ADVANCES IN PERITONEAL DIALYSIS
2010
Advances in Peritoneal Dialysis/2010

Volume 26

Selected papers from the Thirtieth Annual Conference on Peritoneal Dialysis
Seattle, Washington
March 2010
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Correction Notice
Please be advised that an error was made in the table of contents for Volume 25 of Advances in Peritoneal Dialysis (2009). The Subject and Author indexes should begin on pages 187 and 189 respectively. The corrected table of contents can be found online at www.advancesinpd.com.
The 30th Annual Dialysis Conference (ADC), held in Seattle, Washington, March 7–9, 2010, attracted 1865 attendees from 36 countries, 22% of whom came from outside the United States. The ADC is organized by the Division of Nephrology, Department of Internal Medicine, and the Department of Continuing Medical Education at the University of Missouri Health Sciences Center in Columbia. The scientific program planning committee and the Continuing Medical Education team deserve all kudos for the high-quality scientific program and the smooth organization of the conference.

The 30th ADC honored the University of Washington in Seattle, the meeting having coincided with the 50th anniversary of the first chronic dialysis at the University of Washington in March 1960. The dean of the School of Medicine at the University of Washington accepted plaques from the ADC recognizing contributions by his institution to hemodialysis, peritoneal dialysis, and dialysis nursing. The University of Missouri and the University of Washington schools of Medicine co-sponsored a reception after the award ceremony. During the ADC, a session was dedicated to reminiscences of dialysis in the 1960s. Some patients, nurses, dialysis technicians, physicians, and engineers who were part of the initial dialysis at the University of Washington spoke with passion about their interesting experiences during that time. Many senior nephrologists from the United States and other parts of the globe who were experimenting with dialysis in the 1960s recounted their exciting innovations and local modifications to make dialysis work.

The present volume includes a collection of interesting peritoneal dialysis–related manuscripts from the 30th ADC. The manuscripts were solicited from the invited speakers and those selected to give slide and poster presentations during the conference. The manuscripts underwent peer review, and those reflecting innovative concepts and current interests in peritoneal dialysis were chosen for publication. Advances in Peritoneal Dialysis is abstracted in Index Medicus and the Index to Scientific and Technical Proceedings, the ISI/ISTP +B online database, and PubsHub (www.PubsHub.com).

Preparations for the 31st ADC, which is to be held in Phoenix, Arizona, February 20–22, 2011, is already in progress. As always, early registrants receive special discounts. For information, please visit our website at som.missouri.edu/Dialysis/, or contact the Continuing Medical Education office at the University of Missouri–Columbia at (573) 882-4105.

The Editors
Each year the Annual Conference on Peritoneal Dialysis recognizes those individuals who have made significant contributions to the field of peritoneal dialysis. Each honoree receives a plaque commemorating his or her pioneering work over the years.

### Special Recognition Award Winners

1989  
Jack W. Moncrief, MD  
Austin, Texas, USA  
Robert Popovich, PhD  
Austin, Texas, USA

1990  
Dimitrios G. Oreopoulos, MD  
Toronto, Ontario, Canada  
Nancy Gallagher, BSN, RN, CNN  
Tacoma, Washington, USA

1991  
Fred Boen, MD  
The Netherlands

1992  
Russell Palmer, MD  
Vancouver, British Columbia, Canada

1993  
John Maher, MD  
Bethesda, Maryland, USA

1994  
Rosario Maiorca, MD  
Brescia, Italy

1995  
Umberto Buoncristiani, MD  
Perugia, Italy  
Sharron Izatt, RN  
Toronto, Ontario, Canada

1996  
Giuseppe LaGreca, MD  
Vicenza, Italy  

1997  
James W. Dobbie, MD  
Edinburgh, Scotland

1998  
Jonas Bergström, MD  
Huddinge, Sweden

1999  
Raymond Krediet, MD  
Amsterdam, The Netherlands

2000  
Lazaro Gotloib, MD  
Afula, Israel

2001  
Stephen Vas, MD  
Toronto, Ontario, Canada

2002  
Norman Lasker, MD  
Philadelphia, Pennsylvania, USA

2003  
Ram Gokal, MD  
Manchester, England

2004  
Beth Piraino, MD  
Pittsburgh, Pennsylvania, USA  
Pat McBride (History of Dialysis Award)  
Newport Beach, California, USA

2005  
Rafael Selgas, MD  
Madrid, Spain
2006
Bengt Lindholm, MD
Huddinge, Sweden
Linda Uttley, RGN, SCM
Stockport, England

2007
Joel Kopple, MD
Torrance, California, USA
Judith Bernardini, BSN, RN
Pittsburgh, Pennsylvania, USA

2008
Mrinal Dasgupta, MD
Edmonton, Alberta, Canada
Elizabeth Kelman, RN, ACNP
Toronto, Ontario, Canada

2009
Bengt Rippe, MD
University of Lund
Lund, Sweden
Glenda Payne, MS, RN
Centers for Medicare and Medicaid Services
Dallas, Texas, USA

2010
University of Washington
Seattle, Washington, USA
(presented to honor 50 years of achievements in dialysis)
Every year the first author of the outstanding abstract submitted to the Annual Conference on Peritoneal Dialysis receives a plaque and cash award given on behalf of the International Society for Peritoneal Dialysis (ISPD). Since 1997, the first author of the outstanding abstract in the Nursing category has also received a plaque and cash award. Since 1990, the first author of the best submitted abstract in the field of pediatrics has received a plaque and cash award.

The 2010 award winners and their affiliated institutions are listed below. The awards are presented to the recipients during the conference.

### Outstanding Abstract Awards
#### 2010

<table>
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<tr>
<th>Michael Flessner, MD PhD (ISPD)</th>
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<tr>
<td>University of Mississippi Medical Center</td>
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<th>Wen-Yi Thong, MBBS (Pediatrics)</th>
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<td>Shaw–NKF–Children’s Kidney Centre</td>
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<td>University Children’s Medical Institute</td>
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<td>Singapore</td>
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<td>and the International Pediatric Peritoneal Dialysis Network Investigators</td>
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<th>Dale Zimmerman, RN (Nursing)</th>
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<td>Woodruff, Wisconsin</td>
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</table>

### Past Outstanding Abstract Award Winners

| 1987 |
| Andrzej Breborowicz (ISPD) |
| Toronto Western Hospital, Toronto, Canada | Eileen D. Brewer (Pediatrics) |
| and Department of Pathophysiology |
| Medical Academy, Poznan, Poland |

| 1988 |
| Francesco Quarello (ISPD) |
| The Department of Nephrology |
| University of Torino, N.A.M. Hospital, Torino, Italy |

| 1989 |
| Eleni Stylianou (ISPD) |
| Renal Medicine, Royal Infirmary |
| Cardiff, Wales, United Kingdom |

| 1990 |
| Andrzej Breborowicz (ISPD) |
| Toronto Western Hospital, Toronto, Canada | Juergen Rainer Klein (ISPD) |
| and Department of Pathophysiology |
| Medical Academy, Poznan, Poland |
| Department of Nephrology |
| University of Ulm, Ulm, Germany |

| 1991 |
| Dennis Finbar Geary (Pediatrics) |
| The Hospital for Sick Children |
| Toronto, Ontario, Canada |

| 1991 |
| Eileen D. Brewer (Pediatrics) |
| Department of Pediatrics |
| University of Utah and Baylor College of Medicine |

| 1991 |
| Ching-Yuang Lin (Pediatrics) |
| Department of Pediatrics |
| Veterans General Hospital, Taipei, Taiwan, ROC |

| 1991 |
| Dirk G. Struijk (ISPD) |
| Department of Nephrology |
| Academic Medical Center, University of Amsterdam |
| Amsterdam, The Netherlands |
1992
Marie-Jose Fernandez-Reyes (ISPD)
Hospital La Paz, Madrid, Spain

Alan R. Watson (Pediatrics)
City Hospital, Nottingham, England

1993
Masataka Honda (Pediatrics)
Tokyo Metropolitan Children’s Hospital
Tokyo, Japan

Brian J.R. Junor (ISPD)
Western Infirmary, Glasgow, Scotland

1994
Gregory A. Done (Pediatrics)
Director Pediatric Dialysis/Special Care Areas
Texas Children’s Hospital, Houston, Texas

Roelof Ewout Reddingius (Pediatrics)
Department of Pediatrics
Sint Radboud Hospital
Nijmegen, The Netherlands

Frederick M. Kouri (Pediatrics)
The Children’s Mercy Hospital
Kansas City, Missouri

Bengt Rippe (ISPD)
Department of Nephrology
University Hospital, Lund, Sweden

1995
Reinhard Brunkhorst (ISPD)
Medical School of Hannover
Hannover, Germany

Kathleen M. Reilly (Pediatrics)
Children’s National Medical Center
Washington, D C

Cornelis Hendrik Schröder (Pediatrics)
Department of Pediatrics
University of Nijmegen
Nijmegen, The Netherlands

1996
Sheila Coakley (Pediatrics)
Jackson Memorial Medical Center
Miami, Florida

Alberto Carlo Edefonti (Pediatrics)
Clinica Pedietrica, Milano, Italy

Masaaki Nakayama (ISPD)
Jeiki University School
Tokyo, Japan

1997
Linda L. Jones (Pediatrics)
The Children’s Mercy Hospital
Kansas City, Missouri

Ching-Yuang Lin (ISPD)
Veterans General Hospital, Taipei, Taiwan

Franz S. Schaefer (Pediatrics)
University Children’s Hospital
Heidelberg, Germany

Mae Squires-Graham (ISPD–Nursing)
Kingston General Hospital
Kingston, Ontario, Canada

Michelle Anne Zilber (ISPD–Nursing)
Gambro Healthcare, St. Louis, Missouri

1998
M.A.M. Mateijsen
Academic Medical Center
University of Amsterdam
The Netherlands

Sema Akman (Pediatrics)
Akdeniz University Medical Faculty
Departments of Pediatric Nephrology
Antalya, Turkey

Janet E. Coleman (Pediatrics)
Nottingham City Hospital
Nottingham, United Kingdom
<table>
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<tr>
<th>Year</th>
<th>Name</th>
<th>Institution and Location</th>
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<tr>
<td>1999</td>
<td>Alberdina Willemina de Boer</td>
<td>Pediatrics, Onze Lieve Vrouwe Gasthuis, Amsterdam, The Netherlands</td>
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<tr>
<td></td>
<td>Reinhard R. Brunkhorst</td>
<td>(ISPD) Medical School Hannover, Hannover, Germany</td>
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<tr>
<td></td>
<td>Lee Ann Douglas</td>
<td>(Pediatrics) Children’s Hospital, University of Texas Medical Branch, Galveston, Texas</td>
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<td></td>
<td>Linda Turnbull</td>
<td>(ISPÐ–Nursing) Foothills Medical Centre, Calgary, Alberta, Canada</td>
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<td>2000</td>
<td>Rudi de Waart</td>
<td>(ISPD) Academic Medical Center, Amsterdam, The Netherlands</td>
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<tr>
<td></td>
<td>Atul Sharma</td>
<td>(Pediatrics) The Montreal Children’s Hospital, Montreal, Quebec, Canada</td>
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<td></td>
<td>Paule Comtois</td>
<td>(Pediatrics) The Montreal Children’s Hospital, Montreal, Quebec, Canada</td>
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<tr>
<td></td>
<td>Lynda N. Newman</td>
<td>(ISPÐ–Nursing) University Hospitals of Cleveland, Cleveland, Ohio</td>
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<tr>
<td>2001</td>
<td>Joanne M. Bargman</td>
<td>(ISPÐ) University of Toronto, Toronto, Ontario, Canada</td>
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<tr>
<td></td>
<td>Wei-Kin Gong</td>
<td>(Pediatrics) National University of Singapore, Singapore</td>
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<tr>
<td></td>
<td>Mitsuko N. Pierre</td>
<td>(Pediatrics) UCLA/Da Vita Pediatric Dialysis Center, Los Angeles, California</td>
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<td></td>
<td>Mary Kathryn Hrinya</td>
<td>(ISPÐ–Nursing) University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania</td>
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<tr>
<td>2002</td>
<td>Roos van Westrhenen</td>
<td>(ISPÐ) Academic Medical Center, The Netherlands</td>
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<tr>
<td></td>
<td>Pei-Pei Foong</td>
<td>(Pediatrics) Shaw NKF-CMI Children’s Kidney Center, Singapore</td>
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<td></td>
<td>Susanne Haas</td>
<td>(Pediatrics) University Children’s Hospital, Heidelberg, Germany</td>
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<td></td>
<td>Maria Luongo</td>
<td>(ISPÐ–Nursing) Massachusetts General Hospital, Boston, Massachusetts</td>
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<td>2003</td>
<td>Roberto Pecoits–Filho</td>
<td>(ISPÐ–Nursing) Karolinska Institutet, Stockholm, Sweden</td>
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<td></td>
<td>Douglas L. Blowey</td>
<td>(Pediatrics) Children’s Mercy Hospital, Kansas City, Missouri</td>
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<tr>
<td></td>
<td>Mini Michael</td>
<td>MBBS, FRACP (Pediatrics) Baylor College of Medicine, Houston, Texas</td>
</tr>
<tr>
<td>2004</td>
<td>Teresa Grzelak</td>
<td>MGR (ISPÐ) University of Medical Sciences, Poznan, Poland</td>
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<td></td>
<td>Judith Bernardini</td>
<td>BSN (ISPÐ–Nursing) University of Pittsburgh, Pittsburgh, Pennsylvania</td>
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<td></td>
<td>Denis Geary</td>
<td>MB, MRCP, FRCP (Pediatrics) Hospital for Sick Children, Toronto, Ontario, Canada</td>
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<td></td>
<td>Amy M. Fain</td>
<td>LCSW (Pediatrics) Children’s Medical Center of Dallas, Dallas, Texas</td>
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</tbody>
</table>
2005
Claus Peter Schmitt, MD, PhD (ISPD)
Universitats–Kinderklinik
Heidelberg, Germany

Seong-Joo Park, RN (ISPD Nursing)
Dongguk University Medical Center
Kyongju, Korea

Nicole Graham, MS, CCLS (Pediatrics)
Texas Children's Hospital
Houston, Texas

Jennifer Slickers, MD (Pediatrics)
University of North Carolina
Chapel Hill, North Carolina

2006
Fu-You Liu, MD, (ISPD)
Second Xiangya Hospital, Central South University
Hunan, People's Republic of China

Susan Barchard, MSN, RN, CNeph (c) (ISPD Nursing)
Lakeridge Health Oshawa
Oshawa, Ontario, Canada

Marisa D. Juarez-Congelosi, RD, LD (Pediatrics)
Texas Children's Hospital
Houston, Texas

Kar-Hui Ng, MBBS, MRCPCH (UK) (Pediatrics)
National University Hospital
Singapore

Kathleen Rodd, LPN (Nursing)
New Haven CAPD
New Haven, Connecticut

Kathleen Moylan, BSN, RN, CNN; Kanwal Kher, MD;
Jennifer Wilcox, RN, Douglas Silverstein, MD
(Pediatrics)
Children’s National Medical Center
Washington, DC

Annabelle Chua, MD; Stuart Goldstein, MD; Deborah
Bell, PhD; Eileen Brewer MD (Pediatrics)
Texas Children’s Hospital
Houston, Texas

2008
Soner Duman, MD (ISPD)
Ege University Medical School
Bornova, Turkey

2009
Michael Flessner, MD (ISPD)
University of Mississippi Medical Center
Jackson, Mississippi

Irma Funes, RN (Nursing)
Wellbound of Evanston
Skokie, Illinois

Dagmara Borzych, MD (Pediatrics)
Center for Pediatric and Adolescent Medicine
Heidelberg, Germany

Franz Schaefer, MD
Center for Pediatric and Adolescent Medicine
Heidelberg, Germany

Bradley Warady, MD
Children’s Mercy Hospital
Kansas City, Missouri
and the International Pediatric Peritoneal Dialysis
Network Investigators