Society for Technology in Anesthesia

January 7-10, 2015
Royal Palms Resort & Spa
Phoenix, Arizona
16.75 AMA PRA Category 1 Credits™

2015 annual meeting

syllabus

Anesthesia: Beyond the Horizon

Dear STA Members and Attendees,

Welcome to the 24th Society for Technology in Anesthesia (STA) Annual Meeting – an exceptional and unique gathering for physicians, engineers and industry representatives. It is truly stimulating to come to the STA each year to reconnect with our friends and colleagues, relax in a temperate setting and take advantage of the outstanding lectures and events.
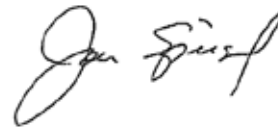
The future of informatics in healthcare, advances in safety and innovation, AIMS, surgical perioperative home and costs of doing business in the IT world, are a few of the interesting topics we'll have the opportunity to hear about this week. The STA-FAER joint session on safety and innovation is once again a part of our 2015 program.

We'd like to extend a big "thank you" to Dr. Allan Simpao for all his work in creating and organizing the wonderful Anesthesia: Beyond the Horizon program.

Another special thank you is owed to all of the STA members and industry that continue to keep the Society alive and well with their commitment of time, dedication and generous financial support.

I look forward to seeing you all soon.

Sincerely,

Joan Spiegel, MD
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!

2016 Annual Meeting
January 6-9, 2016

Four Seasons Resort
Palm Beach, Florida

Activity Overview

The Society for Technology in Anesthesia (STA) 2015 Annual Meeting will provide information on the future of technology within the field of clinical anesthesia. The Annual Meeting will address the evolving role of computer technology and informatics in anesthesiology and overall health care, the enterprise-level implications of anesthesia technology, innovations in anesthesia safety, present and future respiratory monitoring technology, the surgical perioperative home, clinical decision support and anesthesia information management systems (AIMS).

Target Audience

This live activity 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:

- Explore how anesthesia technology fits into the greater scope of the overall hospital and health care technology infrastructure.
- Identify and examine problems and potential solutions in the anesthesia workspace, with emphasis on pediatric inhalational anesthesia, robotic safety and closed-loop systems.
- Explore key advances in respiratory monitoring technology and their potential impact on patient safety.
- Examine and identify the barriers and potential solutions to the perioperative surgical home and how technology can help perioperative clinicians comply with best practices as well as broaden their scope beyond the operating system.
- Explore potential problems and solutions regarding real-time clinical decision support as well as team cognitive work analysis and mobile patient monitoring.
- Investigate the techniques and methods by which one can leverage anesthesia information management systems to improve outcomes and patient safety.

Barriers to change:
- Understanding the rapidly evolving convergence of the medical and information sciences
- Integrating valid scientific evidence and cutting-edge technology into daily clinical practice

Accreditation Statement

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Institute for the Advancement of Human Behavior (IAHB) and the Society for Technology in Anesthesia (STA). The IAHB is accredited by the ACCME to provide continuing medical education for physicians.

Credit Designation Statement

The IAHB designates this live activity for a maximum of ***16.75 AMA PRA Category 1 Credits™***. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Continuing Medical Education Statement

IMPORTANT!

The online certificate site will be available at the beginning of the day on January 10th until February 10th. After February 10, 2015, the site will be removed and certificates will no longer be available. If you need a CME certificate, you must complete the evaluation and certificate process prior to February 10, 2015; otherwise you will forfeit your credit for the course.

To get your certificate, go to STA.CmeCertificateOnline.com. Note: This link will NOT be live until Saturday, January 10, 2015. Click on the "STA 2015 Annual Meeting" event. On the site, you will be asked to evaluate various aspects of the program. You may then print your certificate.

Please address any questions about the process to: help.cmecertificateonline.com

Faculty (with Disclosures)

The following faculty indicated with an asterisk (*) stated they had no such relevant financial relationships to disclose. Their financial relationship is nothing to disclose (NTD) and resolution is not applicable (N/A).

Financial Relationships Key

RGPI – Research Grant Site Principal Investigator
C – Consultant
B – Board Member
SB – Speaker's Bureau
E – Employee
SH – Stock Shareholder
NTD – Nothing to disclose

Resolution Key

R1 – Restricted to Best Available Evidence & ACCME Content Validation Statements
R2 – Removed/Altered Financial Relationship
R3 – Altered Control
R4 – Removed Credit
N/A – Not Applicable

*Luis Ahumada, MSCS
Children's Hospital of Philadelphia

*J. Mark Ansermino, MBBCh
University of British Columbia

*Igor Brodkin, MD
Vancouver Coastal Health

*Catherine Burns, PhD
University of Waterloo

*Maxime Cannesson, MD, PhD
University of California-Irvine

*Franklin Dexter, MD, PhD
University of Iowa

*Richard Epstein, MD
Thomas Jefferson University Hospital

*David Feinstein, MD
Beth Israel Deaconess Medical Center (BIDMC)

*Jeffrey Feldman, MD, MSE
Children's Hospital of Philadelphia

*Jorge Galvez, MD
Children's Hospital of Philadelphia

*Julian Goldman, MD
Massachusetts General Hospital

*Matthias Gorges, PhD
University of British Columbia

*Patrick Guffey, MD
Children's Hospital of Colorado

*Gabriel Gurman, MD
Ben Gurion University of the Negev

*Thomas Hemmerling, MD, MSc, DEAA
McGill University

*Bassam Kadry, MD
Stanford School of Medicine

*Zeev Kain, MD
University of California-Irvine

*Christine Lee
University of California-Irvine

*Matthew Levin, MD
Mount Sinai Health System

*Robert Loeb, MD
University of Arizona

*Jeff Mandel, MD, MS
University of Pennsylvania

*Patrick McCormick, MD
Mount Sinai Health System

*Bala Nair, PhD
University of Washington Seattle

*John Pawlowski, MD, PhD
Beth Israel Deaconess Medical Center (BIDMC)

*Mohamed Rehman, MD
Children's Hospital of Philadelphia

*David Reich, MD
Mount Sinai Health System

Joseph Rinehart, MD
University of California-Irvine
Sironis - SH, R1

*Brian Rothman, MD
Vanderbilt University

*Norma Sandrock, MD
Beth Israel Deaconess Medical Center (BIDMC)

*Ted Shortliffe, MD, PhD
Arizona State University

*Allan Simpao, MD
STA 2015 Annual Meeting Program Chair
Children's Hospital of Philadelphia

*Joan Spiegel, MD
STA President
Beth Israel Deaconess Medical Center (BIDMC)

*Jonathan Wanderer, MD
Vanderbilt University

*Bryan Wolf, MD, PhD
Children's Hospital of Philadelphia

Statement of Disclosure: All faculty/speakers, planners, abstract reviewers, moderators, authors, co-authors and administrative staff participating in the continuing medical education programs jointly sponsored by IAHB are expected to disclose to the program audience any/all relevant financial relationships related to the content of their presentation(s). All faculty/speakers, planners, abstract reviewers, moderators, authors, co-authors and administrative staff indicated with asterisks (*****) stated they had no such relevant financial relationships to disclose.

Schedule of Events

Wednesday, January 7, 2015

0700 – 0800	**Challenges and Opportunities Registration & Continental Breakfast** *Palmera & Palmera Lounge*
0800 – 1700	**Exhibitor Registration & Set-Up** *Palmera & Palmera Lounge*
0800 – 1200	**Challenges and Opportunities in Developing Anesthesia Products (industry)** *Estrella West* *David Feinstein, MD, Jeffrey Feldman, MD, MSE, Norma Sandrock, MD*
1200 – 1315	**Challenges and Opportunities & STA Board of Directors Lunch -** *Estrella Patio*
1800 –1930	**Registration & Welcome Reception** *Palmera & Palmera Lounge*

Thursday, January 8, 2015

0700 – 0800	**Registration & Continental Breakfast** *Palmera & Palmera Lounge*
0800 – 0815	**Welcome Address -** *Estrella* *Joan Spiegel, MD, STA President, Allan Simpao, MD, STA Annual Meeting Program Chair*

Session 1: Keynote Address

0815 – 0930	**Computing the Future: The Evolving Roles of Informatics and Information Technology in Health Care -** *Estrella* *Ted Shortliffe, MD, PhD*
0930 – 1000	**Break with Exhibitors & Posters** *Palmera & Palmera Lounge*

Session 2: Cost of Doing Business
Moderator: Mohamed Rehman, MD

1000 –1030	**Hospital Capital Budget Process for IT: Hospital President's Perspective** *Estrella* *David Reich, MD*
1030 – 1100	**Cost of Doing Business and IT Prioritization: CIO's View -** *Estrella* *Bryan Wolf, MD, PhD*
1100 – 1130	**Health IT: Hype vs. Reality -** *Estrella* *Bassam Kadry, MD*
1130 – 1215	**Panel Discussion -** *Estrella*
1215 – 1330	**Luncheon -** *Vernadero Lawn*

Session 3: STA & FAER Joint Session / Safety & Innovation
Moderator: John Pawlowski, MD, PhD

1330 – 1400	**Innovation in Pediatric Inhalation** *Estrella* *Gabriel Gurman, MD*

(Thursday continued)

1400 – 1430	**Innovation in Robotic Safety -** *Estrella* *John Pawlowski, MD, PhD*
1430 – 1500	**Innovation in Closed-Loop Systems** *Estrella* *Joseph Rinehart, MD*
1500 – 1530	**Innovations in Standards for Interoperability -** *Estrella* *Julian Goldman, MD*
1530 – 1545	**Panel Discussion -** *Estrella*
1545 – 1600	**Break with Exhibitors & Posters** *Palmera & Palmera Lounge*

Session 4: Research Awards & Presentations
Moderator: Thomas Hemmerling, MD, MSc, DEAA

1600 – 1715	**Research Awards & Presentations** *Estrella*

Friday, January 9, 2015

0715 – 0815	**Registration & Continental Breakfast** *Palmera & Palmera Lounge*

Session 5: Respiratory Monitoring to Optimize Mechanical Ventilation
Moderator: Jeffrey Feldman, MD, MSE

0815 – 0845	**Current State of Bedside Monitors to Optimize Ventilation -** *Estrella* *Jeffrey Feldman, MD, MSE*
0845 – 0915	**Respiratory Monitoring and Integrated Displays -** *Estrella* *Robert Loeb, MD*
0915 – 0945	**Respiratory Monitoring - Looking Over the Horizon -** *Estrella* *Igor Brodkin, MD*
0945 – 1000	**Panel Discussion -** *Estrella*
1000 – 1030	**Break with Exhibitors & Posters** *Palmera & Palmera Lounge*

Session 6: Surgical Perioperative Home
Moderator: Maxime Cannesson, MD, PhD

1030 – 1100	**The Perioperative Surgical Home: What Problems Are We Trying to Solve?** *Estrella* *Zeev Kain, MD*
1100 – 1130	**Using Technologies to Help Clinicians Comply with Best Evidence / Best Practices** *Estrella* *Franklin Dexter, MD, PhD*
1130 – 1200	**How Can Technologies Help Clinicians Get Involved Outside the Operating Rooms and After Hospital Discharge? -** *Estrella* *Maxime Cannesson, MD, PhD*

1200 – 1215	**Panel Discussion -** *Estrella*
1215 – 1230	**STA Awards -** *Estrella*
1230 – 1330	**STA Business Luncheon** *Vernadero Lawn*

Session 7:   Concurrent Workshops

| 1330 – 1530 | **1) Young Researchers Workshop** *Cervantes* Thomas Hemmerling, MD, MSc, DEAA, Jorge Galvez, MD, Christine Lee, J. Mark Ansermino, MBBCh, Maxime Cannesson, MD, PhD |

The objective of this workshop is to create a community of young scientists. In this community, researchers will share their experiences in the scientific field, individual research, as well as foster potential collaborative relationships to further promote the advancement of anesthesia research.

| 1330 – 1530 | **2) Visual Analytics Dashboard Design** *Estrella West* Luis Ahumada, MSCS |

Attendees at this interactive workshop will review and practice the fundamental Tufte-Few principles of visualization of clinically relevant data. The ongoing adoption of anesthesia information management systems has created an opportunity for users to represent and analyze anesthesia data in many ways, including tabular reports, charts, graphs, dashboards and scorecards. How this data is displayed can be of similar importance to the validity of the data. In a clinical setting, we encounter unique challenges when transforming anesthesia data into visual analytics dashboards and scorecards. Attendees will review the Tufte-Few principles and then form groups that will create mock visual analytics dashboards which will then be critiqued, compared, and discussed.

Session 8:   Concurrent Workshops

| 1530 – 1730 | **1) Complex Care and Clinical Decision Support (CDS) - Make My AIMS Smarter!** *Cervantes* Brian Rothman, MD |

This interactive workshop will explore common themes in CDS architecture, end-user design and why CDS is becoming ever more vital with increasing care pathway complexity. After establishing core care pathway and CDS tenets, learners will volunteer their wish-lists for AIMS CDS. One (perhaps two if time allows) of these will be selected by the group. Learners will then define the problem to solve, the business logic needed, the architecture and data elements required, what will be required to deliver the CDS to the end-user, the outcome or action expected and finally, if feedback on any actions taken is necessary and how and to whom it should be delivered.

| 1530 – 1730 | **2) Performance Metrics and Clinical Outcomes - Automated AIMS Analytics In (Near) Real Time! -** *Estrella West* Jonathan Wanderer, MD |

This interactive workshop will explore opportunities, issues and dilemmas encountered when utilizing AIMS and other EMR data sources to develop clinician-level metrics for automated reporting. After reviewing our current required metrics and the rationale for providing clinicians with feedback, learners will develop ideas for performance metrics that would be meaningful in their own clinical context. Several ideas will be chosen by the group, and implementation requirements and potential pitfalls explored. In the second half, learners will brainstorm possible clinical outcomes that could be delivered via automated reporting. Data sources for outcomes reporting will be considered, and the potential utility of and methods for connecting clinicians to their patients' outcomes will be discussed.

| 1530 – 1730 | **STA Engineering Challenge** *Estrella East* |
| 1800 – 2130 | **STA Dinner Event** *Palmera & Palmera Lounge & Patio* |

Saturday, January 10, 2015

| 0730 – 0830 | **Registration & Continental Breakfast** *Estrella Patio* |

Session 9:   Help! My Computer is Telling Me What to Do

Moderator: J. Mark Ansermino, MBBCh

0830 – 0900	**Team Cognitive Work Analysis: Understanding Different Perspectives on Shared Technologies -** *Estrella* Catherine Burns, PhD
0900 – 0930	**Mobile Patient Monitoring: Designing the Transition from Sensors and Displays to Decision Support Tools -** *Estrella* Matthias Gorges, PhD
0930 – 1000	**Development and Use of the Smart Anesthesia Manager (SAM) – An AIMS Based Real-Time Decision Support Module -** *Estrella* Bala Nair, PhD
1000 – 1015	**Panel Discussion -** *Estrella*
1015 – 1030	**Break -** *Estrella Patio*

Session 10:   AIMS Panel: Breaking Up is Hard to Do

Moderator: Richard Epstein, MD

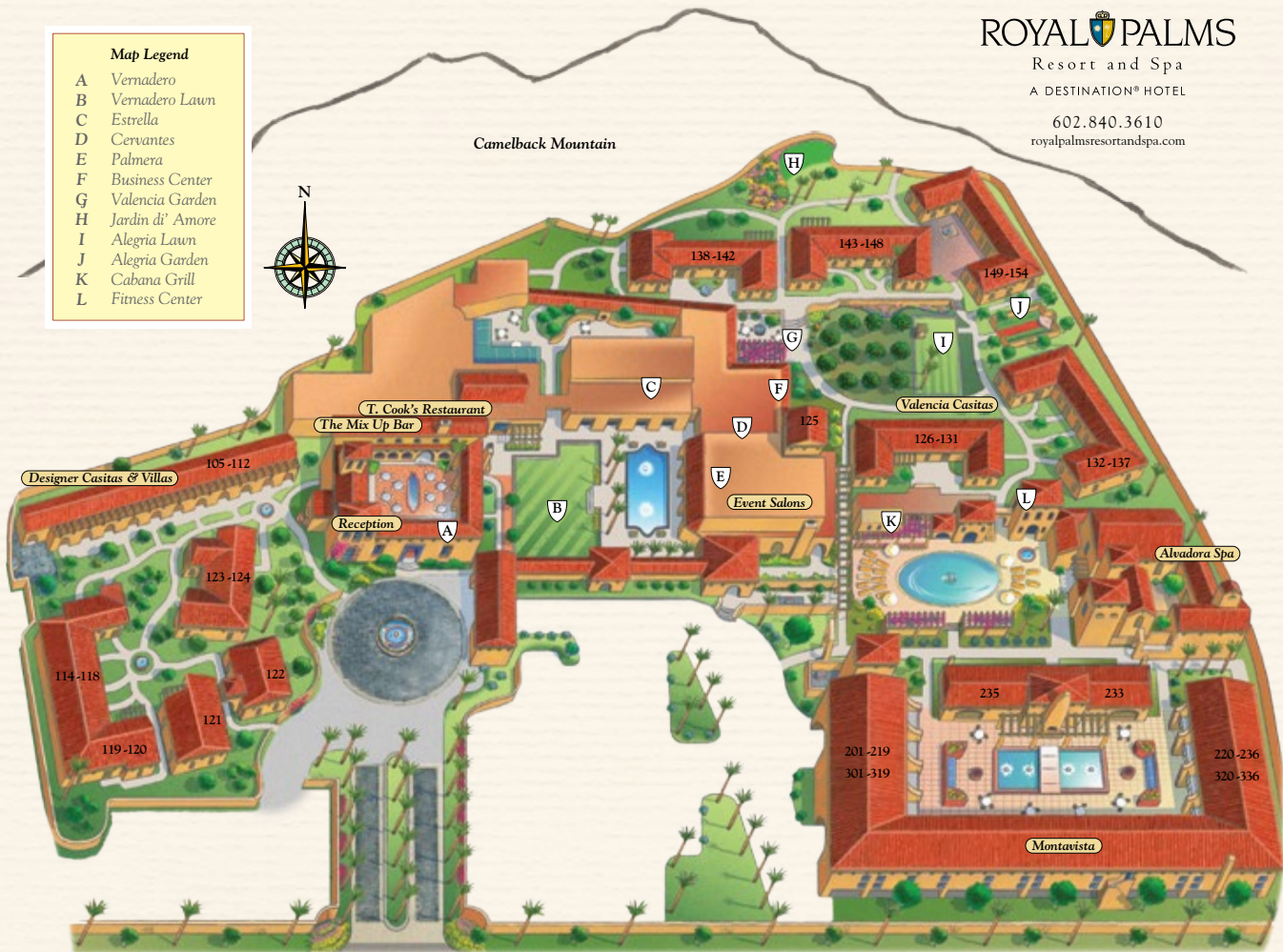| 1030 – 1100 | **Driving Reporting and Quality Improvement -** *Estrella* Patrick Guffey, MD |
1100 – 1130	**Building a Perioperative Data Warehouse From Your AIMS Data** *Estrella* Matthew Levin, MD
1130 – 1200	**Long Term Planning for Your Anesthesia Software and Data -** *Estrella* Patrick McCormick, MD
1200 – 1230	**Panel Discussion -** *Estrella*
1230	**Adjourn**

Royal Palms Resort & Spa Map

Map Legend

A	Vernadero
B	Vernadero Lawn
C	Estrella
D	Cervantes
E	Palmera
F	Business Center
G	Valencia Garden
H	Jardin di' Amore
I	Alegria Lawn
J	Alegria Garden
K	Cabana Grill
L	Fitness Center

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Camelback Mountain

N

138 -142   143 -148   149 -154

T. Cook's Restaurant
The Mix Up Bar

Valencia Casitas

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126 -131   132 -137

Designer Casitas & Villas   105 -112

Reception   *Event Salons*

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Alvadora Spa

114 -118   122   235   233

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301 -319   320 -336

Montavista

Commercial Supporters & Exhibitors

Commercial Supporters

- Becton Dickinson
- Covidien
- Criticare Systems
- Dräger
- GE Healthcare
- Hummingbird Sensing Technology
- Masimo
- Philips Healthcare
- Spacelabs Healthcare

Exhibitors

- AlertWatch
- Dynasthetics
- Graphium Health
- Micropore
- MIRU Medical Systems
- Nihon Kohden
- Oricare
- Respiratory Motion
- Revolutionary Medical Devices
- Talis Clinical
- Xhale Assurance

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Sensing Technology .... www.hummingbirdsensing.com
Philips Healthcare .... www.usa.philips.com/healthcare
Spacelabs Healthcare............www.spacelabshealthcare.com

Entrepreneur Gold

Dynasthetics... www.dynasthetics.com
Graphium Health ....www.graphiumhealth.com
Micropore... www.spiralith.com
Oricare ....www.oricaremed.com
Talis Clinical ....www.talisclinical.com

Entrepreneur Silver

AlertWatch ....www.alertwatch.com
MIRU Medical Systems .... www.mirumed.com
Nihon Kohden ....www.nkusa.com
Respiratory Motion .... www.respiratorymotion.com
Revolutionary Medical Devices.............www.rmdevices.com
Xhale Assurance.............................. www.assurance.xhale.com

Company Descriptions

AlertWatch
AlertWatch develops real-time patient monitoring dashboards to help anesthesia practices improve clinical quality, provider workflow, and billing accuracy.

Becton Dickinson
BD is a leading medical technology company that partners with customers and stakeholders to address many of the world's most pressing and evolving health needs. Our innovative solutions are focused on improving drug delivery, enhancing the diagnosis of infectious diseases and cancers, supporting the management of diabetes and advancing cellular research. We are nearly 30,000 associates in 50 countries who strive to fulfill our purpose of "Helping all people live healthy lives" by advancing the quality, accessibility, safety and affordability of healthcare around the world. For more information, please visit www.bd.com.

Covidien
Covidien has a long history in respiratory care and decades of experience in such areas as patient monitoring, ventilation and airway management. Covidien Respiratory and Monitoring Solutions is committed to taking a comprehensive approach to developing innovative products and improving outcomes by focusing on three key areas: patient safety, medical efficacy and healthcare efficien cy. Covidien offers a suite of industry-leading monitoring technologies that provide clinicians with critical patient information enabling them to make patient-care decisions quickly and effectively.

Criticare Systems
Criticare Systems develops, markets and distributes a wide range of patient monitoring devices and anesthetic gas monitoring systems, which incorporate technological innovation with cost-effective features. Criticare products address patient safety concerns and monitoring needs in anesthesia, critical care, respiratory care, transport and outpatient care environments. Criticare Systems is based in Waukesha, Wisconsin.

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.
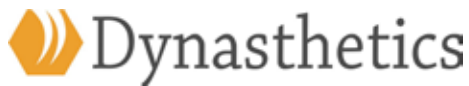
Dynasthetics

Dynasthetics, LLC manufactures the Vapor-Clean filters that are used to prevent a patient susceptible to Malignant Hyperthermia from exposure to dangerous trace anesthetic vapors by the anesthesia machine. It eliminates the need for lengthy flushing and provides continuous protection for a case lasting up to 12 hours. The Vapor-Clean may also be used in an actual MH crisis to stop exposure to volatile gas thereby allowing the clinician to focus on administering dantrolene. The Vapor-Clean has been used by hospitals around the world to provide both excellent patient protection and care while saving the time, money and uncertainty that accompanies flushing.

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.

Graphium Health

There is a problem in today's surgical experience. Because of the analog methods by which point-of-care information is recorded, data is disconnected from those who need it: Doctors can't track their personal performance, administrators are prevented from finding system-wide efficiencies, and patients and families are left in the dark. Founded by working physicians, Graphium Health developed a cloud hosted platform leveraging mobile form factors to connect all parties to the information they care most about. Our solution enables the collection and sharing of point-of-care information in an actionable manner so as to empower, unite, and enlighten the administration, the individual provider, and the patient unit.

Hummingbird Sensing Technology

Hummingbird Sensing Technology offers medical OEM manufacturers a comprehensive gas sensor range (O2, CO and CO2) 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.

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, including Masimo SET® pulse oximetry, Masimo rainbow® noninvasive and continuous hemoglobin (SpHb®), acoustic respiration rate (RRa™), Masimo Patient SafetyNet™, SedLine® (EEG-based) Brain Function Monitors, and Phasein™ respiratory monitors.

Micropore

Micropore manufactures solid, non-dusting CO2 absorbents for life support applications in the medical, submarine, military diving, mine safety and spacecraft markets. The company makes the only Lithium Hydroxide absorbent used in anesthesia workstations. Manufactured in the US, the anesthesia absorbents are fully recycled at the company's facility in Maryland.

MIRU Medical Systems

MIRU develops medical devices to ensure patient safety, especially to reduce medication errors. MIRU products are focused in the area of anesthesia throughout the peri-operative process, with special emphasis on intra-operative (OR). SW solutions guarantee information flow to ensure the right information is avaialable at the right time, and HW solutions monitor medication administration. These components can be used together but also with other third-party solutions. Appropriately managing drug delivery and automatically recording the results of operations of anesthesia improve not only patient safety, but also increase the efficiency of health personnel and hospital benefits.

Nihon Kohden
Leader in patient monitoring, sleep diagnostics, neurology and cardiology instrumentation. The NK cap-ONE is the world's first mainstream CO_2 sensor designed for both intubated and non-intubated patients. Neonatal, pediatric, and adult high oxygen delivery face masks do not distort the ETCO2 waveform.

Oricare
Oricare is a US based medical company with over 100 years of combined experience in Anesthesia, Patient Monitoring and ICU ventilators. We offer a variety of medical and point of care devices across the full spectrum of acuity levels. Our product portfolio includes: Anesthesia machines, ICU ventilators, OR tables and Lights and Medical air compressors. Cost effective, full featured technology with low life cycle costs. "YOUR HEALTHCARE, WE CARE"… Welcome to the Oricare booth, where representatives will be on hand to demonstrate the A9800 anesthesia system.

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.

Respiratory Motion
Respiratory Motion, Inc. (RMI) is a new generation medical device company developing and commercializing the ExSpiron™. The ExSpiron™ is a breakthrough non-invasive, real-time monitor that displays a continuous EKG-like trace of respiratory function. The ExSpiron™ 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 the ExSpiron™ in action at our table.

Revolutionary Medical Devices
RMD creates products for airway management that are designed to improve patient outcomes, increase hospital reimbursement & revenue, reduce costs per procedure and promote hospital staff safety.

Spacelabs Healthcare
With over 60 years' experience in providing anesthesia delivery solutions, Spacelabs provides perioperative solutions from low to high acuity. See ARKON™, our "evolutionary" anesthesia delivery system that pushes the boundaries to provide advanced flexibility, ventilation and ergonomics for you, the people that use these machines. Our solutions are assembled in the U.S.A. and backed by an award winning service team.

Talis Clinical
Talis Clinical was formed to meet the higher purpose of supporting safe patient care, while positively impacting the clinicians and providers. Our story begins with an initiative started over 10 years ago at the Cleveland Clinic to build a perioperative documentation system to support anesthesia care. This extensive development moved from documenting complex anesthesia workflows to providing guidance that could expose opportunities to improve patient care in real-time at the point of care.

Today, Talis Clinical markets a product that supports the entire Perioperative Surgical Home (PSH). Our goal is to "Heighten Awareness of the Entire Anesthesia Management Opportunity." We are honored to be carrying forward the work started by the anesthesiologists and engineers who initiated this important work.

Xhale Assurance
The Assurance® Alar / Nasal SpO2 Sensor is the next generation of pulse oximetry. This FDA approved sensor is attached to the nasal ala, the fleshy part of the side of the nose, a unique monitoring site for pulse oximetry. This site is fed by both the external and internal carotid arteries; the latter also supplies blood to the brain. The rich vascular supply to the ala provides a strong, reliable signal, even when it is difficult to get a signal at the fingertips.

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28	Evaluation of a Tabet-Based, Rapid Documentation System - EVENT-DOC™, During Real In-Hospital Medical Emergencies	Bala	Nair	PhD	University of Washington
29	Data Mining Infrastructure for AIMS Based Registry	Hubert	Kordylewski	PhD	Anesthesia Quality Institute
30	Discord in the Definition of Apnea: An Analysis of Apnea Duration in Sedated Volunteers	Sean	Ermer	BS	University of Utah
31	Comparison of the Oxygen Delivery Efficiency of Five Different Nasal Cannula Designs	Kyle	Burk	BS (Candidate)	University of Utah
32	Evaluation of the Efficacy of a Computer-Based Reminder System for the Timely Start of Intra-Operative Epidural Infusion for Post-Operative Pain Control	Aalap	Shah	MD	University of Washington Medical Center
33	Non-Invasive Respiratory Volume Monitoring Provides Quantitative Measurements that Provide a Better Assessment of Ventilatory Status than Capnography-Generated Respiratory Rates	Christopher	Voscopoulos	MD	Respiratory Motion, Inc
34	A Handoff Tool to Faciliate Transfer of Care from Anesthesia to Nursing in Intensive Care Units	Aalap	Shah	MD	University of Washington
35	Administering Patient Reported Outcomes Measurement Information System (PROMIS) Tools via Tablet Computer and E-mail to Assess Health Measures in Pediatric Adenotonsillectomy Patients at Ambulatory Surgery Centers	Allan	Simpao	MD	Children's Hospital of Philadelphia and University of Pennsylvania
36	Analysis of the Predictive Potential of Pulse Oximeter Data for Admission	Dustin	Dunsmuir	MSc	University of British Columbia
37	Use of an Automated Cost Calculator to Quantify Anesthetic Cost Interventions	Jonathan	Wanderer	MD, MPhil	Vanderbilt University
38	Automated Decision Support for Anesthesia Provider Relief: An Initial Survey and Implementation Report	Jonathan	Wanderer	MD, MPhil	Vanderbilt University
39	Development of an International Standard for Lung Ventilator Vocabulary and Semantics	Steven	Dain	MD, FR-CPC	University of Waterloo
40	Development and Implementation of a Process to Notify Surgeons via Text Messaging When Specified Events in the Anesthesia Information Management System are Documented	Richard	Epstein	MD	Sidney Kimmel Medical College at Thomas Jefferson University
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42	A Design Analysis of SAMBA's PONV Guidelines for Perioperative Clinical Decision Support	Brian	Rothman	MD	Vanderbilt University Medical Center
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44	Domain Information Model for the Patient Centric Integrated Clinical Environment (ICE DIM)	Steven	Dain	MD, FR-CPC	University of Waterloo/Woodstock Hospital
45	Domain Information Model for Alarm Systems for the Patient Centric Integrated Clinical Environment (ICE DIM)	Steven	Dain	MD, FR-CPC	University of Waterloo/Woodstock Hospital
46	Pilot Study: Feasibility of Predictive Analytics for the Early Detection of Hypotensive Events	Christine	Lee	BS	University California, Irvine