

Agenda • Thursday, November 2, 2006

Pre-Meeting Workshops

Workshop A – Reimbursement Strategies for Diabetes Technologies

08:30 Panel 1: Introduction

Coverage and Reimbursement

Edward Dougherty, M.S. (Baker & Daniels LLP, Washington, DC)

Coding for Diabetes Technology

Robert Hoover Jr., M.D., M.P.H., FACP (Sunrise Medical, Nashville, Tennessee)

09:00 Panel 2: Continuous Glucose Monitoring

Robert Hoover Jr., M.D., M.P.H., FACP, Moderator (Sunrise Medical, Nashville, Tennessee)

Gerald Silverstein, M.D., FACP (Celtic Health Insurance, Chicago, Illinois)

Satish Garg, M.D. (University of Colorado, Aurora, Colorado)

Volker Lodwig, Ph.D. (Roche Diagnostics, Mannheim, Germany)

Edward Dougherty, M.S. (Baker & Daniels LLP, Washington, DC)

10:00 Break

10:25 Panel 3: Insulin Pumps

Edward Dougherty, M.S., Moderator (Baker & Daniels LLP, Washington, DC)

Patty Curoe, R.N., M.B.A. (Medtronic MiniMed, Northridge, California)

Shawna Gvazdauskas, B.S. (Insulet Corporation, Bedford, Massachusetts)

Mark Richert, Esq. (American Foundation for the Blind, Washington, DC)

Gerald Silverstein, M.D., FACP (Celtic Health Insurance, Chicago, Illinois)

11:25 Panel 4: Drugs for Diabetes and Obesity

Frank Greenway, M.D., FACP, Moderator (Louisiana State University, Baton Rouge, Louisiana)

R. James Henderson, M.A., R.Ph. (Amylin Pharmaceuticals, Inc., San Diego, California)

Frank Greenway, M.D., FACP (Louisiana State University, Baton Rouge, Louisiana)

Sam Malik, M.B.A. (Strategyx, LLC, Somerville, New Jersey)

Gary Cleary, Ph.D., Pharm.D., M.B.A. (Corium International, Inc., Redwood City, California)

Richard Jay, Pharm.D. (MedImpact Healthcare Systems, Inc., San Diego, California)

12:30 End of Workshop

Workshop B – Physiology of Interstitial Fluid

Academic Panel

13:30 Moderators

Diane Burgess, Ph.D. (University of Connecticut, Storrs, Connecticut)

Charles Zimlik, Ph.D. (Food and Drug Administration, Rockville, Maryland)

13:35 Lag Time of Glucose Measurement

Craig Kollman, Ph.D. (Jaeb Center for Health Research, Tampa, Florida)

13:55 Interstitial Fluid Glucose and the AST-Phenomenon – How Relevant Is It?

Theodor Koschinsky, M.D. (Heinrich-Heine University of Düsseldorf, Germany)

14:15 Open-flow Microperfusion and Microdialysis: Tools to Understand the Interstitial Compartments

Thomas Pieber, M.D. (University of Graz, Austria)

14:35 Recent Advances in Evaluation of Microvascular Function in the Epidermis of Man

Aaron Vinik, M.D., Ph.D., FCP, MACP (Eastern Virginia University, Norfolk, Virginia)

14:55 Q & A and Panel Discussion

15:15 Break

Thursday, November 2, 2006 *continued*

Industry Panel

- 15:40 Moderators**
Gerold Grodsky, Ph.D. (UC San Francisco, San Francisco, California)
Lutz Heinemann, Ph.D. (Profil Institute, Neuss, Germany)
- 15:45 Putative Delays in Interstitial Fluid (ISF) Glucose Kinetics Can Be Attributed to the Glucose Sensing Systems Used to Measure Them Rather Than the Delay in ISF Glucose Itself**
Garry Steil, Ph.D. (Medtronic MiniMed, Northridge, California)
- 15:55 The Accuracy of Continuous Glucose Monitors Depends on the Rate of Change of Glucose: A Result of the Physiological Lag Between Blood and Interstitial Fluid**
Thomas Peyser, Ph.D. (Abbott Diabetes Care, Alameda, California)
- 16:05 Continuous Glucose Monitoring Based on Microdialysis: Towards a Reference System Featuring High Accuracy, Reliability and Increased Monitoring Time**
Gregor Ocvirk, Ph.D. (Roche Diagnostics, Mannheim, Germany)
- 16:15 Interstitial Fluid Sampling by Reverse Iontophoresis**
Janet Tamada, Ph.D. (Alza Corporation, Mountain View, California)
- 16:25 What is Meant by Lag Time?**
Mihailo Rebec, Ph.D. (Bayer HealthCare, Elkhart, Indiana)
- 16:35 Observations from Studies of *Ex-Vivo* ISF**
Phil Stout, M.S. (LifeScan, Inc., Roseville, Minnesota)
- 16:45 Glucose Monitoring in ISF With Fluorescence Affinity Sensors**
Ralph Ballerstadt, Ph.D. (BioTex, Houston, Texas)
- 16:55 Q & A and Panel Discussion**
- 17:45 End of Workshop**

Workshop C – Databases and Diabetes

- 13:30 Moderators**
Robert Burk, M.D. (Albert Einstein College of Medicine, Bronx, New York)
Robert Gabbay, M.D., Ph.D. (Pennsylvania State University, Hershey, Pennsylvania)
- 13:35 Keynote Address – Databases for Diabetes: Getting Direction by Tapping the Right Sources**
Michael Engelgau, M.D., M.S. (Centers for Disease Control and Prevention, Atlanta, Georgia)
- 13:55 Decision Support Systems in Diabetes Mellitus: Towards Intelligent Case Management and Patients' Empowerment**
Riccardo Bellazzi, Ph.D. (University of Pavia, Italy)
- 14:15 Information Technology and Diabetes**
Venkat Narayan, M.D., M.Sc., M.B.A., FRCP (Emory University, Atlanta, Georgia)
- 14:35 Telemedicine and Diabetes**
Robert Vigersky, M.D. (Walter Reed Army Medical Center, Washington, DC)
- 14:55 An Automated Telemedicine System Improves Patient-Reported Well-Being**
Mona Boaz, Ph.D. (Wolfson Medical Center, Holon, Israel)
- 15:15 Break**
- 15:40 Moderators**
Robert Gabbay, M.D., Ph.D. (Pennsylvania State University, Hershey, Pennsylvania)
Robert Burk, M.D. (Albert Einstein College of Medicine, Bronx, New York)
- 15:45 A Statewide Diabetes Tele-Health Program in Georgia**
John Oxendine, J.D. (Insurance Commissioner of the State of Georgia, Atlanta, Georgia)

Thursday, November 2, 2006 *continued*

- 16:05 A Diabetes Database in an Academic Center**
Robert Gabbay, M.D., Ph.D. (Pennsylvania State University, Hershey, Pennsylvania)
- 16:25 How Do We Know Change Results in Improvement? Targeting Patients and Tracking Results Through an Electronic Diabetes Registry**
Elizabeth Kern, M.D., M.S. (VAMC, Cleveland, Ohio)
- 16:45 The Missing Piece: Utilizing a Database for Successful Healthcare Delivery**
Renee Holland, M.S., CDE (Sandia National Laboratories, Albuquerque, New Mexico)
- 17:05 Panel Discussion: How to Establish a Diabetes Database and Case Management Program – Obstacles and Solutions**
Robert Gabbay, M.D., Ph.D., Chair; (Pennsylvania State University, Hershey, Pennsylvania)
Riccardo Bellazzi, Ph.D. (University of Pavia, Italy)
Robert Burk, M.D. (Albert Einstein College of Medicine, Bronx, New York)
Michael Engelgau, M.D., M.S. (Centers for Disease Control and Prevention, Atlanta, Georgia)
Elizabeth Kern, M.D., M.S. (VAMC, Cleveland, Ohio)
- 17:45 End of Workshop**

Sixth Annual Diabetes Technology Meeting

07:00-18:00 Registration

18:00 Meeting Commences

18:00-20:00 Reception and Poster Presentation

20:00-22:00 Posters Remain on Display for Viewing

Agenda • Friday, November 3, 2006

Sixth Annual Diabetes Technology Meeting

07:00 Continental Breakfast

Session I – Technologies for Metabolic Monitoring

- 08:00 Welcoming Remarks**
Eric Sampson, Ph.D. (Centers for Disease Control and Prevention, Atlanta, Georgia)
- 08:05 Introduction**
David Klonoff, M.D., FACP (Mills-Peninsula Health Services, San Mateo; University of California, San Francisco, California)
- 08:07 Moderator**
LTC Carl Hover, Ph.D., M.P.H. (U.S. Army, Fort Detrick, Maryland)
- 08:10 Keynote Address – The Role of NIBIB in Diabetes Technology**
Roderic Pettigrew, M.D., Ph.D. (National Institutes of Health, Bethesda, Maryland)
- 08:30 Can Glucose Be Measured Selectively and Noninvasively with Near-Infrared Spectroscopy?**
Mark Arnold, Ph.D. (University of Iowa, Iowa City, Iowa)
- 08:50 Improving the Accuracy of Blood Glucose Measurements in the Inpatient Setting**
Kent Lewandrowski, M.D., Ph.D. (Massachusetts General Hospital and Harvard University, Boston, Massachusetts)
- 09:10 How to Improve the Accuracy of Blood Glucose Measurements in the Inpatient Setting**
Lutz Heinemann, Ph.D. (Profil Institute, Neuss, Germany)

Friday, November 3, 2006 *continued*

- 09:30 **Advances in Hemoglobin A1c Point of Care Technology**
Bruce Bode, M.D., FACE (Atlanta Diabetes Associates, Atlanta, Georgia)
- 09:50 **Panel and Q & A**
- 10:10 **Break**

Session II – Formulas for Expressing Continuous Blood Glucose Data

- 10:40 **Moderator**
COL Karl Friedl, Ph.D. (U.S. Army, Fort Detrick, Maryland)
- 10:45 **Glucose Variability, Risk Analysis, and the Temporal Structure of Continuous Monitoring Data**
Boris Kovatchev, Ph.D. (University of Virginia, Charlottesville, Virginia)
- 11:10 **A Novel Approach to Continuous Glucose Analysis Utilizing Glycemic Variation**
Fergus Cameron, M.D. (Royal Children's Hospital, Parkville, Australia)
- 11:35 **Accuracy Requirements for a Hypoglycemia Detector: An Analytical Model to Evaluate the Effects of Bias, Precision, and Rate of Glucose Change**
Sharbel Noujaim, Ph.D. (LifeScan, Inc., Milpitas, California)
- 12:00 **Mathematical Modeling Methods for On-line Prediction of Blood Glucose**
Jaques Reifman, Ph.D. (U.S. Army, Fort Detrick, Maryland)
- 12:25 **Panel and Q & A**
- 12:45 **End of Session**
- 12:45-13:55 **Lunch**

Session III – Artificial Pancreas

- 13:55 **Moderators**
Jeffrey Joseph, D.O. (Thomas Jefferson University, Philadelphia, Pennsylvania)
Marc Torjman, Ph.D. (University of Medicine and Dentistry of New Jersey, Camden, New Jersey)
- 14:00 **Hypoglycemia and Hyperglycemia Alarm Detection Accuracy of a Continuous Glucose Monitoring System**
Geoffrey McGarraugh, M.S. (Abbott Diabetes Care, Alameda, California)
- 14:20 **Continuous Glucose Data in Healthy Controls**
Guido Freckmann, M.D. (Institute for Diabetes Technology, Ulm, Germany)
- 14:40 **Closed-Loop Artificial Pancreas: Feasibility Studies in Pediatric Patients with Type 1 Diabetes (T1D)**
Stuart Weinzimer, M.D. (Yale University, New Haven, Connecticut)
- 15:00 **Peterson Student Research Award Presentations**
- 15:05 **On-Chip Microdialysis System With Flow-Through Glucose Sensing Capabilities**
Yi-Cheng Hsieh, M.S. (Peterson Gold Student Award Winner)
(Pennsylvania State University, University Park, Pennsylvania)
- 15:25 **Panel and Q & A**
- 15:45 **Break**

Session IV – Must Automatic Glucagon Delivery Be Part of an Artificial Pancreas?

- 16:15 **Moderators**
Marc Torjman, Ph.D. (University of Medicine and Dentistry of New Jersey, Camden, New Jersey)
Jeffrey Joseph, D.O. (Thomas Jefferson University, Philadelphia, Pennsylvania)
- 16:20 **Importance of Glucagon in Metabolic Regulation**
Alan Cherrington, Ph.D. (Vanderbilt University, Nashville, Tennessee)

Friday, November 3, 2006 *continued*

- 16:40 Closed-Loop Glycemic Control in a Model of Type 1 Diabetes**
Kenneth Ward, M.D. (iSense, Portland, Oregon)
- 17:00 Closed-Loop Blood-Glucose Control Using Dual Subcutaneous Infusion of Insulin and Glucagon *in vivo***
Edward Damiano, Ph.D. (Boston University, Boston, Massachusetts)
- 17:20 Physiological Aspects and Pharmacology of Commercial Glucagon Preparations**
Morten Donsmark, Ph.D., M.Sc. (Novo Nordisk A/S, Virum, Denmark)
- 17:40 Q & A and Panel Discussion**
- 18:00 End of Session**
- 18:00-20:00 Reception and Poster Presentation**
- 20:00-22:00 Posters Remain on Display for Viewing**
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Agenda • Saturday, November 4, 2006

Sixth Annual Diabetes Technology Meeting

- 07:00 Continental Breakfast**

Session V – Novel Technologies to Deliver Insulin and Other Metabolic Peptides

- 08:00 Welcome**
David Klonoff, M.D., FACP (Mills-Peninsula Health Services, San Mateo; University of California, San Francisco, California)
- 08:05 Moderators**
Patricia Mueller, Ph.D. (Centers for Disease Control and Prevention, Atlanta, Georgia)
Athanasios Sambanis, Ph.D. (Georgia Institute of Technology, Atlanta, Georgia)
- 08:10 Keynote Address – Tissue Engineering a Pancreatic Substitute: Challenges and Opportunities**
Robert Nerem, Ph.D. (Georgia Institute of Technology, Atlanta, Georgia)
- 08:30 Viaject™, A Very Rapid Acting Novel Formulation of Recombinant Human Insulin, (In a Class by Itself)**
Solomon Steiner, Ph.D. (Biodel Inc., Danbury, Connecticut)
- 08:50 Variations in Insulin Analog Pharmacodynamics in Pediatric Patients Using Insulin Pumps**
Karena Swan, M.D. (Yale University, New Haven, Connecticut)
- 09:10 Novel Technologies for Delivery of Insulin**
James Hirsch (Author and Journalist, Needham, Massachusetts)
- 09:30 Panel and Q & A**
- 09:45 Break**

Session VI – Inhaled Insulin

- 10:15 Moderator**
Robert Gabbay, M.D., Ph.D. (Pennsylvania State University, Hershey, Pennsylvania)
- 10:25 The Story of Inhaled Insulin**
John Patton, Ph.D. (Nektar Therapeutics, San Carlos, California)
- 10:40 A Comparison of Standard vs. Intensive Training on Usage of the AIR® Inhaled Insulin System (AIR® Insulin System) in Patients with Type 2 Diabetes**
Douglas Muchmore, M.D. (Eli Lilly and Company, Indianapolis, Indiana)
- 11:00 Advances in Insulin Delivery**
Anders Boss, M.D., MFPM (MannKind Corporation, Danbury, Connecticut)

Saturday, November 4, 2006 *continued*

- 11:20 Inhaled Insulin: Clinical Overview**
Teresa Quattrin, M.D. (State University of New York, Buffalo, New York)
- 11:40 Pulmonary Function in Diabetic Patients**
Sultan Ayoub Meo, Ph.D., M.B.B.S., M.Phil. (King Saud University, Riyadh, Kingdom of Saudi Arabia)
- 12:00 Diabetes Technology Leadership Award Presentation**
- 12:05 Panel Discussion and Q & A**
- 12:25 End of Session**
- 12:25-13:25 Lunch**

Session VII – Microelectrical Mechanical Systems (MEMS) and Diabetes

- 13:35 Moderator**
Jan Wojcicki, Ph.D., D.Sc. (Institute of Biocybernetics, Warsaw, Poland)
- 13:40 Use of Microneedles for Interstitial Fluid Sampling and Drug Delivery**
Dorian Liepmann, Ph.D. (University of California, Berkeley, California)
- 14:00 Minimally Invasive Insulin Delivery and Glucose Monitoring Using Microneedles**
Mark Prausnitz, Ph.D. (Georgia Institute of Technology, Atlanta, Georgia)
- 14:20 Debiotech Insulin Nanopump™**
Niklaus Schneeberger, Ph.D. (Debiotech SA, Lausanne, Switzerland)

Session VIII – Hospital Management Technology

- 14:40 Moderator**
Jan Wojcicki, Ph.D., D.Sc. (Institute of Biocybernetics, Warsaw, Poland)
- 14:40 A Glucomander-Based Glycemic Protocol for Cardiovascular Surgery**
Paul Davidson, M.D. (Atlanta Diabetes Associates, Atlanta, Georgia)
- 15:00 Inpatient Glycemic Control With Basal-Bolus Insulin Using Computerized Order Entry**
Lindsay Arnold, Pharm.D. (Boston University, Boston, Massachusetts)
- 15:20 Panel Discussion and Q & A**
- 15:40 Break**
- Inventors and Their Inventions**

Session IX – Survey and Demonstration

- 16:20 Moderator**
John Pickup, M.D., Ph.D. (Guy's Hospital, London, England)
- 16:25 VivaScan Live Demonstration – Part A**
A Noninvasive Glucose Monitor
Robert Peura, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
Hannu Harjunmaa, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
Steven Kun, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
Rebecca Burrell, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
J. Paul Lock, M.D. (University of Massachusetts, Worcester, Massachusetts)
- 16:35 Diabetes Technology Survey**
Andreas Pfützner, M.D., Ph.D., Chair (IKFE, Mainz, Germany)
Geoff Chase, Ph.D. (University of Canterbury, Christchurch, New Zealand)
Ludovic Chassin, Ph.D. (University of Cambridge, England)
Allen King, M.D., CDE (Diabetes Care Center, Salinas, California)

Saturday, November 4, 2006 *continued*

**17:05 VivaScan Live Demonstration – Part B
A Noninvasive Glucose Monitor**

Robert Peura, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
Hannu Harjunmaa, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
Steven Kun, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
Rebecca Burrell, Ph.D. (VivaScan Corporation, West Boylston, Massachusetts)
J. Paul Lock, M.D. (University of Massachusetts, Worcester, Massachusetts)

17:15 U.S. Army Live Demonstration Physiological Monitoring of the Warfighter

Mark Buller (United States Army Institute of Environmental Medicine, Natick, Massachusetts)
Justin Pisani (Hidalgo Ltd., Cambridge, England)

17:35 Q & A and Discussion

17:45 End of Meeting

SEVENTH ANNUAL
DIABETES TECHNOLOGY MEETING
October 25-27, 2007
San Francisco Airport
Hyatt Regency Hotel