RSNA R&E FOUNDATION

Foundation FOCUS

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Gift by Martin R. Prince, M.D., Ph.D. will empower next generation of researchers.

Former R&E Foundation Grant Recipient Pays it Forward with Major Gift

Martin R. Prince, M.D., Ph.D., knows better than most the power of an RSNA Research & Education (R&E) Foundation grant. That is why he recently made a gift to endow the new Prince Research Resident Grant.

When he was a first-year resident, Dr. Prince was inspired by a fellow resident who secured an NIH grant. A relatively new member of RSNA, Dr. Prince looked to the R&E Foundation. He was awarded one of the Foundation's first Research Resident Grants in 1991.

"The incredible thing about the Research Resident Grant is not only do you receive funding, but your department commits the time to allow you to do it," Dr. Prince said. "Even without any money, dedicated research time is a great thing."

Before beginning his radiology residency, Dr. Prince, a mechanical engineer and master's degree candidate, was developing a blood clot filter. The result was an incredible feat of engineering now known as the Nitinol IVC Filter. As a doctoral student, he turned his interest to the use of lasers in interventional radiology, and that was the focus of his R&E Foundation grant application. By the time the grant was funded, however, use of the stent was emerging. It was a comparatively simple and significantly less expensive application that made laser removal of arterial plaque obsolete.

Just as he was wondering what to do with the grant for already dated research, Dr. Prince heard a game-changing lecture by Professor **E. James Potchen, M.D.,** of Michigan State University, about MR angiography.

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LOOK INSIDE FOR

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- Former R&E Chair Honored by AMWA
- Seed Grant Spurs Two Decades of Research

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Dr. Prince was immediately inspired by the idea of vascular imaging. He called the R&E Foundation and explained he wanted to use MR imaging technology instead. He was thrilled with the response.

"They told me, 'Your inspiration is more important than what was in an application you wrote a year ago. We want you to be successful,'" he remembered. "I thought that was fantastic!"

Because of restraints on healthcare facility costs, Massachusetts General Hospital, where Dr. Prince was a resident, installed an MR scanner off property in Charlestown. None of the doctors wanted to go there to do scans, so he volunteered to take those cases. It was a unique opportunity for a young resident.

Dr. Prince produced beautiful images, causing a surge in orders, and the gadolinium was quickly disappearing. To move his work forward, he invested $5,000 of his grant funds in more gadolinium. He realized the key to getting a clear image lies in the timing of the injection of the contrast agent relative to mapping of the center of k-space. That early discovery led to a series of advances and eventually to the development of robust contrast-enhanced and bolus chase MR angiography, which has since been commercialized by scanner manufacturers.

His early success as a researcher helped Dr. Prince secure an assistant professorship and position as Co-Director of MRI just one year out of radiology residency. His next promotion was directly to full professor at Weill Cornell Medical Center. He has since had the opportunity to turn his ambitions outward. Now he is shifting his focus to maximizing the positive impact he can have on the practice, society and his family.

"I love being on the front line tinkering, discovering and doing the research," he explained. "But I realize I need to work on transferring those skills to others, helping other people successfully navigate that career ladder."

He has been doing just that for a number of years now, mentoring residents at both Cornell and Columbia College of Physicians and Surgeons.

Dr. Prince has enjoyed remarkable success with the patents that have resulted from his research. He decided to use a portion of those royalty earnings to establish the Martin R. Prince Foundation. It is through that Foundation that he created the endowment for the Prince Research Resident Grant.

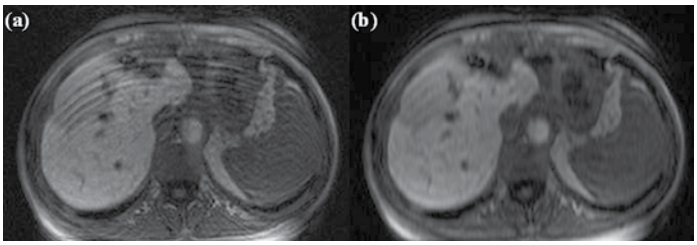
"I've realized I can have an impact that goes beyond my local institution," he said. "I thought, what better cause could I support than the R&E Foundation, which has a great track record and with which I have personal experience."

The first Prince Research Resident grant will be awarded in 2014.

R&E Grant Tackles Image Quality Frustrations

Motivated by the everyday frustrations of ghosting or streaking artifacts faced by body MR radiologists, **Candice Bookwalter, M.D, Ph.D.,** recipient of the 2011 Peggy J Fritzsche, M.D. Research Resident Grant, aimed to improve the image quality in abdominal imaging by decreasing the effects of motion on clinical images.

Candice Bookwalter, M.D, Ph.D.



Motion corrupted (a) and corrected images (b) for approximately a 50% breath hold.

Charged by **Vikas Gulani, M.D., Ph.D.,** her Scientific Advisor at University Hospitals Case Medical Center, to draw on her physics training to develop a way to retrospectively decrease the effect of motion, Dr. Bookwalter developed an algorithm called MARs (Motion Artifact Removal by Retrospective Resolution Reduction) to identify and remove motion corrupted data and subsequently reconstruct a low resolution and motion artifact free image. MARs uses GRAPPA navigators to detect the transition-to-movement segment of the image acquisition.

Her project hypothesized that MARs could be used to improve image quality in abdominal imaging by decreasing the effect of motion on the diagnostic quality of clinical images. MARs was further developed for the rectilinear k-space trajectory by combining it with parallel imaging acceleration and by optimizing the technique. Her research showed in simulation and with human volunteers that rectilinear MARs with or without parallel imaging acceleration could accurately detect motion in fully sampled and undersampled data.

Although the MARs motion correction results in a tradeoff between removal of respiratory motion artifact and lower resolution, Dr. Bookwalter's results demonstrate that radiologists strongly prefer the lower resolution but motion corrected images.

A related algorithm was developed for a radial trajectory with the goal to further improve image quality. Radial MARs uses the self-navigating properties of radial trajectories to detect the transition between motion-corrupted and motion-uncorrupted data, making radial a fast and robust alternative to rectilinear sampling.

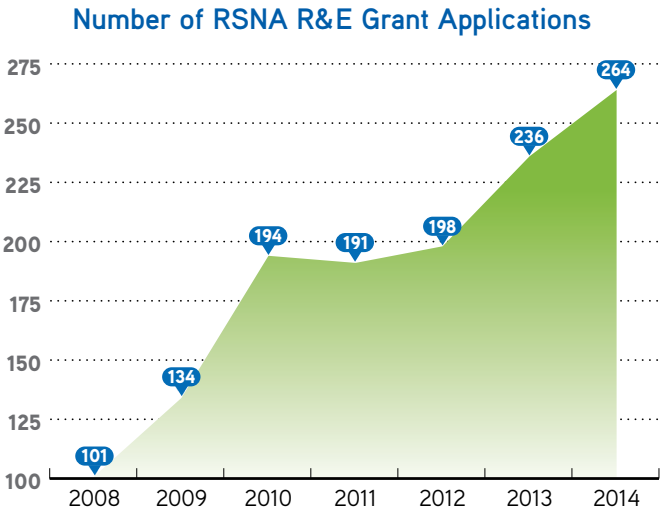
Dr. Bookwalter is busy at work on a manuscript on MARs for submission to *Radiology*. She continues to support RSNA as a member of both the RSNA Research Development Committee and the RSNA Resident and Fellow Committee.

Grant Applications Trend Upward

Spring is grant season for the RSNA R&E Foundation and one of the busiest times of the year. Grant season officially began in early January with applications submitted around the clock, culminating with 264 applications—another record-setting number for the Foundation! When the online grant application site closed, Foundation staff set to work on the administrative review and organization of the applications, while study section chairs and 90 study section and review panel members geared up for the scientific review.

R&E Foundation grant applications are submitted by aspiring investigators from throughout North America and abroad. Their projects cover the full range of anatomic areas and imaging/therapeutic modalities. The Foundation has seen more applications in the areas of imaging informatics and clinical efficiency/integration, as the rising cost of healthcare leads to increased pressure to improve imaging services while reducing costs.

The Foundation has implemented several enhancements to help applicants prepare high quality, competitive applications. Modified application instructions help applicants understand exactly what is expected in a competitive application. An education grant "toolbox," prepared by past grant recipients and members of the Education Study Section, provide insights on how to develop an education idea into a successful educational research project, and where to find additional resources. Furthermore, the reporting process was fine-tuned to more effectively capture the most relevant information on outcomes and clinical significance.



R&E Foundation grants would not be possible without the generous support of our corporate, individual and private practice donors. Each and every donation is a lasting contribution to the future of radiology. Thank you, donors!

For more information on the grant application and review process, contact Scott Walter, Assistant Director, Grant Administration at *swalter@rsna.org*.

Exciting New Opportunities on the Horizon

Former R&E Trustee **William T. Thorwarth, Jr., M.D.,** and current R&E Trustee **Valerie P. Jackson, M.D.,** will assume exciting new roles in organized radiology this year.

In April, Dr. Thorwarth became CEO of the American College of Radiology. Dr. Thorwarth has been a leader in radiology for nearly three decades. Prior to joining the Board of Directors of RSNA, Dr. Thorwarth helped found the Visionaries in Practice (VIP) program and served as VIP Committee Chair from 2004 to 2009. Dr. Thorwarth also served on the R&E Fund Development and Silver Anniversary Campaign committees and the R&E Foundation Board of Trustees from 2006 to 2009.

William T. Thorwarth, Jr., M.D.

Valerie P. Jackson, M.D.

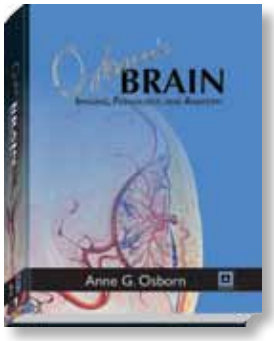
In July, R&E Foundation Trustee and RSNA Board Member Valerie P. Jackson, M.D. will become Executive Director of the American Board of Radiology. Throughout her career, Dr. Jackson has held numerous volunteer leadership positions in RSNA, ABR and other leading national organizations. Dr. Jackson served as a member of the Foundation's Corporate Giving Subcommittee and Chair of the Foundation's Fund Development Committee. She is a committed volunteer, author, educator and mentor.

Congratulations, Dr. Thorwarth and Dr. Jackson!

Past R&E Chair Awarded Top Prize by American Medical Writers Association

Anne Osborn, M.D., is no stranger to writing books or winning awards. Yet being recognized by the American Medical Writers Association in 2013 for "Best Book Written by a Physician" was a special honor for the acclaimed author and radiologist because the praise came from a group that recognizes good writing.

The key to success, says Dr. Osborn, was the ability to maintain complete control through the entire process, from the quality of the writing and illustrations to the overall layout and flow of the book. Amirsys, the publisher, made that possible.



"I wrote *(Osborn's Brain)* as a storyteller to help readers understand the most fascinating organ in the body," she explained.

Radiology is a highly visual specialty, she said, and both the illustrations and the text need to tell the story together. In fact, storytelling is what sets *Osborn's Brain* apart from other medical texts.

Abandoning traditional approaches to structure and content, Dr. Osborn decided instead to write a book the way radiology is actually practiced. She covered brain trauma, bleeds and strokes first, knowing those topics are most urgently needed by residents and practicing radiologists, and the cases they will see most often. She wrote the text as a narrative, reserving the usual bulleted text for boxes to reinforce the content.

"I want them to say, 'I get it, and I can do that!'" after reading her book, she explained.

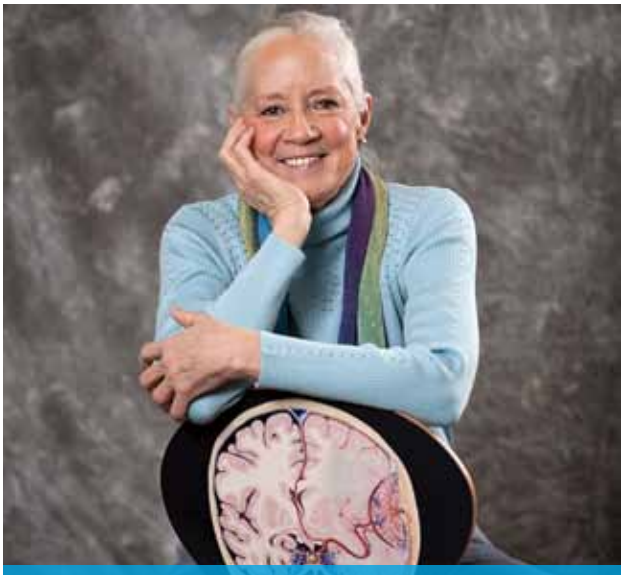
To ensure that result, Dr. Osborn painstakingly cropped and adjusted each of the more than 3,000 radiologic images that appear in the book, as well as the colorful graphics and pathology photographs collected from colleagues around the world.

A true storyteller, Dr. Osborn looks forward to one day writing medical murder mystery novels, drawing on her vast knowledge of brain anatomy and pathology. "I have two of them in my head," she said. She just needs to find the time in her busy international lecture schedule to commit them to paper.

Dr. Osborn has been a dedicated RSNA volunteer for 35 years, and she is especially committed to the mission of the R&E Foundation.

"There is nothing professionally more important to me than research and education in radiology," she explained. "Both are essential foundations for effective patient care."

Dr. Osborn served as the Foundation's first Education Study Section Chair and co-chaired the Foundation's successful Silver Anniversary Campaign during her tenure as R&E Chair.



Anne Osborn, M.D. honored for her latest contribution to radiology education.

She is an RSNA Gold Medalist, Past RSNA Vice President and has held numerous RSNA leadership positions.

She is a world renowned lecturer and frequent presenter at the RSNA Scientific Assembly. Her commitment to the Foundation remains steadfast as a Presidents Circle, Sapphire Visionary and Ruby Legacy donor.

"There is nothing professionally more important to me than research and education in radiology. Both are essential foundations for effective patient care."

Anne Osborn, M.D.

From $15K to $15M: How an R&E Seed Grant Recipient Grew His Funding in Comparative Effectiveness Research of Low Back Pain

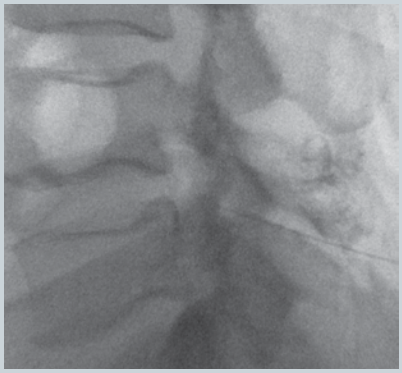
Jeffrey G. Jarvik, M.D., M.P.H

Jeffrey G. Jarvik, M.D., M.P.H., a professor of radiology and neurological surgery and adjunct professor of health services at the University of Washington, received his first research grant, a $15,000 R&E Foundation Seed Grant, in 1994. His study compared the outcomes and cost effectiveness of patients with low back pain who received either a rapid screening MR or plain films of the lumbar spine. Dr. Jarvik continues comparative effectiveness research on low back pain today, but on a much larger scale.

In 2010, Dr. Jarvik received a 3-year, $10 million R01 grant from the Agency for Healthcare Research and Quality (AHRQ) to establish the Back Pain Outcomes using Longitudinal Data (BOLD) project, evaluating prospectively the effectiveness, safety and cost-effectiveness of early, advanced imaging and interventions for elderly patients with back pain. The project included an observational cohort of over 5,000 seniors with back pain as well as a randomized controlled trial comparing epidural steroid injections plus lidocaine to lidocaine alone for patients with spinal stenosis. The results of this study will be published later this year.

With a new $6 million National Institutes of Health (NIH) UH2 grant, Dr. Jarvik will oversee a multi-institution, pragmatic, randomized controlled trial to determine the effectiveness of a simple, inexpensive and easy to deploy intervention—inserting epidemiological benchmarks into lumbar spine imaging reports—at reducing subsequent tests and treatments. "Even without back pain, magnetic resonance (MR) imaging of the lumbar spine frequently reveals findings such as disc desiccation or bulging which may initiate a cascade of events leading possibly even to surgery, without improving patient outcomes," states Dr. Jarvik. "If our study is positive, adding epidemiologic benchmarks to diagnostic test reporting could become the dominant paradigm for communicating all diagnostic information."

The RSNA R&E Foundation is pleased to have been an early catalyst of Dr. Jarvik's nearly two decades of research aimed to improve patient care.



Spot film from an epidural steroid injection

Sagittal T2-weighted MRs showing central spinal stenosis

Nina A. Mayr, M.D.

Grant Recipient Named Department Chair

RSNA R&E Foundation Research Seed Grant recipient **Nina A. Mayr, M.D.** has been named Chair of the Department of Radiation Oncology at the University of Washington Medical Center. Dr. Mayr used her 1995 Seed Grant to study the use of antioxidant enzymes in the histologic evaluation of breast cancer with respect to radiation therapy. Since that time she has been awarded two National Institutes of Health (NIH) grants investigating functional/molecular imaging as a predictor of cancer treatment outcome.

Jean & Brian C. Lentle, M.D., Make Legacy Gift to R&E Foundation

Brian C. Lentle, M.D., values the importance of research and education to the future of his specialty. That is why he and his wife Jean have chosen to leave a legacy to the field of radiology by including the RSNA Research and Education Foundation in their wills.

"I hope by making this small donation I can help other people see the reward involved in doing so—not just the monetary reward, but also the opportunity to contribute to one's profession," Dr. Lentle said.

Jean & Brian C. Lentle, M.D.

"I hope by making this small donation I can help other people see the reward involved in doing so—not just the monetary reward, but also the opportunity to contribute to one's profession."

Brian C. Lentle, M.D.

Dr. Lentle demonstrated his dedication to the field of radiology throughout his distinguished career. He served as the 2004 RSNA President and on the Board of Trustees of the R&E Foundation. He also served on the RSNA Board of Directors as the Liaison for Education. Dr. Lentle published more than 160 journal articles and jointly edited three books. He served as Chair of the Department of Radiology at both the University of British Columbia and Vancouver General Hospital. In 2009, Dr. Lentle was awarded the Gold Medal—RSNA's highest honor—recognizing service to the specialty.

Retired from clinical practice since 2008, Dr. Lentle remains involved in research because "it makes retirement more fun and keeps him young," he said.

"Throughout my career I have gained so much pleasure by becoming involved with other specialists and taking a multidisciplinary approach to my practice. Life would have been much poorer if I focused only on my specialty," he explained.

Dr. Lentle considers research in education to be as important as research into disease mechanisms. His affiliation with the RSNA and the R&E Foundation provided him the opportunity to contribute to both.

"I have been a big admirer of the RSNA throughout my career and valued its programs long before I became involved as a volunteer," he said. "It is gratifying to see the growth of programs and the increasing sense of commitment to the field among my colleagues."

The Lentles are Silver Visionary donors, signifying a lifetime of giving, in addition to their Legacy gift to the Foundation.

If you would like to know how you can leave a legacy to radiology, contact Shelley Taylor, Manager, Fund Development, at 630-590-7773 or *sltaylor@rsna.org*.

Be an Advocate for Practice Group Giving

Many of our current Visionary in Practice (VIP) practice group participants were introduced to the program by donor advocates who brought the concept of VIP giving to their practice leadership for consideration.

Would you like to be an advocate for VIP giving at your practice group? Here's how:

- Visit *www.rsna.org/vip* to watch and share a short video about the VIP Program and view a listing of current VIP contributors.
- Contact Robert Leigh of the Foundation staff at 630-590-7760 or *rleigh@rsna.org* to request informational hand-outs to share with your colleagues at your next practice group meeting or to learn about setting up a web meeting with Foundation leadership to learn more about the program.
- Talk to your colleagues about your support of the Foundation and why your practice group should consider donating.

Getting to Know Brian S. Kuszyk, M.D., Chair, Visionaries in Practice (VIP) Giving Program Subcommittee

The R&E Foundation's Visionaries in Practice (VIP) Giving Program is responsible for securing annual contributions of $10,000 or more from private practice groups and academic institutions. Under the guidance of Chair Brian S. Kuszyk, M.D., VIP Giving Program contributions have increased by 30 percent, with a new giving milestone of $500,000 achieved in 2013.

R&E: ***You have been Chair for two years now. What have you learned from your experience so far?***

BK: My experience has helped me understand the scope and quality of the research and education efforts being supported by the R&E Foundation, and allowed me the opportunity to convey to academic researchers and educators the uniqueness of the private practice community relative to research.

R&E: ***Your practice group, Eastern Radiologists, Inc. of Greenville, North Carolina, has been a VIP contributor for seven years. Why does your group give?***

BK: When my practice group donates, we are making an investment. We believe the RSNA will continue to be a leader in research and education for our specialty that will in turn help us to be successful in our careers.

R&E: ***You have spoken with leadership at practice groups all over the nation about donating through the VIP Giving Program. What is your most compelling message when asking for their support?***

BK: I believe practice groups should contribute to the R&E Foundation because it really serves as the outsourced research and development department of our private practices and an incubator for innovations in technology and clinical practice to ensure the relevance of the specialty in the new era of healthcare we are entering.

Brian S. Kuszyk, M.D., is the Vice-President of Eastern Radiologists, Inc., Affiliate Professor of Radiology and Chair of Clinical Radiology Brody School of Medicine at East Carolina University, and Chief of Radiology Services at Vidant Medical Center

R&E: ***How have research results impacted your career and been integrated into your practice?***

BK: Many of the research projects funded by the program are now a routine part of our private practice day. A great example is CT angiography: the R&E Foundation funded **Geoffrey D. Rubin, M.D.,** to study CTA when it was a new technique; now it is done many times a day by virtually every practice in the country.

R&E: ***When you are not working or pitching the VIP Program, how do you spend your free time?***

BK: I spend time with my wife Cara and sons Brody and Harrison. I also enjoy cycling, fitness and fly-fishing.

Interested in volunteering for a Foundation committee, study section, or review panel? Contact Sena Leach, Assistant Director, Board and Committee Affairs at *sleach@rsna.org* or 630-571-7810.

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Siemens Healthcare Renews Support

The R&E Foundation is proud to announce that Siemens Healthcare has made a new $450,000 commitment to funding the future of radiology. As a Vanguard donor company since 1990, Siemens Healthcare has supported 28 grant awards.

"Siemens Healthcare is proud to continue its support of the RSNA Research and Education Foundation in its mission to facilitate the research efforts of emerging leaders in radiology," said **Gregory Sorensen, M.D.,** Chief Executive Officer of Siemens Healthcare North America. "I know this is a very valuable enterprise from personal experience: a grant from the R&E Foundation years ago helped me at a critical time to become a successful NIH-funded investigator. Well-funded research into cancer and other forms of disease by the top minds in medicine will help ensure a healthier tomorrow for millions of patients."

SIEMENS

The Siemens Healthcare Sector is one of the world's largest suppliers to the healthcare industry and a trendsetter in medical imaging, laboratory diagnostics, medical information technology and hearing aids. Siemens offers its customers products and solutions for the entire range of patient care from a single source—from prevention and early detection to diagnosis, and on to treatment and aftercare. By optimizing clinical workflows for the most common diseases, Siemens makes healthcare faster, better and more cost-effective.

Thank you, Siemens for your continued support.

"Siemens Healthcare is proud to continue its support of the RSNA Research & Education Foundation in its mission to facilitate the research efforts of emerging leaders in radiology."

Gregory Sorensen, M.D.

Three Easy Ways to Give:

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