration & Continental Breakfast**

**Ballroom D**

0800 – 0815 **Welcome Address**

*John Pawlowski, MD, PhD, STA President*

*Joan Spiegel, MD, STA Program Co-Chair*

*Brian Rothman, MD, STA Program Co-Chair*

**Ballroom C**

### Session 1: Keynote Address

0815 – 0930 **The Future of Anesthesia: Propelled by Technology, STA Please Rescue Me**

*Kenneth Pauker, MD*

**Ballroom C**

0930 – 1000 **Break with Exhibitors & Posters**

**Ballroom D**

### Session 2: Big Data

*Jesse M. Ehrenfeld, MD, MPH – Moderator*

**Ballroom C**

1000 – 1030 **Using EMR Metadata to Track Clinician Behavior & Performance Patterns**

*Jonathan P. Wanderer, MD*

1030 – 1100 **Data Linking Among Large Disparate Datasets: Deterministic & Probabilistic Linkage Techniques**

*Richard H. Epstein, MD*

1100 – 1130

**Practical Approaches to Perioperative Genomics**

*Jesse M. Ehrenfeld, MD, MPH*

1130 – 1200

**Defining Big Data & The Limitations of Traditional Analytical Approaches**

*Matthew Levin, MD*

1200 – 1215

**Panel Discussion**

1215 – 1330

**Luncheon**

**Poolside Upper Deck**

### Session 3: JOINT SESSION

**FAER**

Foundation for Anesthesia  
Education and Research

*Moderator: Joan Spiegel, MD*

**Ballroom C**

1330 – 1415

**Rewards from Carefully Managing Your Intellectual Property**

*Dwayne Westenskow, PhD*

1415 – 1500

**Circle of Innovation**

*Samsun Lampotang, PhD*

1500 – 1530

**Panel Discussion**

1530 – 1545

**Break with Exhibits & Posters**

**Ballroom D**

### Session 4: Research Awards & Presentations

*Thomas Hemmerling, MD – Moderator*

**Ballroom C**

1545 – 1700

**Research Awards & Presentations**

## Friday, January 17, 2014

0715 – 0815

**Registration & Continental Breakfast**

**Ballroom D**

### Session 5: Airway Technology

*D. John Doyle, MD, PhD – Moderator*

**Ballroom C**

0815 – 0845

**Anesthesia for Bronchoscopic Procedures: Clinical and Technical Perspectives**

*Basem Abdelmalak, MD*

0845 – 0915

**Debate: Is Video Laryngoscopy Making Direct Laryngoscopy Obsolete? Yes**

*D. John Doyle, MD, PhD*

0915 – 0945

**Debate: Is Video Laryngoscopy Making Direct Laryngoscopy Obsolete? No**

*Joan Spiegel, MD*

0945 – 1000

**Panel Discussion**

1000 – 1030

**Break with Exhibitors & Posters**

**Ballroom D**

# Schedule of Events cont.

## Friday, January 17, 2014 *continued*

### Session 6: **Cutting Edge Clinical Technology**

*Kirk Shelley, MD – Moderator*

**Ballroom C**

1030 – 1100

#### **Peripheral Waveform Analysis...What is New?**

*Aymen Alian, MD*

1100 – 1130

#### **Wavelet Analysis of Biosignals: From Pretty Pictures to Product**

*Paul Addison, PhD*

1130 – 1200

#### **Analysis of the Alar PPG**

*Richard Melker, MD, PhD*

1200 – 1215

#### **Panel Discussion**

1215 – 1330

#### **STA Business Luncheon & Awards**

*John Pawlowski, MD, PhD*

**Salon 6/7/8**

Gravenstein award recipient, Dr. Chester A. Phillips III, to give talk on: CompuRecord: From Electric Pencil to The American Dream

### Session 7: **Concurrent Workshops**

1330 – 1530

#### **A New, Open, Interoperable Medical Device Clinical Research Platform**

*Julian Goldman, MD, Dave Arney, BA, Jeff*

*Plourde, BS & Tracy Rausch, MS*

**Salon 12**

Learn how to implement the prototype software platform. Apps (in MatLab or Java), allow implementation of data analysis and display, smart alarms, closed-loop control, etc.

#### **How to Make Data Work For You - No Matter What!**

*Curtis E. Kennedy, MD, PhD*

**Salon 11**

Learn to identify and get the data you need from exiting systems, using open source software.

### Session 8: **Concurrent Workshops**

1530 – 1700

#### **Crying Wolf! Preventing Perioperative Deaths Through Effective Alarm Management**

*Greg Spratt, BS, RRT, CPFT - Moderator*

*Michael Mestek, PhD, Joseph Schlesinger, MD*

*& Michael Wong, JD*

**Salon 12**

#### **Engineering Contest**

*Jeff Mandel, MD, MS*

**Salon 11**

## Friday, January 17, 2014 *continued*

1800 – 2130

#### **Dinner Event**

*(included in attendee registration fee)*

**Poolside Upper Deck**

## Saturday, January 18, 2014

0730 – 0830

#### **Registration & Continental Breakfast**

**Ballroom C Foyer**

### Session 9: **Interoperability and Safety**

*Brian Rothman, MD - Moderator*

**Ballroom C**

0830 – 0900

#### **Medical Device Interoperability- Are We Approaching the Tipping Point?**

*Julian Goldman, MD*

0900 – 0930

#### **What Does the Future Have for Us?**

*Robert Jarrin, JD*

0930 – 1000

#### **Integrating User-Centered Design Into Health Information Technology Development**

*Anne Miller, PhD*

1000 – 1015

#### **Panel Discussion**

1015 – 1030

#### **Break**

**Ballroom C Foyer**

### Session 10: **Environmental Sustainability: The Next Frontier for Patient, Staff and Community Safety**

*Charlotte Bell, MD - Moderator*

**Ballroom C**

1030 – 1055

#### **Environmental Sustainability: The Next Frontier for Patient, Staff and Community Safety**

*Charlotte, Bell, MD*

1055-1120

#### **Barriers to Engaging Physicians on Sustainability**

*Lauren Berkow, MD*

1120-1145

#### **Empowering Trainees to Assess Dollars, Scents and Survival: A Tool for Calculating Environmental Impact of Anesthetics**

*Andres Navedo, MD*

1145-1210

#### **Smart Trash - RFID as Recycling Green Technology**

*Brian Rothman, MD*

1210-1225

#### **Panel Discussion**

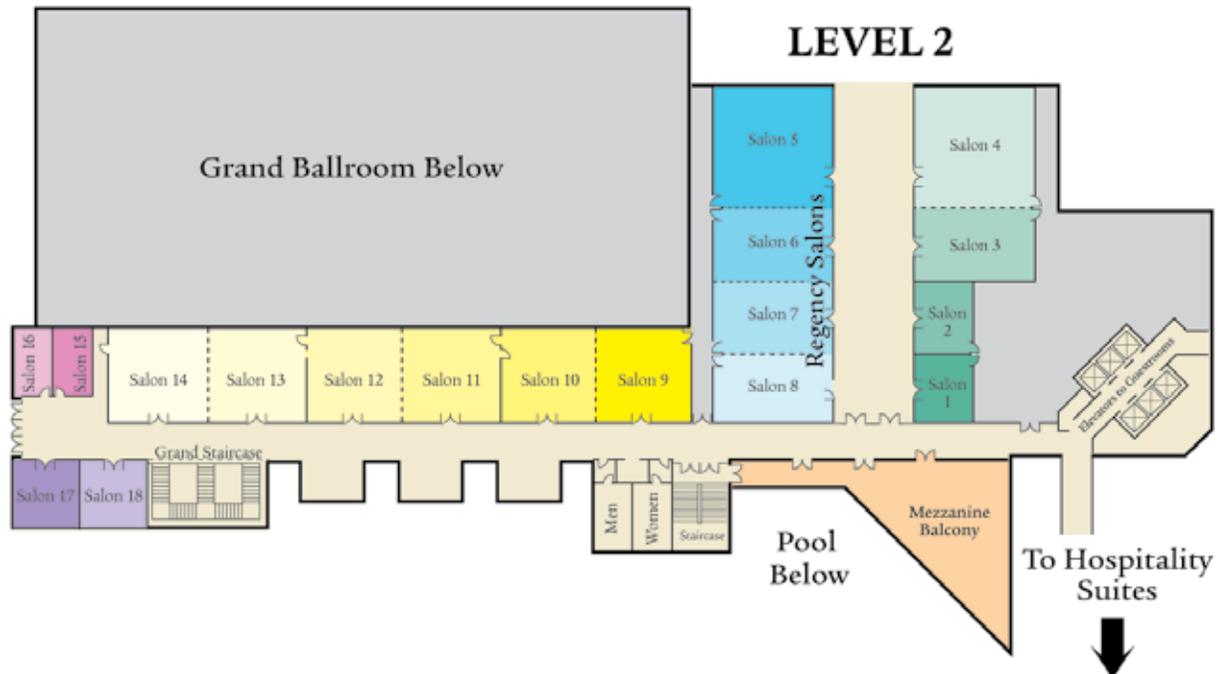
1225

#### **Adjourn**



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# Supporters & Exhibitors

## Commercial Supporter

**Foundation for Anesthesia and Education and Research (FAER)**  
Commercial Supporter

## Exhibitors

**Covidien**  
Exhibitor

**Med-Botics**  
Exhibitor

**RTI**  
Exhibitor

**CRISI Medical Systems**  
Exhibitor

**Micropore, Inc**  
Exhibitor

**Servomex**  
Exhibitor

**Dräger**  
Exhibitor

**Mindray North America**  
Exhibitor

**Vascular Pathways, Inc**  
Exhibitor

**GE Healthcare**  
Exhibitor

**Philips Healthcare**  
Exhibitor

**Xhale Assurance, Inc**  
Exhibitor

**Masimo**  
Exhibitor

**Respiratory Motion, Inc**  
Exhibitor

## Exhibitor Levels

### Platinum

Masimo..... [www.masimo.com](http://www.masimo.com)

### Gold

Mindray North America .....[www.mindray.com](http://www.mindray.com)

### Silver

Covidien.....[www.covidien.com](http://www.covidien.com)

Dräger.....[www.draeger.com](http://www.draeger.com)

GE Healthcare .....[www.gehealthcare.com](http://www.gehealthcare.com)

Micropore, Inc..... [www.SpiraLith.com](http://www.SpiraLith.com)

Philips Healthcare ..... [www.healthcare.philips.com/us\\_en](http://www.healthcare.philips.com/us_en)

Xhale Assurance, Inc..... [www.assurance.xhale.com](http://www.assurance.xhale.com)

### Entrepreneur

CRISI Medical Systems ..... [www.crisimed.com](http://www.crisimed.com)

Med-Botics.....[www.abcbiomedical.com/home](http://www.abcbiomedical.com/home)

RTI .....[www.rti.com](http://www.rti.com)

Respiratory Motion, Inc ..... [www.respiratorymotion.com](http://www.respiratorymotion.com)

Servomex .....[www.hummingbirdsensing.com](http://www.hummingbirdsensing.com)

Vascular Pathways, Inc... [www.vascularpathways.com](http://www.vascularpathways.com)



# Exhibitor Profiles



**COVIDIEN**

*positive results for life*

## **Covidien**

Covidien is a \$12 billion global healthcare products leader dedicated to innovation and long-term growth. Covidien creates innovative medical solutions for better patient outcomes and delivers value through clinical leadership and excellence. At Covidien, we're passionate about making doctors, nurses, pharmacists and other medical professionals as effective as they can be. Through ongoing collaboration with these medical professionals and healthcare organizations, we identify clinical needs and translate them into proven products and procedures.



## **CRISI Medical Systems**

CRISI Medical Systems ("CRISI") is an innovator of technologies for improving the safety, accuracy and cost-effectiveness of IV injectable drug delivery. By bringing the patient safety and information management capabilities found in "smart" infusion pumps and bar code medication administration (BCMA) systems to the world of manually injected drugs, CRISI is helping to reduce medication errors, simplify clinical workflow, and automate and improve the accuracy of medication administration documentation. CRISI's first system offering, which will be focused on improving perioperative care, is expected to receive FDA 510(k) clearance in early 2014.



## **Dräger**

Dräger is a leading international company in the fields of medical and safety technology. Dräger products protect, support and save lives. Founded in 1889 and located in Lübeck, Germany, the company generated revenues of around EUR 2.18 billion in 2010. Dräger is present in 190 countries with 11,000 employees worldwide.



*Foundation for Anesthesia  
Education and Research*

## **FAER**

The Foundation for Anesthesia Education and Research (FAER) is a 501(c)3 non-profit that aims to advance medicine through research and education in anesthesiology. Since its founding in 1986, FAER has provided research grants and educational opportunities to anesthesiologists to prepare them for careers in academic anesthesiology and to become independent investigators. FAER is one of the foundations supported in part by the American Society of Anesthesiologists. Learn more about FAER online at [www.FAER.org](http://www.FAER.org).

# Exhibitor Profiles cont.



## **GE Healthcare**

GE is making a new commitment to health. Healthymagination will change the way we approach healthcare, with more than 100 innovations all focused on addressing three critical needs: lowering costs, touching more lives and improving quality. For more information, visit: [www.gehealthcare.com](http://www.gehealthcare.com)

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## **Masimo**

Masimo is a global medical technology company that develops and manufactures innovative noninvasive monitoring technologies, including medical devices and a wide array of sensors that may enable earlier detection and treatment of potentially life-threatening conditions. A key medical technology innovator, Masimo is responsible for the invention of award-winning noninvasive technologies that are revolutionizing patient monitoring.

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## **Med-Botics**

Med-Botics will soon begin laboratory and clinical trials of its closed-loop safety device intended to eliminate morbidity from opioid analgesia.

GOALS: Absolutely zero morbidity from opioid therapy, decreased IHCA (In-Hospital Cardiac Arrests), much improved pain control, decreased alarm fatigue and nursing burdens, and essentially "cruise-control" PCA analgesia by regulated and automatic delivery of narcotic antagonists.

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## **Micropore, Inc**

Micropore, Inc absorbents are the only 100% lithium hydroxide absorbents that can be used in anesthesia workstations. Our products do not desiccate, will not react with or absorb anesthetic agent and last 3 – 5 times longer than traditional calcium hydroxide absorbents. Manufactured in the United States by Micropore, Inc., our product is also the only absorbent that is recycled thereby reducing OR waste products. This engineered product is a new era in CO2 absorbent for the hospital and offers benefits to all aspects of managing the OR and can reduce costs while providing the highest level of performance possible.

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# Exhibitor Profiles cont.



## **Mindray North America**

Mindray North America is a company founded on innovation, accompanied by an enduring commitment to customer service and an unwavering dedication to improving patient care. Mindray North America manufactures products found throughout the hospital, and are largely focused in the areas of anesthesia, emergency medicine and critical care. Through the products it manufactures and the service it delivers, Mindray North America is committed to bettering the patient experience.

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## **Philips Healthcare**

Philips Healthcare develops innovative solutions across the continuum of care in partnership with clinicians and our customers to improve patient outcomes, provide better value, and expand access to care. [www.healthcare.philips.com](http://www.healthcare.philips.com).

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## **Respiratory Motion, Inc**

Respiratory Motion, Inc. (RMI) is a new generation medical device company developing and commercializing a breakthrough non-invasive, real-time monitor that displays a continuous EKG-like trace of respiratory function. Our monitor can provide an early indication of deteriorating or inadequate respiration in advance of adverse events and in advance of existing technologies. RMI's goal is to cost-effectively improve the standard of care in respiration monitoring. See our monitor in action at our table.

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# Exhibitor Profiles cont.



## **RTI**

RTI is the real-time infrastructure software company. RTI provides the messaging backbone for the world's most demanding real-time systems. Our software enables applications – running on the smallest devices and the largest enterprise servers – to seamlessly share information and work together as one. Committed to open standards, open community source and open architecture, RTI provides the leading implementation of the Object Management Group (OMG) Data Distribution Service (DDS) standard. Our customers are in aerospace and defense, process automation, financial services, energy, automotive, health sciences and transportation. RTI is privately held and headquartered in Sunnyvale, California.

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## **Servomex**

Hummingbird Sensing Technology offers medical OEM manufacturers a comprehensive gas sensor range (O<sub>2</sub>, CO and CO<sub>2</sub>) that meets their precise requirements. Developed in constant consultation with the world's leading medical device manufacturers, Hummingbird sensors meets the requirements for specific applications such as anesthesia, critical care ventilation, patient monitoring and pulmonary function testing.

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## **Vascular Pathways, Inc**

Vascular Pathways, Inc. is a medical device company focused on innovation and optimization of peripheral vascular access devices. Our mission is to deliver peripheral vascular access devices that can lead to improved clinical outcomes and greater first attempt success, thus increasing patient satisfaction while enhancing safety for the Healthcare worker.

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## **Xhale Assurance, Inc**

THE NEXT GENERATION OF PULSE OXIMETRY – Our uniquely designed sensor measures oxygen saturation at the nasal ala, taking advantage of its robust vascular physiology. The ala delivers strong, reliable signals, enabling monitoring of additional critical respiratory parameters unavailable via traditional pulse oximetry. Earlier detection...Better perfusion...Unaffected by poor peripheral perfusion...Easy access to the alar site.



# Abstract Table of Contents

Abstract #	Full Abstract Title	First Name	Last Name	Degree(s)	Organization
1	Development of a Novel Integrated Portal and Draping System Using Intraoperative Simulation	Neil	Feinglass	MD, FASE, FC	Mayo Clinic Foundation Research and Education
2	Improving Pulse Oximetry Pitch Perception with Multisensory Perceptual Training	Joseph	Schlesinger	MD	Vanderbilt University Medical Center
3	Wavelet Analysis of Biosignals: From Pretty Pictures to Product	Paul	Addison	PhD	Covidien
4	Preoperative Type and Screen Testing for Elective Surgery: Using a Data Warehouse to Identify Workflow Process Errors	Spencer	Jennings		Vanderbilt University Medical Center
5	Respiratory Heat Loss as a Physiologic Variable: A New Patient Monitor (VQm)	D. John	Doyle	MD, PhD	Cleveland Clinic
6	Cardiac Output Measurements Using Noninvasive Photoacoustic Measurements of Indicator Dilution Signals	Youzhi	Li	PhD	Covidien
7	Accuracy of Continuous Non-Invasive Hemoglobin Monitoring: A Systematic Review and Meta-Analysis	Maxime	Cannesson	MD, PhD	University of California Irvine
8	Enhanced Measurement of Respiratory Modulations Using a Flexible Pulse Oximeter Probe	Paul	Addison	PhD	Covidien
9	Effective Alerts: Can a Single Index Alarm Reduce Alarm Fatigue?	Michal	Ronen	PhD	Covidien
10	Earlier Detection of Desaturation from the Nasal Ala	Huwei	Tan	PhD	Xhale Assurance, Inc
11	Development and Implementation of a Process within an Anesthesia Information Management System (AIMS) to Record Intraoperative Complications	Jon	Zhou	MD	Thomas Jefferson University Hospital
12	A Survey of Resident Educational Technology Preferences from 374 Anesthesiology Residents	Lynn	Ngai	BS	Stanford University School of Medicine
13	Reduction of Fresh Gas Flow during Administration of Volatile Anesthetic Agents via Monthly Individualized e-Mail Feedback	Neil	Patel	MD	Jefferson Medical College
14	Assessing Impact of Fatty Meal on Vasodilating Ability of Microcirculation	Siqin	Nie	MD	Yale University School of Medicine
15	Monitoring Arterial and Venous Volume Response to Release of Lower Body Negative Pressure (LCNP) Using Photoplethysmograph (PPG)	Vicki	Bing	MD	Yale University School of Medicine
16	A Randomized Controlled Trial of Probability Ramp Control of Propofol for Esophagogastroduodenoscopy	Jeff E	Mandel	MD, MS	Perelman School of Medicine, University of Pennsylvania
17	Development, Evaluation, and Validation of a Rating Instrument for Multiple Categories of Medical Equipment (DEVICE) Study: Preliminary Results	Thomas	Looke	MD, PhD	Winter Park Research Center
***18	Automated Triggering of NIBP Measurements Using Oximetry Data	James	Watson	PhD	Covidien
19	Closed-Loop Testing of Pulse Oximeters During Subject Motion	James	Watson	PhD	Covidien
20	The EEG Spectrogram as a Real Time Monitor of Anesthetic Depth for Individual Patients	Christopher	Scheib	MD	Hefner VAMC
21	ALERTSTATS™: An Anonymous, Provider-Specific, Quality Metric Feedback System	James	Szocik	MD	University of Michigan
22	Development of a Student-Faculty Matching Algorithm for Preceptorship Placement	Jesse	Ehrenfeld	MD, MPH	Vanderbilt University
23	Using Routinely Collected Physiologic Vital Signs for Surgical and Anesthesiology Quality Improvement Projects	Matthias	Görges	PhD	University of British Columbia
*24	Robust Closed-Loop Control of Anesthesia in Adults Undergoing Elective Surgery	Aryannah	Umedaly	BSc	University of British Columbia

\* Excellence in Technology Award

\*\* Best Clinical Application Award

\*\*\* Honorable Mention Awards

# Abstract Table of Contents cont.

Abstract #	Full Abstract Title	First Name	Last Name	Degree(s)	Organization
25	Disordered Spontaneous Breathing Patterns Detected Using an ALAR Sensor	Richard	Melker	MD, PhD	Xhale Assurance
26	Constrained Model Predictive Control of Propofol in Adults: A Simulation Study	Sara	Khosravi	MASc	University of British Columbia
27	Information Needs for the OR and PACU Electronic Medical Record	Marc	Ellsworth	MD	Mayo Clinic
28	Comparison of Motion Artifact Response in Three Mobile Pulse Oximeters	Christian	Petersen	PhD, MSc	Pediatric Anesthesia Research Team
29	iSwirl: Self-affine Visualization of PPG and ECG Waveforms	Christian	Petersen	PhD, MSc	Pediatric Anesthesia Research Team
30	In Vitro Canister Life of CO2 Absorber Prepacks with Different Fresh Gas Flows with the AISYS Anesthesia Machine	Jan	Hendrickx	MD, PhD	CCM, OLV Hospital
31	Cost Benefit of a Home-made Computurized Anesthesia Record System in the Electronic Health Recorder	philippe	Dony	MD	University Hospital
32	The Portable Operating Room Tracker (telePORT) - Analysis of System Usage and Identification of Areas for Improvement	Matthias	Görges	PhD	University of British Columbia
33	STARTPrep: A 12-Month Multi-Institutional Online Preparatory Course for the American Board of Anesthesiology Part 1 Basic Examination	Reuben	Eng	MD	Stanford University School of Medicine
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\* Excellence in Technology Award

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50	Autocentering the PPG Waveform: Is it Worth the Price?	I-Hsun	Liang	MD	Yale University School of Medicine
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