Fall/Annual Meeting 2015 | Volume 23, No. 3

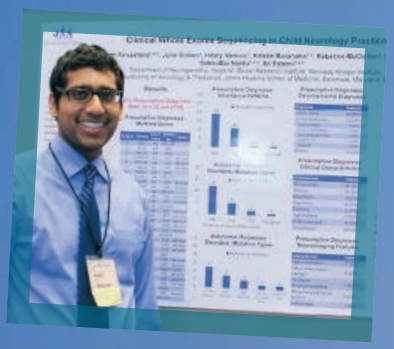
CONNECTIONS

CHILD NEUROLOGY SOCIETY

Bringing CNS Members Together to Make Children's Lives Better

2015 CNS Annual Meeting

Celebrating and Sharing a Tradition of Excellence



CHILD NEUROLOGY SOCIETY

From the President

Nina F. Schor, MD, PhD
President, CNS

Leaving a Legacy

I am quickly coming to the end of my term as President of the Child Neurology Society. The approaching denouement means I repeatedly ask myself two questions: "What has the Child Neurology Society accomplished in the past two years?" and "What will become of these accomplishments once I step back?" These questions relate to making a difference that is durable beyond one's tenure. Every teacher hopes his or her students will carry the torch to the next level. Every clinician hopes his or her patients will use lessons learned at the clinic to make the next generation in their families and communities healthier than the present ones. Every parent hopes to create a legacy that informs and enables that of the family's children someday. I am no different.

In the past two years, the Child Neurology Society and its partners have endowed the Philip R. Dodge Young Investigator Award, ensuring the future for physician-scientists and their patients and the legacy of one of the founders of Child Neurology, Dr. Philip R. Dodge. We have renewed and refreshed our relationship with the Child Neurology Foundation, an organization that is "flesh of our flesh" – that shares our lineage, our genotype – from which we had become estranged over the years. We have directly participated in the evolution of the mission and vision of the CNF and the two organizations are now rapidly growing together, reflecting both their singular purpose at the CNF's inception and their newly unique vantage points in the ever-changing landscape of child neurology. Our patients and their families and our trainees and colleagues will be richer for the collaboration of these complementary organizations. We have begun defining the relationship between the two sets of research and training awards offered by the CNS and CNF, respectively, and are redesigning the application and evaluation process to solidify further the relationship between the two organizations and to bring both vantage points to the nurturance of our professional progeny. Our committees are more engaged and more aligned with our collective mission and vision than ever and they are making a national impact. Our Maintenance of Certification portfolio benefits all child neurologists throughout the U.S. We are more solidly at the policy and practice tables of the AAN and the AAP than ever before. We participate in PAS meeting programs more broadly than before. We have much to celebrate!

Because we are more like a family than a club, I am confident our leadership will be mindful of legacy and continue to build on the foundation afforded by their predecessors. Just as my administration built on the enhanced programmatic offerings for and mentoring of junior members, so will future CNS leaders continue to welcome and foster the careers of young child neurologists. Just as Steve Roach's administration worked to warm the inexplicable chill between the CNS and CNF, and as my administration used that beginning to forge a durable collaboration around strategic planning and research awards, so will Ken Mack's administration grow and nurture the relationship between CNS and CNF for the best of our community and its charges in our cities, our clinics, and our hospitals.

I am proud and excited to have been a small part of this legacy and very much looking forward to seeing and learning together with you at our National Harbor!

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FALL/ANNUAL MEETING 2015

44th CNS Annual Meeting

October 7-10

Gaylord National Resort & Convention Center
National Harbor, MD | outside of Washington, DC

Connecting with Colleagues

Connecting with Partners

DEPARTMENTS

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Published Quarterly

Q&A with "Transitioning" CNS President, Nina Schor

By Daniel J. Bonthius, MD, PhD | *CNS Connections* Editor

Editor's Note: I first met Dr. Schor about twenty years ago, when I was still a resident. I was working in a lab and trying to learn how to perform and interpret assays of apoptosis. Nina explained it all to me at a CNS meeting. Her great intellect and wit made it all look easy and fun. For me, it was neither. Now, her great people skills and unwavering optimism make presiding over the CNS look easy and fun. I'm sure it's neither.

QUESTION | ***What is your proudest accomplishment, as President of the CNS?***

The recasting of the relationship between the Child Neurology Society and the Child Neurology Foundation, including, together, fully endowing the Philip R. Dodge Young Investigator Award and helping the Child Neurology Foundation better define its own mission, vision, and identity.

QUESTION | ***What was your favorite aspect of the job?***

Renewing and strengthening my own acquaintance with child neurologists and using the job as an "excuse" to get back in touch with old friends and make new friends within and around the child neurology community.

QUESTION | ***What is the most difficult aspect of serving as President of the CNS?***

I have often said to my children, when speaking of each of the several leadership-level jobs I have held, that, "if it weren't for the need to involve humans, this job would be a cinch". The job of CNS President is no different. When everyone is focused on mission, vision, purpose, function, serving as President of the CNS is a dream job. When individual egos, agendas, pet peeves appear on one's radar screen, the job becomes very difficult. It is in the best interest of any leader to continually and proactively decide what is "wheat" and what is "chaff" and to constantly refocus everyone on the "wheat" at hand.

QUESTION | ***What are the biggest challenges facing the field of child neurology?***

The biggest internal challenge – one that devolves from the very nature of those who choose to become child neurologists – is that we are intrinsically not very good at or enamored of marketing and promoting ourselves or our discipline. The kind of person who dedicates his or her life to the health and well-being of those who cannot advocate for themselves does not generally feel comfortable bragging! This threatens such things as payment models, layperson awareness, and visibility in the context of larger, more publicly known professional groups like adult neurologists and pediatricians. The biggest external challenge is both a challenge and a joy. We are victims of the success of science and technology. The general child neurologist is drowning in a vast sea of information and methods, and to date, our response has been to slice the child neurologist pie into thinner and thinner programmatic pieces. Staying together as a discipline and a community is a very big challenge.

QUESTION | ***What advice would you give to a graduating medical student, who is just entering the field of child neurology?***

First, I would congratulate that student. He or she is about to embark on an exciting career surrounded by some of the nicest, smartest, most collegial, and most selfless people on the planet. Then, I would advise him or her to take maximum advantage of this professional community. Stay connected. Don't get discouraged or overwhelmed – get in

touch! What makes child neurology so wonderful is at least 75 per cent child neurologists. We are always here for each other and for patients and families everywhere. Not knowing what to do or where to turn to help a patient or solve a problem is a fantastic excuse to network with the other members of this fantastic club the student is about to join!

QUESTION | ***In light of the deficit of child neurologists nationwide, how can we attract more young people into the field of child neurology?***

We must be visible, available, engaging, and passionate around undergraduate and medical students. Through the concerted activity of united professional organizations, we must ensure that the students who look at child neurology as a career see not only our passion and intellectual and social engagement, but also a means to a life of respect, time for family and hobbies, and value to community.

QUESTION | ***Are there any changes that the CNS should enact to better accomplish its goals?***

I think that, at times, the CNS has shortchanged itself with a two-year presidential term. That is too long to just "pass through," but not long enough to formulate and operationalize a real strategic plan. On the other hand, we all have our "day jobs" and being President for longer than two years is probably not tenable. The last few generations of Presidents have worked to build legacy, a passing of the baton, in service of fulfilling a strategic vision longitudinally beyond the term of a single President. I have also recast the charges of the CNS committees to capture this longitudinal aspect. But culture will not change completely in the timescale of a presidential term. It will take several generations of Presidents and the buy-in of both leadership and membership.

QUESTION | ***Is it a lot of work to serve as President of the CNS? If so, where did you find the time?***

Serving as President of the CNS takes as much or as little time as any given President wishes to devote to it. The routine tasks – working with the Scientific Program Committee Chair to fashion the Annual Meeting agenda; reviewing CNS finances and Executive Committee meeting agendas; presiding over votes of the Executive Committee between meetings; conferring regularly with the CNS Executive Director – these tasks take relatively little time. But making an impact on the programmatic direction, financial solidity, or relationship to partner organizations takes a lot of time and even more energy, strategy, and thought. I suppose I have managed to do some of this because I am an inveterate multitasker. I have always prided myself in balancing organization with flexibility. Being President of the CNS takes both. You plan for what you can predict and roll with the punches from what you cannot!

Brain Imaging: The Heart of the Matter for Newborns with Congenital Heart Disease

By Daniel J. Bonthius, MD, PhD | *CNS Connections* Editor

Child neurologists know that surgery on newborns with complex congenital heart disease can be accompanied by strokes or hypoxic brain injuries. Less well appreciated is the fact that half of newborns with congenital heart disease already have brain injury before the surgery occurs. Dr. Sarah Mulkey's research goal is to improve neurodevelopmental outcomes in newborns with congenital heart disease by reducing the brain injury that occurs between birth and the time of surgery.

Dr. Mulkey is an Assistant Professor of Pediatrics and Neurology at the University of Arkansas for Medical Sciences (UAMS), where she works as a pediatric neurologist and is also enrolled as a graduate student. Working toward a PhD in Clinical and Translational Sciences, Dr. Mulkey focuses on the newborn brain and ways to protect it.

Dr. Mulkey has published two large-scale studies evaluating the pattern and severity of brain injury in patients with congenital heart disease

Dr. Mulkey has had a long-standing interest in neonatal brain injury and neuroprotection, but her particular interest in congenital heart disease was sparked by her experience with a newborn patient who had hypoxic-ischemic encephalopathy and was later discovered to also have transposition of the great arteries. This baby underwent neonatal cooling, followed shortly thereafter by heart surgery, and had an excellent neurodevelopmental outcome. This happy result convinced Dr. Mulkey that proper interventions may substantially protect the brains of babies with congenital heart disease.

She has subsequently published two large-scale studies evaluating the pattern and severity of brain injury in patients with congenital heart disease and evaluating their academic and physical outcomes.

Dr. Mulkey is now utilizing advanced quantitative MRI techniques to better identify and understand brain injury patterns in newborns with congenital heart disease. She has found that conventional MRI scans may show little or no abnormalities, while advanced neuroimaging techniques are far more sensitive. In particular, through the use of Diffusion Tensor Imaging and a whole-brain analysis technique referred to as tract-based spatial statistics, she has identified abnormalities in the white matter tracts of many infants with congenital heart disease. Furthermore, through the use of resting state functional MRI, she has found that babies with more immature-appearing brains on conventional MRI have less functional connectivity.

Dr. Mulkey hopes to utilize the knowledge that she gains from these advanced neuroimaging techniques to identify the babies with congenital heart disease who are most at risk for brain injury and to formulate clinical strategies and interventions to minimize their risk. Her research has been funded through an NIH COBRE award (Center of Biomedical Research Excellence) from the UAMS Center for Translational Neuroscience.

Dr. Sarah Mulkey performs a follow-up neurologic exam on a one-year old infant with neonatal hypoxic-ischemic encephalopathy.

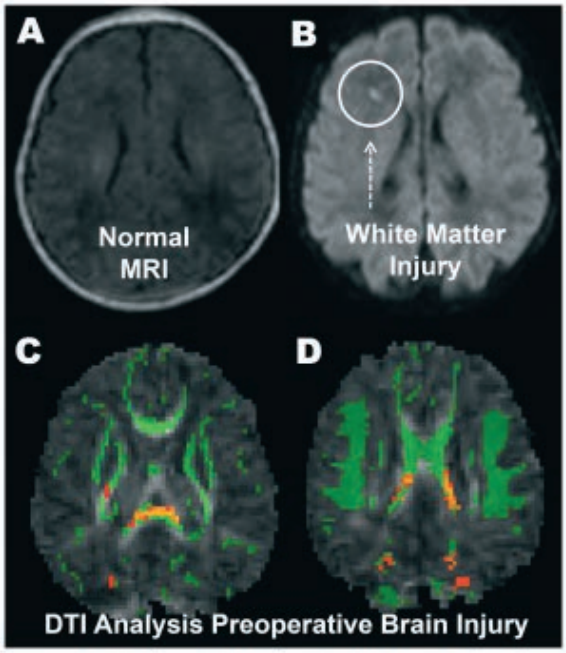


Figure Legend:
Preoperative Brain Injury in Newborns with Congenital Heart Disease.

A. Normal axial T1 conventional brain MRI from an infant with CHD.

B. Axial conventional brain MRI diffusion weighted image from an infant with CHD showing a 4mm area of restricted diffusion in the right frontal white matter (brain injury in circle).

C. and D. Diffusion tensor imaging (DTI) tract-based spatial statistics (TBSS) analysis reveals changes to major white matter tracts in infants with CHD and brain injury. Green = mean white matter tract regions from 19 infants with CHD; Orange-Red = areas with lower Fractional Anisotropy values ($P<0.05$) in infants with preoperative brain injury on conventional brain MRI (n = 10) vs. no brain injury (n = 9). This finding indicates that the injury observed with conventional brain MRI underestimates the extent of changes to the brain at a microstructural level.

Resources

Mulkey SB, et al. Multi-tiered analysis of brain injury in neonates with congenital heart disease.

Pediatr Cardiol 34:1772-84, 2013.

Mulkey SB, et al. White matter injury in newborns with congenital heart disease: a diffusion tensor imaging study. Pediatr Neurol 51:377-83, 2014.

Editor's Note: Dr. Sarah Mulkey is one of those effervescent clinician-scientists, whose compassion for her patients is exceeded only by her passion for science. At this year's Child Neurology Society Meeting, Dr. Mulkey will be presenting some of her research regarding brain growth and injury volume in newborns with HIE. For some excellent insight and a lively discussion, be sure to see her present in Platform Session 2, or stop by to view her two posters (#56 and #69).

CONNECTING WITH PARTNERS
Professors of Child Neurology

David Urion, MD
President, PCN

Dear Colleagues

By David K. Urion, M.D. | President, PCN | David.Urion@childrens.harvard.edu

I trust and hope the new residency year is off to a good start. We are all moving towards the residency recruitment phase of our year as well, and I wish us all the best of luck in finding great residents who are good matches for our varied programs in Child Neurology and Neurodevelopmental Disabilities.

This year, in order to save time at our annual meeting for educational purposes, we held the ballot by electronic mail. The membership elected Gary Clark as President-elect, Steve Leber as our new secretary-treasurer and Karen Keough as councilor. To all of them, for their willingness to work on behalf of training programs in child neurology and NDD, we owe an expression of our thanks. And, to those who also ran, Leslie Morrison, Tim Lotze and Pedro Weisleder, we also offer thanks for their willingness to be available on behalf of us all.

The membership also voted overwhelmingly to admit Program Coordinators into the PCN as associate members. I think this is both a recognition of the crucial role they play in all our programs, as well as a means of aligning our efforts on behalf of child neurology and NDD graduate medical education in a more efficient and effective way. We all look forward to them joining us at our meeting this year, and in years to come.

Finally, 17 programs expressed interest in utilizing the software developed by Greplytix as a means of measuring resident progress on the milestones. We will be moving in that direction, and also seeing what trends and connections we can see in collated and de-identified data.

In my last letter, I mentioned an intention to make the PCN meeting more geared towards education, and to co-ordinate it with the content of the Educational SIG meeting. A steering group has done that this year, and has put together a very exciting set of programs on Teaching Quality Improvement, Running Effective Clinical Competency Committees, Measuring the Less Obvious Milestones, and Approaches to Measuring Progress on the Milestones: Experiences from the Field. These will be distributed over those two meetings, and your feedback regarding this will be appreciated by everyone. In this era of rapid change, both the PCN and Educational SIG want to be of use to programs large and small for the particularities of measuring and reporting on Child Neurology and NDD training, as well as sharing educational initiatives and innovations that work.

Finally, I mentioned that many people have expressed puzzlement regarding our name and our mission. This led me to a larger consideration of our mission statement as well as our by-laws. These were all written in an era very different from the current one, and even the most recent revisions antedate the Next Accreditation System, Milestones, and all the current challenges programs face in terms of funding, hours limitations, and reporting. I think it is time to engage in a serious re-examination of our mission and our governance.

In the current climate, for example, should we be clearer regarding what we do, and have our name reflect more closely our identity as a group of individuals whose chief concern are academic training programs, and hence the future of the supply of child neurologists and NDD specialists for this century? Do our current terms of office serve us well? Do we need a longer serving board, given the duration of ongoing discussions with governing bodies such as the ACGME and ABPN? Does our dues structure accurately reflect the cost of our operations, and does it give us funds to engage in new initiatives that we might need?

In short, do our structure, foundational documents, and governance reflect the needs of academic programs in child neurology and NDD for this time in our evolution? I will be sending out a call for a task force to look at these issues, and report back in advance of our October 2016 meeting, to offer a look at our current state, and a vision for our future.

Thanks, as always, for your participation and devotion to the training of individuals in child neurology and NDD, and thus in the future of our disciplines.

CONNECTING WITH PARTNERS

2015 Child Neurology Match

The Results Are In

By Sidney M. Gospe, Jr., MD, PhD | Chair, Child Neurology Match Oversight Committee

The 2015 Child Neurology Match was completed on March 20, 2015 under the auspices of the National Resident Matching Program (NRMP). This is the fourth year that child neurology positions have been filled via the NRMP. Prior to 2012, the positions were filled via the San Francisco Match. The final match results, including positions filled by the Supplemental Offer and Acceptance Program (SOAP) are summarized below.

- **Categorical Child Neurology Programs (five year programs that include two years of general pediatrics); positions that begin June 2015**

  Sixty-three programs (61 in 2014) offered 104 categorical positions (92 in 2014) in the match. Of these positions, 95 were filled and nine (from nine programs) went unfilled. Seventy-three of the 95 slots were filled by U.S. seniors. Of the nine unfilled slots, seven were offered via the SOAP, and four were filled. Therefore, a total of 99 of 104 positions were filled (95%).

- **Advanced Three year Child Neurology Programs (applicants are required to match into a pediatrics program that is not necessarily linked to the child neurology program); positions that begin July 2017**

  Twenty programs (21 in 2014) offered 24 of these positions (28 in 2014) in the match. Of these positions, 17 were filled and seven (from seven programs) went unfilled. Seven of these 17 slots were filled by U.S. seniors. Of the seven unfilled slots, six were offered via the SOAP and three were filled. Therefore, a total of 20 of 24 positions were filled (83%).

- **Reserved Child Neurology Positions for either current pediatrics residents or other applicants with adequate preliminary training who would be eligible to start child neurology training in July 2015**

  Twenty-three programs (28 in 2014) offered 26 of these positions (35 in 2014) in the match. Of these positions, 14 were filled and 12 (from 12 programs) were unfilled. Of the 12 unfilled slots, seven were offered via SOAP and one was filled. Therefore, a total of 15 of 26 positions were filled (58%).

Child Neurology Program Summary

In summary, for child neurology positions where neurological training will begin in July 2017, there were 128 positions offered and 119 were filled (93%), and for reserved positions with neurological training beginning in July, 2015, 15 of 26 positions (58%) were filled. Currently, there are nine unfilled positions for neurological training that begins in July 2017. Programs would be able to offer these positions via the Reserved Match in 2017. Given the NRMP "all-in policy", these open positions are not to be offered or filled "outside of the match".

Positions for the Neurodevelopmental Disabilities (NDD) programs were also filled by the NRMP and are also summarized in three specific groups.

- **Categorical NDD Programs that begin June 2015**

  One program (two in 2014) offered one position and this was filled by a non-U.S. senior.

- **Advanced NDD programs not necessarily linked to a preliminary pediatrics program (applicants are required to match separately into a pediatrics program); positions that begin July 2017**
- Three programs (three in 2014) offered five positions (five in 2014) in the match. Of these positions, two were filled, one by a U.S. senior, and three (from two programs) were unfilled. Of the three unfilled slots, two were offered by SOAP and both were filled.

- **Reserved NDD Positions for either current pediatrics residents or other applicants with adequate preliminary training who would be eligible to start Child Neurology/NDD training in July 2015**
- Two programs (one in 2014) offered two positions (one in 2014) in the match. One position was filled by a non-U.S. senior.

NDD Program Summary

In summary, for NDD positions where neurological training will begin in July 2017, there were six positions offered and five were filled (83%), and for reserved positions with neurological training beginning in July, 2015, one of two positions was filled.

CONNECTING WITH PARTNERS

Child Neurology Residency & Fellowship Program Managers

Building on a Successful Launch

By Julie Campbell, C-TAGME | Terri Feist, BBA, C-TAGME | Julie LaBare, BS

As the role of the Program Manager/Coordinator continues its evolution, professional development and continuing education play an intricate role. The 2nd Annual Meeting of the Program Coordinators of Child Neurology (PCCN) will be held as part of the Special Interest Groups (SIG) sessions on Wednesday, October 7, 2015. At the time of this writing, current registration represents approximately 25% of child neurology program managers nationwide… already a growth of nearly 3% from that of our inaugural session!

The session is vigorously ramping up to provide ample opportunity for growth within the Child Neurology community of program managers. Key accreditation items on the agenda this year include the Annual Program Evaluation, as well as the Self-Study and Accreditation Site Visit.

Professional development is included on the agenda as well, with sessions focusing on project management, mentoring programs and TAGME certification scheduled. We are excited to announce the participation of several additional program managers as leaders for these sessions and look forward to an ever-growing population of coordinators willing to share their expertise.

We are planning an educational experience that will provide a foundation for increased personal success and the continued success of our Child Neurology programs. In an update provided by Dr. Urion, we have learned that the Professors of Child Neurology (PCN) membership voted to amend the bylaws to include Program Coordinators in a new category of associate members of the PCN. We look forward to this October meeting, and having future Program Coordinator meetings, aligned with the PCN!

Two New CME Courses Available for PCN Members

COURSE 1

(Following PCN Business Meeting; same room)
(2 Category I CME credits)

Wednesday, October 7
2:00 pm - 5:00 pm
Room: Cherry Blossom

Development and Implementation of Quality Improvement Curriculum for Child Neurology Residents
Organizer: Kiran Maski, MD – Boston Children's Hospital

- ***Improving Education and Implementing a Curriculum for the Child Neurology Rotation***
  Rujuta Bhatt, MD – UCLA Medical Center
- ***One Size Does not Fit All: Models of Clinical Competency Committees***
  Julie Parsons, MD – Children's Hospital Colorado

COURSE 2

(Education SIG Meeting)
(1.5 Category I CME credits)

Friday, October 9
5:00 pm - 6:30 pm Room: Annapolis 2

Greplytix Interactive Demonstration and Use
Organizer: David Urion, MD, FAAN – Boston Children's Hospital

Managing "Hard-to-Evaluate" Milestones in Child Neurology
Residency training Karen C. Keough, MD – Dell Children's Medical Center of Central Texas

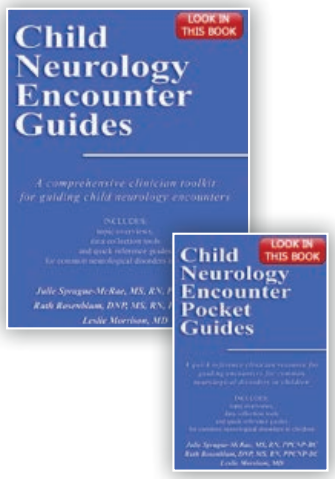
CONNECTING WITH PARTNERS
Association of Child Neurology Nurses

Kathy O'Hara, RN

Dear Colleagues

By Kathy O'Hara, RN | President ACNN

This has been another exciting year for ACNN. Our website continues to grow thanks to CNS and Maureen Sheehan, who has been spear-heading the project. This year's meeting will be informative and educational. Our keynote speaker will be Nancy Santilli. She will be speaking on "Pain Management in the Neurologically Impaired Child." The second edition of the *Child Neurology Encounter Guides* will be available for sale at our booth. Please come by and take a look. Last year we sold out but orders can be taken. The 8th Annual Run/Walk will be on Thursday October 8th at 5:00 PM. Please consider participating and/or donating to our only fund raising event. Please look on the website for further information on donating in advance. These funds provide important support for Nursing Research open to all ACNN members. Looking forward to meeting with you at the Gaylord in National Harbor.



Child Neurology Encounter Guides will be available at Gaylord!

During the upcoming CNS conference, we will have special discount pricing for the *Child Neurology Encounter Guides* (comprehensive or pocket edition). For those interested in an electronic format, the pocket guides can also be ordered as an Apple iBook.

The *Child Neurology Encounter Guides* can maximize a telephone or video conference encounter and the traditional office visit by offering a comprehensive approach promoting quality assessment and case or care management.

They also provide direction for initial educational training for nurses, advanced practice clinicians (NPs, PAs), medical students & residents. They are valuable for ongoing reference, quality management and electronic charting. When implemented in a private, managed care, or tertiary-level practice, they enhance patient evaluation and management efficiency, maximize the child neurology provider's time, and provide patients with access to "real-time" health care interventions.

The guides will be available for purchase at the Association of Child Neurology Nurses exhibit hall booth. If you cannot make it to the conference, ordering details for all editions can be found at http://www.childneurologysociety.org/acnn/books. All proceeds go to support scholarships for nurses attending future conferences and to cover project expenses.

A special thanks to all the nurses and child neurologists throughout the United States and Canada who collaborated on this project.

Julie Sprague-McRae, MS, RN, PPCNP-BC
Ruth Rosenblum, DNP, MS, RN, PPCNP-BC
Leslie Morrison, MD

ACNN
ASSOCIATION OF CHILD NEUROLOGY NURSES

Nancy Elling, RN

The 2015 Association of Child Neurology Nurses Claire Chee Nursing Excellence Award

NANCY ELLING, RN

PROFILE WRITTEN BY AMY VIERHILE, RN

Nancy Elling, RN is the recipient of the 2015 Association of Child Neurology Nurses Claire Chee Nursing Excellence Award. She is currently the clinical coordinator of the Neuroscience Programs at Children's National Medical Center in Washington, DC, where she has worked since 1999. Her duties include coordinating outpatient services in a variety of neurology clinics, including clinics for patients with tuberous sclerosis, new onset seizures, VNS devices, baclofen pumps, headaches, spasticity, myelin disorders and general neurologic diagnoses.

Ms. Elling was nominated for the award by Dr. Phillip Pearl, who worked with her for over 20 years. Dr. Pearl describes Nancy as possessing a "caring optimism for each and every child neurology patient and family." She is touted as having "unlimited energy and empathy" and has both created and run numerous programs at Children's National over the past 16 years.

The first ketogenic diet program in Fairfax Hospital was established with Dr. Pearl and Ms. Elling. She has also helped create the specialty clinics listed above. Dr. Pearl lists Nancy's primary focus as the Tuberous Sclerosis Clinic which she established at Walter Reed Army Medical Center and then Children's National. Nancy has been running quarterly Saturday morning clinics for years, at no charge to families, and she has managed to gather the services of numerous specialists from multiple disciplines while coordinating services for every family. She has continued this clinic for over 20 years. In addition, Nancy has organized the Children's National site of the Tuberous Sclerosis Alliance National History Database Project since 2007. She has served on the Research Council of the National Tuberous Sclerosis Association, National Board of Directors and Professional Advisory Board of the Tuberous Sclerosis Alliance, as well as on the Professional Advisory Board of the Epilepsy Foundation Association.

Nancy has been running quarterly Saturday morning clinics for years, at no charge to families

Nancy also has numerous certifications: as a Certified Neuroscience Nurse, Certified Pediatric Nurse, Certification in INOVA Chemotherapy and in INOVA ECG. She is instrumental in the education of nurses and medical students and is currently a member of the Association of Neuroscience Nurses, the American Headache Society, ACNN and the Tuberous Sclerosis Alliance. She also served as a member of the Tuberous Sclerosis National Clinic Committee in 2010. Nancy has acted as a Sub-Investigator on numerous research studies on topics ranging from obesity and childhood headaches to the use of a medication to treat Subependymal Giant Cell Astrocytomas associated with Tuberous Sclerosis Complex. She has also co-authored several publications.

The Association of Child Neurology Nurses is proud to honor Nancy for her dedication to the care of children with neurologic disorders. She is truly deserving of the Nursing Excellence Award and exemplifies all of the ideal qualities exhibited by Claire Chee, the RN for whom the award is named.

Regina Laine, CPNP

The Association of Child Neurology Nurses 2015 Nurse Practitioner Excellence Award

REGINA LAINE, CPNP

PROFILE WRITTEN BY AMY VIERHILE, RN

The Association of Child Neurology Nurses is pleased to honor Regina Laine with the 2015 Nurse Practitioner Excellence Award. Gina is a Pediatric Nurse Practitioner who has worked at Children's Hospital in Boston since 2007. She currently works in the Neurology Division in an urgent care clinic, and also has experience with procedures such as lumbar punctures, skin biopsies and baclofen pump refills.

Gina was nominated for the award by Dr. Maitreyi Mazumdar, a colleague at Boston Children's Hospital. Dr. Mazumdar describes Gina as "a remarkably gifted nurse who combines a caring approach with a skill she has fashioned in the art of the pediatric neurologic examination." Gina works diligently to expand her knowledge base and she worked closely with neurology administration to revamp the expedited access issue in child neurology. As a result of these changes, NPs are now performing lumbar punctures on sedated patients during MRIs and the process for managing those specimens following collection has been changed, which has resulted in reduced errors in handling and testing. Gina also played an active role in establishing the Brain Injury Center in 2011 and remains as a member of the steering committee. She has assisted in creating clinical algorithms for the concussion clinic which have resulted in shorter appointment wait times for patients and in the hiring of additional nurse practitioners to staff the concussion clinic.

Gina's proficiency and skill in examination and treatment has led even the most skeptical of physicians to recognize the importance of the nurse practitioner role in Child Neurology.

As a result of her efforts, Child Neurology patients who need to be seen urgently but not emergently are triaged by Gina and seen in an urgent care clinic. She sees each patient and works under the supervision of the attending physician on the consult service. Providing this service to the division has resulted in increased satisfaction on the part of both patients and Child Neurology physicians.

She has assisted in the training of nine nurse practitioners in Child Neurology and has ensured that all of them are fully trained in neurology. Gina seeks out educational opportunities whenever they arise and has been instrumental in planning and presenting educational offerings on caring for patients with traumatic brain injury. Gina has also precepted numerous nurse practitioner students over the past five years. She is the recipient of the Allen Cohen and Scott Pomeroy Neuroscience Nursing Award 2015 and received the Neurology "Round of Applause" in 2010.

Dr. Mazumdar noted that Gina's proficiency and skill in examination and treatment has led even the most skeptical of physicians to recognize the importance of the nurse practitioner role in Child Neurology. It is clear from Gina's dedication to her patients and institution that she is a role model for nurse practitioners and is very deserving of the ACNN 2015 Nurse Practitioner Excellence Award.

CONNECTING WITH PARTNERS
Child Neurology Foundation

W. Donald Shields, MD

Dear Friends

By W. Donald Shields, MD | President CNF

As I come to the end of my three-year term as President of the Child Neurology Foundation (CNF), I am reminded of the adage "may you live in interesting times." The last couple of years at CNF have been nothing if not "interesting." The adage can be interpreted as a curse or a blessing. For the CNF, it has been both. A curse because there have been significant challenges, and a blessing because this has provided an opportunity to make changes that allow CNF to be much more supportive of our Child Neurology colleagues, our patients and their families. One of my most important objectives when I became president was to improve the relationship between the Child Neurology Society and the Child Neurology Foundation. It seemed that was a competitive relationship rather than a cooperative one. It didn't make sense, since the CNS and the CNF are both comprised of child neurologists. Thanks to the efforts of CNS past President Steve Roach and current President Nina Schor, we now are working together collaboratively.

Ken Swaiman founded the CNF more than 14 years ago; and you would think that, by now, it would be clear to Child Neurology Society (CNS) members the role of CNF and how it differs from CNS. Unfortunately, confusion continues. While the CNS is the professional society of child neurologists and serves the education needs of its members, the CNF has a different role. The CNF Board of Directors (composed of child neurologists and other partners) held a full-day board meeting after the CNS meeting in Columbus. This gave us the opportunity to make certain that our mission and goals were complementary to the CNS, not competitive. As a result, we clarified our mission statement as follows:

Mission

To improve the lives of children with neurologic disorders by strengthening connections between patients and their families, physicians, other healthcare professionals, and advocacy and industry partners.

Vision

A world in which all children affected by neurologic disorders reach their full potential.

Over the last year, numerous changes have been made in the organization and activities of the CNF central office as well as the Board of Directors. For example, Amy Miller has been appointed the acting Executive Director and Stacia Grace, Director of Operations. Both have done a wonderful job of carrying out all of the activities of the central office. We could not have survived without them. In addition, the Board of Directors has been restructured from an "advisory Board" to a "working Board" and has been organized into committees to help direct the various activities of the Foundation. Thanks go to the members of the Board, all of whom have assumed the greater responsibility and time commitment to make this past year a success.

One important result of these efforts has been the development a new CNF web site. The web site has been completely revised under the direction of the web site committee. It is now more accessible to our members and provides a site where our patients and their families can get reliable information regarding the neurologic disorders they face. Ken Swaiman has generously offered his time and editorial skills. He has asked members of the CNS to provide disease-specific information written specifically for the lay community. The number of the disorders in this neurologic disorders section will expand as our members respond to the requests of Ken to write sections about their areas of expertise. I strongly recommend that CNS members visit the web site (www.childneurologyfoundation.org) and look at the "Disorder Directory" section and see how it can help their own patients and families.

I have been honored to serve as President of the CNF and will continue to serve as Past-President. Dr. Bill Tresher has been elected as the new President. I look forward to working with him and to seeing the progress of the Foundation as we all strive to serve the needs of our patients, families and our many Foundation partners.

Child Neurology FOUNDATION
Creating a Community of Support

CHILD NEUROLOGY FOUNDATION

Creating a Community of Support

Fact sheets, videos, infographics, workbooks vetted by child neurologists

$1000 mini grants

for patients and caregivers to help with the cost of therapies not covered by insurance

Association and Advocacy Conferences

FAMILIES FIRST

quarterly e-newsletter for caregivers

Child Neurology Conversations from the Provider, Parent, and Advocate Voice

Quarterly Webinar Series

Online Patient Education Portal

EXPERTS EXPLAIN

common child neurology diagnoses

Caregiver and Provider

ADVOCACY AWARDS

to recognize honorable contributions to the community

Child Neurology FOUNDATION

CREATING A COMMUNITY OF SUPPORT

Platform for communication, education, and promotion

Rx

Corporate Advisory Board members share information and clinical trial opportunities with patients and providers

$230,000+

RESEARCH GRANTS

awarded annually to members of the Child Neurology Society

TRANSITION CONSENSUS STATEMENT

Supporting the transition to adulthood

Community and family foundations use CNF as a vehicle to put their dollars toward research grants and the support of the community at large

$35,000

Annually in summer research scholarships for 10 medical students to explore the field

Technical Assistance

Direct and individualized to patients and caregivers who request help with locating providers, community resources, treatment information and peer support.

Child Neurology Foundation
201 Chicago Avenue #200 | Minneapolis, MN 55415
info@childneurologyfoundation.org
www.childneurologyfoundation.org

CONNECTING WITH PARTNERS
Child Neurology Foundation Grants

Audrey Brumback, MD, PhD

2015 Child Neurology Foundation PERF Grant Recipient

AUDREY BRUMBACK, MD, PHD

Dr. Brumback is currently a neuroscientist and pediatric neurologist at the University of California, San Francisco. She grew up in Norman, Oklahoma with her parents, Roger and Mary, and brothers, Darryl and Owen. Her first hands-on research experience was through the Sir Alexander Fleming Scholars summer internship program at the Oklahoma Medical Research Foundation in Oklahoma City, under the mentorship of Drs. Michael Dresser and John Harley. She earned her bachelor's degree in Biochemistry through the Dean's Scholars program at the University of Texas at Austin in 1999, under the guidance of Dr. Alan Cline. It was her senior research project with Dr. George Pollak that turned her on to the beauty and power of neurophysiology. She completed her MD and PhD at the University of Colorado Medical Scientist Training Program, under the mentorship of Dr. Kevin Staley, where she studied the basic science mechanisms underlying the depolarizing effect of GABA in the neonatal brain. She finished residency at UCSF in 2013 through the Neuroscience Pathway in Child Neurology. During her last year of residency and continuing since then, she has spent the majority of her time in the laboratory of Dr. Vikaas Sohal in the Center for Integrative Neuroscience, examining the cellular and circuit mechanisms of autism spectrum disorder. In addition to her research, Dr. Brumback treats patients in the Sensory, Neurodevelopment & Autism Program and general child neurology clinic at the UCSF Pediatric Brain Center, and is the child neurologist for "Katie's Clinic" for Rett Syndrome and Related Disorders at UCSF. As she transitions to being an independent investigator, she will focus her energy on studying the mechanisms of autism and other neurodevelopmental disorders at the level of cells, circuits, and behavior.

"The funding provided by the CNF PERF Grant will allow me to use state-of-the-art technologies like optogenetics to attack the most important questions in autism research head-on."

"Each year, we discover more and more genes associated with autism. But it's still not clear how changes in a person's genes cause them to have challenges in social communication. The focus of my work is to determine how different genetic changes associated with autism cause changes in the brain's circuitry, and how those changes in brain circuitry cause the core symptoms of autism. By understanding how brain regions 'talk' to each other in the normal and diseased brain, we will be able to develop novel therapies for difficult-to-treat neurodevelopmental disorders like autism."

"As I transition from trainee to independent investigator, the funding provided by the CNF PERF grant will allow me to use state-of-the-art technologies like optogenetics to attack the most important questions in autism research head-on."

— Dr. Brumback

Patricia Musolino, MD, PhD

2015 Child Neurology Foundation Shields Grant Recipient

PATRICIA MUSOLINO, MD, PHD

Patricia Musolino MD, PhD is a board-certified child and neurocritical care neurologist at the Massachusetts General Hospital (MGH), and instructor in neurology at Harvard Medical School (HMS). A former Harvard Partners Neurology residency graduate, she stayed at MGH for neurocritical care fellowship and is currently junior faculty in the divisions of Neurocritical Care, Stroke and Child Neurology. She cares for patients in the Neuroscience Intensive Care Unit, the Emergency Department and the Pediatric Cerebrovascular Service. The overall goal of her career as a clinican scientist is to serve patients affected by inherited vascular and inflammatory diseases of the brain by furthering research and clinical trials. Dr. Musolino's training in neuroanatomy and molecular neuroscience started during her MD and PhD years in Argentina, and continued during her post-doctoral training at HMS as a scholar of the NINDS R25 and currently K12 Pediatric Neurology Physician Scientist Program. Dr. Musolino's translational and clinical research explores the relationship of mutant genes to specific biochemical defects and their contribution to neurodegeneration. More specifically, her research focus is upon understanding the permeability of brain endothelium to inflammatory cells. Using advanced imaging and gene-threrapy techniques, she is able to extend these insights to patients. Dr. Musolino is currently exploring new therapeutic targets that ameliorate endothelial dysfunction in X-linked Adrenoluekodystrophy, a devastating disease of the brain that affects mostly young children.

The support provided by the CNF Shields Grant will allow Dr. Musolino to study how the gene defect changes brain vessel permeability allowing access of inflammatory cells to the brain using imaging in patients and laboratory tools at the bench.

Cerebral Adrenoleukodystrophy (CALD) is an inherited devastating disease where inflammatory cells infiltrate the brain and cause progressive degeneration that leads to vegetative state or death in months to years. Unfortunately, current therapies either fail to prevent cerebral disease or carry high toxicity and mortality. The support provided by the CNF Shields Grant will allow Dr. Musolino to study how the gene defect changes brain vessel permeability allowing access of inflammatory cells to the brain using imaging in patients and laboratory tools at the bench. More specifically Dr. Musolino will probe the effect of the gene (ABCD1) deficiency upon blood brain barrier integrity at both the tissue and molecular level by 1) Applying new MRI technique to determine if changes in permeability occur prior to lesion progression in patients with CALD (Aim 1) and; 2) Evaluating in-vitro the effects of lack of ABCD1 upon the barrier function of human brain endothelial cells (Aim 2).

If validated by this study, Dr. Musolino's approach sets forth a successful strategy to: 1) identify which patients are at risk of developing cerebral disease; 2) monitor and improve current treatments and; 3) develop an assay to screen for novel therapeutic targets. Results obtained will also help Dr. Musolino prepare future clinical research studies as well as an application to an NINDS Exploratory Trials R01. Her passion for patient care and commitment to rigorous science ensures that her research will embrace new ideas and technologies in a highly interdisciplinary environment.

Mark Your Calendars and Set Your "Inner GPS" for 4 Key Networking Events at this Year's CNS Annual Meeting

1 Welcome Reception

First time ever in the Exhibit & Poster Hall
Wednesday | 6:00 - 8:00 pm | Exhibit Hall A

- Greet newly arrived friends
- Preview posters
- Stop by Exhibit Booths
- Recap the day's NDC, PCN and ACNN meetings
- Get a jump on filling out your Passport for Friday & Saturday prize drawings

Children's National

Financial support provided by Children's National Health System

2

Child Neuro Nightcap: A Tribute to Jack Pellock

Child Neuro Nightcap | A tribute to Jack Pellock
Wednesday | 8:00 - 9:30 pm
(immediately following Welcome Reception)
Cherry Blossom Room
(ballroom level, overlooking the atrium)

The Child Neurology Society & The Child Neurology Foundation invite you to join them in recognizing Jack Pellock's ongoing legacy enriching resident education and training through three decades of pre-CNS Annual Meeting symposia

3 Continental Breakfast

Pastries, Posters & "Eggshibits" (Oh my!)
First Breakfast Poster Review Ever
Friday | 7:00 - 8:15 am
Exhibit Hall A

- Presenting authors required to stand by posters for interaction
- Exhibit booths open 7:00 am - 2:30 pm
- Great opportunity to complete Passport

Texas Children's Hospital

Financial support provided by Texas Children's Hospital

4 Friday Gala Reception

Outside on the Plaza
Overlooking the Potomac
7:00 pm - 10:00 pm

44th CNS Annual Meeting

October 7-10

Gaylord National Resort & Convention Center
National Harbor, MD | outside of Washington, DC

Child Neurology Society

Minnesota Medical Association

CNS Awards Committee Update

The Child Neurology Society will recognize six members at the 44th Annual CNS Meeting in National Harbor, MD with the presentation on the following awards:

By Nigel Bamford, MD | Chair, CNS Awards Committee

CNS Lifetime Achievement Awards

Presented to Patricia K. Crumrine, MD
Thursday morning, October 8
Introduction by Ann Tilton, MD

Presented to Suresh Kotagal, MD
Thursday morning, October 8
Introduction by Marc Patterson, MD

CNS Philip R. Dodge Young Investigator Award

Presented to Jimmy Holder, Jr, MD, PhD
(with lecture to follow)
Friday morning, October 9
Introduction by Huda Zoghbi, MD, PhD

CNS Bernard Sachs Award

Presented to Harry T. Chugani, MD
(with lecture to follow)
Friday morning, October 9
Introduction by Michael Johnston, MD

The Arnold P. Gold Foundation Humanism in Medicine Award at the Child Neurology Society

Presented to Robert Zeller, MD
Friday morning, October 9
Introduction by Gary Clark, MD

CNS Hower Award

Presented to E. Steve Roach, MD
(with lecture to follow)
Saturday morning, October 10
Introduction by Pedro Weisleder, MD, PhD

Those honored were selected by the CNS Awards Committee and subsequently approved by the CNS Executive Committee. The CNS Awards Committee is composed of nine standing members plus chair (4-year terms) and three Young Investigator Awardee members (3-year terms). The committee membership draws from a breadth and depth of seniority and experience in pediatric neurology, and the constant influx of the prior three Young Investigator Awardees provide a fresh outlook each year.

The Awards Committee meets at the CNS Annual Meeting to consider nominations for the following year's Sachs, Hower, Lifetime Achievement, and Gold Humanism in Medicine Awards submitted by members of the Child Neurology Society. All CNS members are encouraged to submit nominations (the deadline for submitting nominations for 2015 awards was September 15). Application deadline for the 2016 CNS Philip R. Dodge Young Investigator Award is April 1, 2016.

Profiles of this year's award recipients, featured on pages 22 - 36 and on display in the registration foyer, were written by Drs. Robert S. Rust, Phillip Pearl, James Brenton, and Anup Patel.

Other Awards to be given at

44th CNS Annual Meeting

ACNN Claire Chee Excellence in Child Neurology Nursing Award
Presented to Nancy Elling, RN
at ACNN Meeting on Thursday, October 8;
announced at CNS Meeting on Friday, October 9

ACNN Nurse Practioner Award
Presented to Regina Laine, CPNP
at ACNN Meeting on Thursday, October 8;
announced at CNS Meeting on Friday, October 9

Bernard J. D'Souza International Fellowship Award
Presented to Edward Kija, MD
on Thursday, October 8
Introduction by Jorge Vidaurre, MD, Chair, CNS International Affairs Committee

Blue Bird Circle Training Program Director Award
Presented to Robert S. Rust, MD, MA
on Friday, October 9
Introduction by Philip L. Pearl, MD

CNS Bhuwan Garg High School Neuroscience Award
Presented to Amrita Mohanty
on Friday, October 9

CNS Outstanding Junior Member Awards
Presented on Friday, October 9
- **Robert Blake, MD**
  Cincinnati Children's Hospital Medical Center
- **Dana Marafie, MD**
  Texas Children's Hospital
- **Davut Pehlivan, MD**
  Texas Children's Hospital
- **Siddarth Srivastava, MD**
  Kennedy Krieger Institute

M. Richard Koenigsberger Scholarship
Presented on Friday, October 9
Vincent Carson, MD
Pittsburgh Children's Hospital

AAP Section on Neurology Travel Scholarship Award
Presented on Friday, October 9
Jennifer Jaskiewicz, DO
Walter Reed Military Medical Center

Child Neurology Foundation Grants
Presented on Friday, October 9
- **PERF Grant:**
  Audrey Brumback, MD, PhD
  University of California-San Francisco
- **Shields Grant:**
  Patricia Musolino, MD, PhD
  Massachusetts General Hospital

The Pediatric Epilepsy Research Foundation is proud to announce the winner of the 2015 PERF Grant for Clinical/Translational Research, Dr. Yu Wang of the University of Michigan for his project entitled "Mechanistic Studies and Therapy Development for Epileptic Encephalopathies".

We have two winners for the 2015 PERF Grant for Infrastructure/Registry Research. The first to Dr. Tobias Loddenkemper of Boston Children's Hospital for his project entitled "Pediatric Epilepticus Research Group (pSERG)" and to Dr. Christine Fox of the University of California-San Francisco for her project "Seizures in Pediatric Stroke II (SIPS II)".

Have a project proposal you think might qualify for the 2016 award?
This competitive grant is offered yearly by PERF. Letters of intent for the 2016 grant cycle are due December 1, 2015. For more information, click www.pediatricepilepsyresearchfoundation.org

CNS Lifetime Achievement Award

Patricia K. Crumrine, MD

Presented
Thursday, October 8

PATRICIA K. CRUMRINE, MD

PROFILE WRITTEN BY ROBERT S. RUST, MD, MA

Pat Crumrine was born in Marion, Ohio. She attended Marietta College, graduating with a BS. in biology in 1964. She obtained her MD in 1968 from the Medical College of Pennsylvania, followed by internship and residency in pediatrics at the Cleveland Metropolitan Hospital/Hospital of Western Reserve, under he direction of Robert Schwartz, MD. She trained in child neurology in the Columbia Presbyterian program (1971-1974) under the direction of Sid Carter. Her first faculty appointment was in Ray Chun's program at the University of Wisconsin, during which time she also served in the Department of Neuroscience at the Gunderson Clinic. In 1975, she joined the faculty of the University of Pittsburgh, assuming at that time, in addition to her other duties, Directorship of EEG and of the Pediatric Medical Epilepsy program, leadership roles that she continues to fulfill. In 1984, she joined the Consulting Staff of the Children's Institute of Pittsburgh. She was awarded a Professorship in Pediatrics in 1997.

Dr. Crumrine's commitment as a highly respected teacher has included two decades of participation in Pittsburgh's medical student physical diagnosis courses for both pediatrics and neurology. For 25 years, she participated in teaching neuroscience to medical students. She has served diligently on various university committees, especially as related to ambulatory or intensive care. Throughout her career she has played a major role in the teaching conferences provided to neurology and pediatrics residents, and the teaching of EEG interpretation to neurology residents and epilepsy fellows, as well as EEG technicians. In 2006, she was appointed Director of the University of Pittsburgh's Child Neurology Residency Program.

Dr. Crumrine has published 44 excellent peer reviewed papers. Where the majority of peer-reviewed medical and scientific papers in the literature are never cited, two-thirds of Dr. Crumrine's have been well cited, presumably reflecting her choice of difficult etiologic and therapeutic problems for study. Two have been cited more than 100 times, one concerning neonatal convulsions, while another explores the relationship between phenobarbital treatment and major depressive disorders epileptic adolescents. Other highly cited papers concern the etiologic role of Toxicara infection in childhood epilepsy, EEG abnormalities in children with diabetic ketosis, principles of treatment of neonatal seizures, the effect of puberty on the course of epilepsy, epileptic nystagmus, localization of extratemporal epileptic foci with ictal FDG PET, the ketogenic diet, Lennox-Gastaut syndrome,, and oculomotor disturbances associated with pediatric epilepsy. She has published 22 chapters in first-line journals or texbooks.

Dr. Crumrine's research activities started at the Brookhaven National Laboratory in 1963, with studies as Project Director of the effect of radioactive fallout on residents of the Marshall Islands. Related studies ensued at the Hematologic Institute in Freiburg, Germany. Dr. Crumrine has participated in 18 grant-supported studies of the efficacy and side–effects of anticonvulsant drugs, and in three NIH-sponsored studies of anti-seizure drug pharmacokinetics, nature and treatment of absence seizures, and the Epilepsy Genome Project. Four individuals that have participated in Dr. Crumrine's research projects have gone on to enter careers in either in medicine or collegiate education.

Throughout her career, Dr. Crumrine has participated generously to the programs and activities of academic societies. A Charter Member of the CNS, she later served as a member of the Membership and Nominating Committees, Newsletter Editor, Councillor for the Northeast, and Secretary-Treasurer. She has also served as Secretary-Treasurer of the Child Neurology Foundation. Dr. Crumrine has served as a member of the Board of Directors of the ABPN since 2006, Chair of the Board since 2013. From 2007-2014 she served as a member of the

Neurology RRC of the ACGME, including service as Vice-Chair 2009-2010. She has been Liaison of the Neurology RRC to the United Council of Neurology Subspecialties. From 2010-2013 she served as Chair of the Neurology RRC and as Councillor of the Section of Child Neurology of the AAN. Other service to the AAN has included, since 2014, membership on the Task Force for Neurologist Burnout, the Research Committee, and the Member Retention Committee. From 2010-2014 Dr. Crumrine served as Liaison of the Neurology RRC to the United Council of Neurology Subspecialties. Dr. Crumrine has been member and subsequently Chair of the Executive Committee of the Section on Child Neurology of the AAP. For the EFA she has served as member of eight committees, including the Ad Hoc Committee on Women's Health Issues, Chair of the Committee on Public and Client Information, the Professional Advisory Board. She has chaired key committees of the AES, American EEG Society, Central EEG Society, Pittsburgh Neuroscience Society, and, since 2011, the American Neurological Association. She served regularly as an Examiner for the ABPB for the past three decades and on the Board of Directors of the Epilepsy Foundation of Western Pennsylvania for over four decades. She has served on numerous editorial boards, including the *Journal of Child Neurology, Pediatric Update, Pediatrics in Review.*

Dr. Crumrine's high regard among her peers is evident in her more than 100 invited lectureships, visiting professorships or preceptorships in locales ranging from Pittsburgh to Poland. These have involved a wide variety of subjects, with natural predominance in her primary interest in epilepsy. Dr. Crumrine's honors have included the Community Service Award of United Way of Pittsburgh, serial inclusion in Best Doctors lists, and the Life-Time Achievement Award of Drexel University SOM Alumni Association. She has been a member of the Board of Directors of the Easter Seal Society.

Longtime colleague and friend, Nina Schor describes Dr. Crumrine as "a true unsung hero of child neurology—the person whom everyone depends upon to get the job done in the professional, training, public and advocacy areas, knowing the job will be done superbly without fanfare or fuss." Dr. Schor notes that the plethora of activities Dr. Crumrine has chosen to undertake have uniformly involved those organizations "that stand up for what is right and good for children with neurological disorders, particularly those with epilepsy."

"a true unsung hero of child neurology – the person whom everyone depends upon to get the job done....knowing the job will be done superbly without fanfare or fuss."

Dr. Crumrine's young colleague in Pittsburgh, Robert Safier, emphasizes her collegial encouragement and support for those she encounters and the manner in which her "dedication to her patients does not seem to end." This caring devotion carries on past the childhood of her patients. Similar attention, he has found, is devoted to students and residents, even as they advance in faculty status. She can be counted on to quietly observe those in training while they take histories and examine patients, reserving her gentle and highly valuable suggestions for improvement only after the visit has ended. It seems that such an approach has been taken throughout her career as Dr. Crumrine has observed the professional activities of the many societies and boards of which she has been a member. Throughout her entire career, across the full spectrum of practice and professional settings, Dr. Crumrine's gently proffered insights have unremittingly resulted in the improvement of what we child neurologists do and how we do it.

CNS Lifetime Achievement Award

Suresh Kotagal, MD
Presented
Thursday, October 8

SURESH KOTAGAL, MD

PROFILE WRITTEN BY ROBERT S. RUST, MD, MA

Suresh Kotagal was born in India, where he completed seven years studying medicine and neurology. Two years of training in pediatrics at the Children's Hospital of Michigan followed. Dr. Kotagal completed his fellowship in child neurology at St. Louis University in 1979, whereupon he was appointed to the faculty. In 1992, he founded the SLU Pediatric Sleep Disorders Program. He was to remain at SLU for two decades, rising to the rank of Professor of Pediatrics and of Psychiatry in 1996. Named Interim Director of the Pediatric Neurology Program at SLU in 1980, he became Training Director in 1983, serving in that position for 16 years. For ten years he also served as Director of the Child Neurology Clerkship and as a member of a large number of SLU's administrative committees. While at SLU, he completed Fellowships in sleep disorders (Stanford, with ensuing board certification) and epilepsy (Bowman-Gray).

Dr. Kotagal's participation in the CNS started in 1978. He organized a CNS Breakfast Symposium on sleep disorders in 2002. In 2011, he was elected to the CNS Board as Councillor for the Midwest Region. He has also served on the Legislative Affairs and International Affairs Committees, serving as Chair of the latter. Elected to the Professors of Child Neurology in 1984, he became Secretary-Treasurer in 2011. Dr. Kotagal served as an Examiner for the ABPN (1989-2008). Dr. Kotagal has served as Director of a number of AAN Annual Meeting Courses, twice as Director of the Neonatal Neurology course. He became a Fellow of the American Academy of Sleep Medicine in 1992, serving on the Program and Nosology Committees and the Task Force for establishment of Practice Guidelines for Pediatric Polysomnography, chairing that committee since 2010.

In 2002 Dr. Kotagal joined the Mayo Clinic in Rochester, where he has served not only as a Consultant in Medicine and Neurology, but also in Pulmonary and Critical Care Medicine. He served as Chair of the Mayo Clinic Division of Child and Adolescent Neurology for seven years. Since 2005, he has held a joint appointment in the Mayo Division of Pulmonary and Critical Care. Dr. He is also a member of the Pediatric Working Group on the International Classification of Sleep Disorders. In 2010 he was appointed to the Panel on Neurologic Devices of the Food and Drug Administration. Dr. Kotagal has served in various Editorial capacities for six major journals and as a reviewer for sixteen.

Dr. Kotagal's 75 peer-reviewed papers have garnered a total of 1,495 citations to date. Among the most highly cited are papers concerning characterization of sleep disturbances in children with autism spectrum disorder, or those with severe forms of cerebral palsy, psychiatric and other characteristics of children and adolescents with restless legs syndrome, childhood parasomnias, autonomic variations observed during sleep, cardiovascular disturbances associated with obstructive sleep apnea, pre-teen narcolepsy, and the development narcolepsy-cataplexy after H1Ni encephalitis. Dr. Kotagal has published 36 book chapters on topics that include normal developmental changes in sleep; the relationship of sleep and sleep disorders to a wide variety of inherited and acquired neurodevelopmental, psychiatric, movement, intellectual, infectious, and other disorders to obstructive apnea, narcolepsy, hypersomnia; and various autonomic disturbances, such as postural orthostatic tachycardia syndrome. In addition to the basic, structural understanding

of sleep and rare disorders he has imparted to his colleagues,he has taught us as well about the relationship of the investigation and treatment of sleep disturbances to such common things as epilepsy, headache, the neonatal, childhood, and subsequent stages of life. He has published two superb books that consider in detail the nature of sleep in a broad variety of childhood neurological disorders, and another that reviews the characteristics and classification of sleep disorders. In each of these one immediately recognizes the skillful guidance that a master hand may exert in patiently and systematically enlightening us as to the nature, importance, and organization of his subject.

Dr. Kotagal's capacity and willingness to serve as a mentor has been embraced by fourteen individuals. He has served as a Visiting Professor at fourteen Universities and has delivered 115 invited lectures at national or regional meetings. Chief among his many important contributions has been the leadership he has exerted in the very establishment of pediatric sleep disorders programs; his many contributions to the descriptions of sleep abnormalities in children and their association with a wide variety of other neurological processes, particularly periodic limb movements in sleep; and his demonstration that auditory evoked potentials represent an important element in the management of bacterial meningitis. His advocacy of that approach has made this practice a part of the standard of care or children with bacterial meningitis.

Dr. Kotagal's teaching prowess has been widely noted throughout his tenure in St. Louis and at the Mayo Clinic, including four Excellence in Teaching Awards at the Mayo Clinic, as well as a separate award as an Outstanding Course Director.

Dr. Kotagal's teaching prowess has been widely noted throughout his tenure in St. Louis and at the Mayo Clinic, including four Excellence in Teaching Awards at the Mayo Clinic, as well as a separate award as an Outstanding Course Director. In 2013 he received the Excellence in Education Award of the American Academy of Sleep Medicine. In 2014, he was named Pediatric Clinician of the Year by the Department of Pediatric and Adolescent Medicine of the Mayo Clinic. The impact of Dr. Kotagal on those he has trained, his colleagues, his associates in a wide variety of settings ranging from regional to international has been remarkable. The depth of his knowledge, based on keen observation, his exceptional intellectual organization and keen desire to refine and elucidate every aspect of the mechanisms, effects, and amelioration of the broad range of sleep disorders that he has encountered has made of him a treasure to all the rest of us. Dr. Kotagal has shown us that in whatever areas of neurology we may have chosen to study and practice, we may encounter associated disturbances of sleep in quite a few of them. Dr. Kotagal has demonstrated the manner in which our systematic approach to recognition, diagnosis, and treatment of such problems may enable us to enhance our capacity to serve the needs of our patients and their families. He has also provided his students, residents, and colleagues throughout the world with a superb example of the capacities and character that constitute a model physician and teacher.

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CNS Philip R. Dodge Young Investigator Award

Jimmy Holder, MD, PhD

Presented
Friday, October 9

JIMMY HOLDER, MD, PHD

PROFILE WRITTEN BY J. NICHOLAS BRENTON, MD

Jimmy Holder MD, PhD has the distinct honor of recognition with this year's Philip R. Dodge Young Investigator Award. This well-deserving scientist began his training at the Johns Hopkins University, where he obtained his bachelor's degree in biologic studies. Here, Dr. Holder first became exposed to and enthralled by the scientific aspects of molecular biology. Dr. Holder was consistently on the Dean's list throughout all four years of undergraduate study and Hopkins, and he was awarded the Provost's Award for Research and Excellence midway through his undergraduate course.

After graduating from Hopkins, he was accepted into the University of Texas Southwestern's MD/PhD graduate program. Under the guidance of scientific mentor, Dr. Andrew Zinn, Dr. Holder honed his skills in molecular biology and cell culture and was introduced to the techniques of mouse modeling in human disease. During his time as a graduate student, he identified a novel obesity gene, SIM1, in a child that had early-onset, profound obesity. By utilizing a mouse model, he was able to demonstrate that over-expression of SIM1 protects against diet-induced obesity via gene-regulated actions upon the central melanocortin system. The initial results of his findings were published in Human Molecular Genetics with his co-author and mentor, Dr. Zinn.

Following graduation from UT Southwestern, Dr. Holder pursued a post-doctoral fellowship in neurogenetics at the University of California, San Francisco. Under the mentorship of Dr. Louis Ptacek, Dr. Holder enhanced his knowledge analyzing rodent behaviors to model human neurologic diseases. He accomplished this by performing research relating to the role of a putative circadian rhythm gene in sleep homeostatsis within the mouse model. The results of his study yielded a publication in Science in 2009. Dr. Holder successfully completed his post-doctoral training in 2007; yet, this training at UCSF left him with a recognized need for hands-on clinical training in attempts to inform and guide his future research endeavors.

From 2007 to 2012, Dr. Holder trained as a child neurology resident at the Baylor College of Medicine in Houston, Texas. With this training, Dr. Holder gained a deeper appreciation and understanding for the breadth of neurologic disease in children. His ABPN Certification in Neurology/Child Neurology was conferred in 2013. During his time in residency training, Dr. Holder first encountered a child with an autism spectrum disorder, known as Phelan-McDermid syndrome. Caused by a loss of function mutation in the SHANK3 gene, this clinical entity enthralled Dr. Holder, leading him to question the underlying neuronal and circuitry mechanisms of neurodevelopmental disorders through the detailed study of the SHANK3 gene. As a result of this interesting case and his deeper interest in the underlying genetics, Dr. Holder began to work under the guidance of mentor, Dr. Huda Zoghbi, to determine if overexpression of SHANK3 could result in neurodevelopmental abnormalities. Sure enough, Dr. Holder discovered that mice that overexpress SHANK3 have behavioral abnormalities in addition to epilepsy, the results of which were published in Nature in 2013.

Given his contributions to the understanding of Phelan-McDermind Syndrome, Dr. Holder has been invited to give both lectures and platform presentations on the topic at various venues, including the annual meetings of the Child Neurology Society and the American Academy of Neurology.

Given his exciting new collaborations with Dr. Zoghbi, Dr. Holder returned to the world of translational research at the Jan and Dan Duncan Neurological Research Institute upon finishing his residency training. It is here that he currently holds the title of Assistant Professor in the Departments of Pediatrics at Baylor College of Medicine. As faculty at Baylor, Dr. Holder has established a SHANKopathy clinic in order to provide care for children demonstrating both loss and gain of function mutations within this gene. In addition, he has been successfully funded by the Thrasher Research Fund Early Career Award as a primary investigator to study and characterize the phenotypes of individuals with SHANK3 duplications. As one already notes, Dr. Holder has made significant, early-career contributions to the field of neurodevelopmental disorders exhibiting a genetic basis. His future work seems certain to yield similar, if not greater, advancements in the growing field of neurogenetics.

CHILD NEUROLOGY –
The Next Generation has Arrived

AWARD PRESENTATIONS
Friday, October 9, 10:30 - 11:00 AM

This year marks the 20th year in which the CNS recognized the promising work being done by its Junior Members in training with the presentation of four Outstanding Junior Member Awards. Past winners have gone on to assume leading roles in the child neurology community; three have subsequently been awarded the Philip R. Dodge Young Investigator Award, two have gone on to chair the annual meeting Scientific Program Committee, two have been elected to serve on the CNS Board of Directors, and many others have played key roles on committees and special interest groups. Profiles of past Outstanding Junior Members will be presented in the coming year in CNS Connections and as podcasts on the CNS website. In the meantime, take advantage of the opportunity this year's meeting offers to appreciate the work presented and maybe get something more about this year's winners...and the coming years' leaders.

CNS Outstanding Junior Member Awards

Robert Blake, MD
Cincinnati Children's Hospital Medical Center

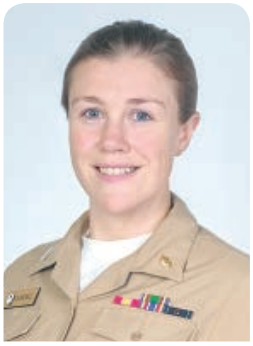
Dana Marafie, MD
Texas Children's Hospital

Davut Pehlivan, MD
Texas Children's Hospital

SIddharth Srivastava, MD
Kennedy Krieger Institute

More than 35 medical students will be attending this year's meeting, and over 125 residents in training, the majority of whom will be presenting posters in the Exhibit Hall during two or more review sessions. Included among these newly minted neuroscientists is the first-ever recipient of the AAP Section on Neurology Trainee Travel Award and third recipient of the M. Richard Koenigsberger Scholarship. Other young neuroscientists of note worth seeking out are this year's Bhuwan Garg High School Neuroscience Awardee, Amrita Mohanty, and the Bernard D'Souza International Fellowship Awardee, from Tanzania, Dr. Edward Kija.

AAP Section on Neurology Trainee Travel Award

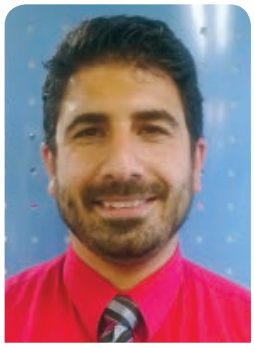


Jennifer Jaskiewicz, DO
Walter Reed National Military Medical Center

Bhuwan Garg High School Neuroscience Award

Amrita Mohanty
Woodbury, MN

M. Richard Koenigsberger Scholarship

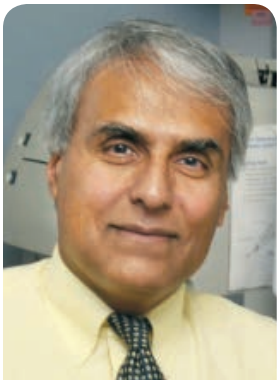


Vincent Carson, MD
Pittsburgh Children's Hospital

Bernard D'Souza International Fellowship Award

Edward Kija, MD
Tanzania

CNS Bernard Sachs Award



Harry T. Chugani, MD

Presented
Friday, October 9

HARRY T. CHUGANI, MD

PROFILE WRITTEN BY ROBERT S. RUST, MD, MA

Harry Chugani was born and raised in Hong Kong, where he graduated from St. Joseph's College High School in 1968. In 1972 he graduated magna cum laude from La Salle College in Philadelphia. He attended Georgetown University School of Medicine, graduating in 1976. He was first attracted to neuroscience while in medical school, with particular interest in clinical neurology. Two individuals were particularly important in cultivating his interest in both scientific and clinical aspects of neurology: Dr. Charles Kennedy, at Georgetown, one of the most influential founders of modern child neurology, played a critical role in arousing Dr. Chugani's interest in clinical neurology and the importance of establishing a scientific basis for diagnosis and practice. Whether the fact that both Dr. Kennedy and the future Dr. Chugani were (and remain) devoted pianists played a role in that influence is an interesting question. It is clear that Kennedy was also a kindred spirit with regard to exciting and supervising Dr. Chugani's development as a bench neuroscientist.

The second formative influence was the late Louis Sokoloff, of the National Institutes of Health. Sokoloff's dissatisfaction with the Freudian principles of basing diagnosis and treatment upon presumptions concerning historical features disclosed at the bedside led him to find a place at the cerebral metabolic section of the Neurochemistry Division of the NIH. There, he worked at establishing a method that might trace the state of brain chemical activity in order to discover functional disturbances of brain energy metabolism that might then account for psychiatric and, what he regarded as, other neurological diseases. Dr. Chugani's years of medical school and neurology training in Georgetown corresponded exactly with the years during which he succeeded in proving that it was possible to monitor regional cerebral function as represented in cerebral energy metabolism.

Dr. Chugani's training in PET scanning was provided by John Mazzioti. Other individuals who played a role in equipping Dr. Chugani with the skills required to serve the needs of his wide-ranging goals as physiologist and physician were epileptologists, Tom Babb and Robert Ackerman. Important as other individuals proved to be in Dr. Chugani's professional career and personal life, none have played a more formative and rewarding role than that played by his wife, the gifted neuropharmacologist and neurochemist, Diane Chugani. During the course of his career to date, Harry Chugani has published 491 original papers (and two books), while Diane Chugani has published 241 original papers; many, but not all, of the papers authored by each are shared contributions. Foremost of all of their many shared accomplishments is their conscientious nurturance of two remarkable children.

Dr. Chugani's initial academic appointment carried him to UCLA for 12 years, where he received additional training in Nuclear Medicine. This brought him into contact with Michel Philippart, who shared with Dr. Chugani his breadth of knowledge concerning metabolic and degenerative diseases of the central nervous system. In 1993, the Chugani's moved to the Children's Hospital of Michigan/Wayne State University in Detroit where, in addition to the remarkable series of scientific investigations he and his wife undertook, he remained an active practitioner and teacher of child neurology. There is insufficient space in this "brief career summary" to recount the almost countless services that Harry Chugani has provided to a large number of international societies and journals as officer, organizer, and reviewer, not to mention his abundant contributions

of superb review papers. Nor is there space for the long list of honorary lectures delivered and additional honors and awards received, or the many occasions on which Harry Chugani has been called upon to offer wise counsel concerning neurological healthcare needs to healthcare institutes, policy boards, and state and federal government agencies.

Insofar as the scientific aspects of the not infrequently shared scientific undertakings of the Chugani's are concerned, it is worth noting that while the overwhelming majority of all scientific papers are never cited, 24 of the Chugani papers have been cited 50-100 times. These papers concern a wide variety of brain lesions, particularly those causing various forms of epilepsy, metabolic diseases, migraine, language, autism, and normal aspects of brain metabolic maturation. Fifteen have been cited 100-400 times, concerning particularly various forms of epilepsy at various developmental ages, various surgical approaches to alleviation of epilepsy, imaging of surgical lesions, maturational and regional changes in energy metabolism, autism and other developmental disturbances. The most highly cited paper (920 citations!) concerns distillation of the complex principles of the study of functional brain development that may be undertaken with FDG PET methods. Overall , the 541 papers that Harry Chugani has co-authored, chiefly as the senior author, have been cited (as of the date of this career summary) 10,845 times!

Overall, the 541 papers that Harry Chugani has co-authored, chiefly as the senior author, have been cited (as of the date of this career summary) 10,845 times!

More could be said about the many quiet ways in which Dr. Chugani has sought to advise and support members of our profession at various stages in their careers. This natural obligation of professors and teachers at their own institutions that are undertaken by all of us are not infrequently performed by Harry Chugani in other settings, whether they be kind words about a presentation by a junior member wholly unknown to him – perhaps especially on occasions when that presentation may not have gone as well as one might wish – or at the conclusion of meetings that may in some fashion have become overheated. His instincts are unfailingly constructive. The remarkable success that his medical and graduate students have enjoyed under his guidance exemplifies his capacity to engender success for others. He has demonstrated his constructiveness in his encouragement and support of efforts of the International Child Neurology Association (ICNA) to provide educational support to the countries of the rest of the world that lack resources or programs for health care or are in need of educational outreach. This was particularly evident during his recently concluded term as ICNA President. He is a person who finds opportunities for supportive mentorship wherever he goes – not least in his role as a gentle mentor to politicians regarding healthcare needs. The remarkable manner in which this quiet individual has made such a difference in our profession is no doubt the most fitting tribute to his two original mentors who zinspired Harry Chugani to become a neuroscientist and neurologist and whom he has come to closely resemble professionally and personally: Charles Kennedy and Louis Sokoloff.

Blue Bird Circle Training Director Award

Robert S. Rust, MD, MA

Presented
Friday, October 9

"My Mentor: JSM to RSR"

ROBERT S. RUST, MD, MA

PROFILE WRITTEN BY PHILLIP L. PEARL, MD

Consummate scholar, physician, historian, mentor, teacher, writer, archivist, ethicist, humanitarian, scientist, musician. Research interests as wide as they are deep. A man for all seasons. All superlatives deserved? Unequivocally, yes. Hyperbole? No. Congratulations to Robert S. Rust, MA, MD on being elected the Blue Bird Circle Training Program Director Award.

Dr. Rust is currently the Thomas E. Worrell, Jr. Professor of Epileptology and Neurology, Professor of Pediatrics, Professor at the Center for Biomedical Ethics and Humanities, and Training Director in Child Neurology at the University of Virginia School of Medicine. His undergraduate degrees (with honors) were in History and English, and graduate studies were taken at the University of Virginia in American and European History and History of Science as Woodrow Wilson National, Thomas Jefferson Governor's, and Commonwealth Fellowships from 1970-1972 and 1974-1976, flanking a position as Professor and Associate Director of Studies at the International College in Salzburg, Austria in History of European Cultural Development from 1972-1974. He also obtained a certificate in Greek Language, Culture, and History in 1973 at the University of Thessaloniki, Institute for Balkan Studies in Greece. Such is the foundation for a man of great literary and intellectual prowess.

Dr. Rust then transitioned into a position as a Research Associate from 1974-1977 at the Rodeheaver and Jones Microsurgical Laboratories and Department of Surgery at the University of Virginia, followed by matriculation as a medical student at UVA. A strong early influence was Fred Dreifuss, credited as the reason Rob became a neurologist despite a carefully worked out plan to become a surgeon. He went on to pediatric residency at Yale, and neurology and child neurology training at Washington University in St. Louis from 1983-1986. He was then appointed Assistant Professor in Neurology and held a research position in the McDonnell Center for Studies of Higher Brain Function with mentors Joseph Volpe, Joseph Ackerman, and Oliver H. Lowry, working on regional developmental biochemical changes in neonatal brain synthetic processes and energy metabolism using NMR spectroscopy and microhistochemistry.

Other important early influences were Ray Chun, Ed Dodson, Art Prensky, and Laura Ment.

Rob then took a position as Assistant Professor of Neurology and Pediatrics at the University of Wisconsin from 1990-1997, serving as Director of the Child Neurology, Child Neurology Clinics, and Training Program, as well as Director of the Cerebral Palsy Clinic from 1991-1997 at the Waisman Center at the University of Wisconsin. Following a number of named research fellowships starting in 1975, he held an NIH Career-Investigator Development Award from 1992-1997. He then became Associate Professor and Clinical Scholar at Harvard Medical School and Director of Child Neurology Resident Training, Director of Neurology Outpatient Clinics and of Neurological Education at Boston Children's Hospital. In 1999 he returned to his alma mater in Charlottesville, becoming Professor at the University of Virginia as well as Co-Director of the F.E. Dreifuss Clinics from 2003-2013 and Adjunct Professor of Ethics and Humanities in Medicine from 2012 to the present.

Of the more than 30 awards bestowed upon Dr. Rust, a number specifically dedicated toward teaching emanate from a variety of locations and institutions: Albemarle High School (1971), International College in Salzburg, Austria (1974), Washington University Neurology Residency (1984), St. Louis Children's Pediatrics (1990), University of Wisconsin Medical Alumni (1997), Harvard Longwood Teaching Hospitals (1998), Boston Children's Child Neurology (1999), University of Virginia Neurology (2000), American Academy of Neurology (2004 including National Honor Role of Neurologic Teachers), University of Virginia Election of the Academy of Distinguished Educators (2006), Child Neurology Society Hower Award (2007).

Dr. Rust is known for a remarkable number and level of contributions. Appointed Historian of the CNS in 2009, he has summarized in stunning and insightful detail the career accomplishments of the Society's major award recipiients for clinical and scientific contributions to the profession from 1991 to 2015, i.e. twenty-five years! Additional displays have included "Founders of Child Neurology: An International Perspective," "CNS Presidents," "Pioneer Women in Child Neurology," "International Founders of Child Neurology," and "Canadian Child

Neurologists." He has been an ambassador for child neurology at every possible level, from the Special Task Force to represent child neurology in the Decade of the Brain, to discussant for selected poster presentations at the annual CNS meeting from 2001-2008, to the CNS Overseas Visiting Professor to Resource Poor Nations (Iran) in 2005. He has given literally scores of invited lectures and professorships throughout the US and in 21 foreign countries. The Raymond Chun Memorial Address given in Wisconsin (2014) may have been among the most poignant. He has served on four editorial boards, including the *New England Journal of Medicine Journal Watch for Neurology*, and reviewer for 25 journals, including 238 published reviews for the *Virginia Quarterly Review of Literature*! Anyone who has visited his office cannot fail to be impressed with the overflowing library by this master bibliophile.

Dr. Rust's research interests and publications are as wide in scope as his intellectual reach. They include developmental brain chemistry with contributions in cerebral energy metabolism; infectious and parainfectious neurological diseases; epilepsy and headache, including their enigmatic relationship; stroke and related syndromes, including alternating hemiplegia of childhood; movement disorders, with an emphasis on Tourette syndrome; head trauma; autism; developmental language disorders; and the history of neuroscience, neurology, and pediatrics. Of most relevance to the current award and certain to have longstanding impact, Dr. Rust edited and personally authored several articles in the issue of *Seminars of Pediatric Neurology* devoted to "Training of the Child Neurologist in the 21st Century," addressing the question "what is a child neurologist expected to know by the completion of training?" This served as the substrate for a universal curriculum for training in pediatric neurology that was compiled by the executive committee of the Professors of Child Neurology, distributed to its members, linked up with the ACGME training milestones, and is now in final editing stages.

Dr. Rust's influence knows no borders. He has been an active member, archivist, and symposia co-chair for ICNA, and held similar positions in the PanHellenic Child Neurology Association and the Child Neurology Society of the Mediterranean. Perhaps Rob is most widely known for his generous and prodigious contributions to the Child Neuro List-Serve, a highly successful venture with more than 1500 participants from more than 80 countries, organized in 1994 by past Blue Bird Awardee, Steve Leber and current CNS President-elect, Ken Mack. Rob's magnificent input is perhaps best described in the words of Robert Ouvrier, Immediate Past President of ICNA, Foundation Head of the Institute for Neuromuscular Research, and Emeritus Professor of Paediatric Neurology at the University of Sydney:

"From the early days, one particular contributor captured my attention. It was clear from his frequent comments on difficult issues that the commentator was a highly experienced, very balanced, extremely logical and very helpful fellow clinician. What struck me also was not only the depth of his knowledge on so many topics but also his obvious compassion for patients and fellow clinicians as well as his willingness to share his uncertainty, where clear information was sometimes lacking, as it often is in our discipline. What also was most impressive was the length of the responses, which must have taken hours, at times, to research and recapitulate. If they did not require much time, the fact that they could be produced without such a commitment argued for a level of knowledge of phenomenal proportions.

As a result of the value that was evident in the writings of that person, who is, of course, Dr Robert Rust, I took to collecting copies of just about all the postings which he made on the website. One could always appreciate the wit and vast wisdom of a colleague who appeared to have a remarkable humility, in spite of his astonishing erudition and extra-medical interests.

As a result of these regular exposures to Dr Rust's wisdom, I read some of his more formal medical contributions, such as his monumental chapter on inflammatory diseases of muscle in Neuromuscular Disorders of Infancy, Childhood and Adolescence by Jones and colleagues and his writings on the subject of auto-immune as well as demyelinating diseases of the nervous system and cerebral palsy in children, areas in which he has a special interest. It seems, however, that he has a special interest in just about everything that is relevant to the discipline of child neurology!

I can state with great confidence that there could be few individuals who have reached out so impressively to influence and expand the knowledge and critical thinking of fellow neuroscientists throughout the world to the extent that Dr Rust has…Dr Robert Rust is an exemplar who stands out from most of us, "like a Gothic cathedral surrounded by medieval booths".

His patience, softness, and Southern gentleman style are not lost on his colleagues, trainees, and patients. In the words of Russell Bailey in the nomination packet submitted along with Howard Goodkin, John Mytinger, and Harvey Singer, "He has influenced the careers of countless students and trainees, and assisted in the development of standards by which child neurologists are trained. One cannot overstate the contributions Dr. Rust has made in preparing the next generation of researchers and clinicians in the field of child neurology." John Mytinger adds, "There was something more than history taking and examining going on when Rob was in the room…I described it as magical. He would frequently ask children if he or she had someone at home to throw the baseball with…"

On a personal note, if you have the opportunity to deliver a presentation involving an introduction by Rob Rust, take advantage of this lesson in proper introductions and you just may learn something new about yourself. Rob is a devoted husband to Betsy, herself an accomplished ICU and ER nurse, and father to their four sons, Jim (political scientist and father of their three grandchildren), Merrill (website designer), Dave (mechanical engineer at the US Patent Office), and Tom (astrophysicist at Montana State University).

Arnold P. Gold Foundation Humanism in Medicine Award

Robert Zeller, MD

Presented
Friday, October 9

ROBERT ZELLER, MD

PROFILE WRITTEN BY ROBERT S. RUST, MD, MA

A native of Buffalo, Dr. Robert Zeller received his undergraduate education at Princeton, followed by medical school at the University of Buffalo. He was awarded his MD degree in 1963. His pediatric internship and residency at Baylor (1963-1966). He published his first paper, concerning translocational heterozygosis, in the year that he completed his pediatrics training. Two years of practice followed, an interval that included the publication of a paper concerning complications ventriculoarterial shunting of hydrocephalus (1967). Dr. Zeller was selected for a Fellowship in Pediatric Neurology at Columbia (1968-1971). His experiences there would result in the subsequent publication, with Abe Chutorian, of a paper concerning childhood vascular malformations of the pons that has been cited 26 times.

A charter member of the Child Neurology Society and one of the first child neurologists in Houston, Dr. Zeller quickly became what Gary Clark describes as "the most sought after child neurologist in the city." Four years after completing his child neurology training, Dr. Zeller was appointed Chief of Pediatric Neurology at the Texas Children's Hospital – a position he would hold for five years. Despite the considerable clinical demands of this and ensuing epochs of Dr. Zeller's ensuing chiefly clinical career, he demonstrated from the start an interest in contributing to the clinical and basic scientific and neuropathological medical literature. The first of these reports from Dr. Keller as his associates concerned the histopathology and ultrastructural pathology of eastern equine encephalitis. The second reported the angiographic, electrophysiological, histopathological, and ultrastructural features of Batten Disease. Each of these excellent papers has been cited more than 20 times. Dr. Zeller also published, together with Hilda Alcala, a paper detailing the mechanisms and neuropathology of cerebrovascular thrombosis occurring in children dying of ketoacidotic coma.

In addition to his clinical studies, early in his career Dr. Zeller undertook, together with Jan Goddard, D Hilda Alcala, Dawna Armstrong and others experimental investigations employing the neonatal beagle model of intraventricular hemorrhage. The work in which he has participated with this group has generated six papers that have characterized the model itself and the role played by hypertension, hypotension, and hypoxia in the pathological features of this important neonatal entity, the last of which has been cited more than seventy-five times to date.

Dr. Zeller's capacity to interact with others, whether child or adult, quickly became a hallmark of qualities variously described by his colleagues as "exemplary and selfless," a teacher "not only of the science and art of medicine, but of the human aspects as well," and a "true master of instilling trust and considence in his patients and their families." He is described as a caring person capable of explaining with great compassion "the most complex and devastating diagnosis." Yet his nature also partakes of optimism that, where appropriate, he has always been able to provide for his patients and families the element of hope engendered by his skillful diagnosis and treatment recommendations that sustains them where treatment may give way to improvement or even resolution of troublesome conditions. His exceptional capacities in diagnosis and communication with patients and their families no doubt derive from the fact that he is

said to be a quintessentially careful observer and listener, a person who values virtually everyone he encounters, and a master of communication, whether by words or by the duck-like quacks he is said to surprise anxious appearing children with as they travel together in hospital elevators. This activity demonstrates another characteristic: Dr. Zeller's unfailing sense of humor.

In 1993 Dr. Zeller was appointed Clinical Professor of Pediatrics at Baylor. In 2005 he was named Chief of the Blue Bird Circle Clinic of the Texas Children's Hospital. His administrative skills have emphasized attaining the best possible efficiency of care—efficiency for which he is said to be the best possible example despite the fact that he is well-known for his assumption of what is often "more than his share" of clinical and other responsibilities. His explanation for his strong sense of commitment is his unfailing sense that throughout his career that "his patients have given more to him than he has given to them." Dr. Zeller's unceasing desire to provide for unrecognized needs is particularly exemplified by his reaction when he was told that one of his patients with epilepsy was not permitted to enroll in a summer camp. His reaction was to gather enough donors (not least himself) who together raised $12,000,000 that enabled the building of "CampForAll" to serve the needs of children, adolescents, and adults with disabilities. Characteristically Dr. Zeller not only raised the funds, but also played the critical role in selection of an architect and organization of the plans for the facilities that would best serve their needs. To date more than 100,000 individuals have benefited from this model facility.

When he was told that one of his patients with epilepsy was not permitted to enroll in a summer camp, his reaction was to gather enough donors (not least himself) who together raised $12,000,000 that enabled the building of "CampForAll" to serve the needs of children, adolescents, and adults with disabilities.

Such unstinting devotion to an extraordinary range of self-perceived duties is what one might expect of a person with quite unusually high expectations of personal duty. Whatever else Dr. Zeller has chosen for his way of life, he has chosen and quite generously succeeded in his desire to better the human condition. Charles Gay has indicated that Dr. Zeller, physician, scientist, administrator, organizer, and teacher is an individual that is "passionate about people." The unceasing demands of that particular trait throughout his career have generously been met by the unceasing employment of his exceptional capabilities for a wide array of purposes intended to assuring that others become "healthier, happier, and fulfilled." As to who the "ohers" are, it is evident that he has included not only his patients and their families, but his students, residents, colleagues, the wide array of other professionals engaged in the care of his patients, and not least, his own family.

CNS Hower Award

E. Steve Roach, MD
Presented
Saturday, October 10

E. STEVE ROACH, MD

PROFILE WRITTEN BY ANUP D. PATEL, MD

The 2015 Hower Award winner is E. Steve Roach, MD, of Columbus, Ohio. Dr. Roach is Professor of Pediatrics and Neurology at The Ohio State University College of Medicine and Chief of the Section of Child Neurology at Nationwide Children's Hospital. To summarize the distinguished career of such an individual is a daunting task, but some of his accomplishments are presented below.

Dr. Roach attended Carson-Newman University, graduating with honors and a dual major in chemistry and biology. While an undergraduate, he worked with chemists Carl Bahner and Truett Patterson to synthesize new chemical compounds to be screened as anti-cancer agents. Dr. Roach decided to pursue a career in clinical neuroscience soon after encountering neuroanatomist Simon R. Bruesch at the University of Tennessee College of Medicine in Memphis. He chose to become a child neurologist as he developed a love of neuroscience and a need to help children with neurological illness. While still a medical student, Dr. Roach co-authored his first book, an atlas that was the first book on computed tomography in children.

His legacy will not only reflect his own work and amazing intelligence, but also that he makes the people around him better. He works tirelessly to promote and mentor colleagues and takes immense pride in their success.

During his residency at Bowman Gray School of Medicine at Wake Forest University, Dr. Roach met James F. Toole, who became a life-long mentor and colleague. In 1967, Dr. Toole wrote the first textbook on stroke in the modern era. With the assistance of his mentor, Dr. Roach developed the keen understanding of cerebrovascular disease that he later applied to the study of children with stroke. He learned child neurology and epilepsy from Dr. William McLean and Dr. J. Kiffin Penry. From Dr. Toole and Dr. Lawrence McHenry, he developed an enduring appreciation of medical history and a love of vintage medical books. A generation earlier, Dr. McHenry wrote the classic History of Neurology, and the American Academy of Neurology later named its annual history award in his memory. Dr. Roach's first peer-reviewed paper, written as a pediatric resident, was a paper in *Pediatrics* that described the now well-recognized occurrence of increased intracranial pressure in babies following treatment of cystic fibrosis.

Dr. Roach went on to publish 15 papers during his residency, an accomplishment few achieve.

Dr. Roach remained in North Carolina for six years after residency. During this time, he began studying tuberous sclerosis complex (TSC). At the 1986 CNS meeting in Boston, he presented 25 patients with TSC who had been imaged with the then new MRI technology. This study helped to define the MRI appearance of the TSC brain lesions and suggested that patients with numerous cerebral lesions generally develop treatment resistant epilepsy and cognitive impairment. In 1988, he was funded by the NIH to study family members of children with TSC. That year also saw the publication of the first edition of the book *Pediatric Cerebrovascular Disorders* with colleague, Anthony Riela.

In 1989, Dr. Roach moved to the University of Texas Southwestern Medical Center in Dallas, Texas. Five years later, he was awarded the Helen and Robert S. Strauss Professorship in Neurology. He had many duties during his tenure in Dallas, notably including Director of the Division of Child Neurology, Vice-Chair of the Department of Neurology, and Chair of the Institutional Review Board for Human Research. One of his most rewarding roles in Dallas was serving as Director of the Child Neurology Residency Program. He mentored several current child neurologists who acknowledge his importance to their own professional development and career. He was recognized twice by the Dallas residents with teaching awards. To this day, he remains in regular contact with many of his former residents, illustrating both his impact and his commitment to the careers of those he mentors.

After a brief stint back in North Carolina where we won another teaching award, Dr. Roach moved to Columbus, Ohio in 2006 to become the Chief of the Division of Pediatric Neurology at Nationwide Children's Hospital and The Ohio State University College of Medicine. Soon after arriving, he was appointed Vice-Chair for Clinical Affairs of the University's Department of Pediatrics. In 2013, Roach was awarded the Robert F. and Edgar T. Wolfe Foundation Chair in Pediatric Neurology. During his time as Chief, the Division's faculty has grown to 29 physicians with the group beginning a number of unique clinical programs. His faculty members often credit him for his excellent advice and his tireless efforts to facilitate their professional development.