The Lung Cancer Alliance joined CIBR to bring the patient voice to the radiology community and policymakers. The importance of CIBR’s work in Washington cannot be overstated.

— Sheila Ross, Special Counsel to the Lung Cancer Alliance

CIBR engages patients from the beginning of every initiative. We are a powerful force, but not always aware that collectively our voices can be stronger. Collaborating with industry and academics, and learning that they genuinely want to hear from us is very inspirational.

— Saffron Henderson, Sugar Mommas patient advocacy group for women with Type 1 Diabetes

As a result of our participation in your annual event, we will have an imaging researcher present their findings at our annual conference in Washington, DC. The ripple effects of collaboration are far reaching, with high impact and benefits to patients.

— Katherine Price Snedaker, LMSW Executive Director, Pink Concussions

I was excited to be part of the team showcasing a new technology that provides neurosurgeons with a keener understanding of a brain tumor’s characteristics before surgery. The CIBR showcase is a timely, relevant and meaningful event.

— Elizabeth Wilson, MNA President & CEO American Brain Tumor Association

For more about CIBR see p. 12
Innovation has nothing to do with how many R&D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more on R&D. It’s not about money, it’s about the people you have, how you’re led, and how much you get it.” ~Steve Jobs

It seems that just about every facet of health policy is in a period of tumult – large shifts in workflow, processes and incentives, all with the ultimate goal of better integrating care and appreciably improving patient outcomes. Perhaps reflecting its role as a central pillar of the healthcare system, radiology has certainly been in the thick of many of these conversions.

Similarly, our country’s science policy is also evolving in a disruptive fashion. Much like the days of IBM versus Apple, policymakers increasingly believe that research is no longer just about spending more than other nations, but about the quality of a country’s academic institutions, visionary leadership, and ability to consistently innovate. There is a nascent but strong dialogue in Washington about the value proposition of our federal R&D portfolio, and how to achieve the strongest return on investment from increasingly scarce resources – particularly in an evidence-based way.

To answer these calls, the Academy released a report in May – commissioned through the Battelle Technology Partnership Practice – that shows the notable productivity and economic value of basic imaging science. While on average, the total downstream R&D spurred by NIH innovations generated a compelling 106% return on investment, imaging science through NIBIB led the federal R&D portfolio with an astonishing 578% return on investment. In a time when policymakers are seeking R&D programs that have a demonstrated track record of success, particularly in the economic sense, imaging science is a clear outlier for targeted investments.

The Academy is also pleased to see the establishment of the Interagency Working Group on Medical Imaging (IWGMI) under the President’s National Science and Technology Council. This cross-agency working group will be charged with coordinating federal efforts in imaging research that stretch across agencies, research teams and scientific disciplines. Indeed, if the economic evidence presented in the Battelle report provides some proof of the imaging community’s persistent record of innovation, the IWGMI will help foster the multidisciplinary leadership and workforce necessary to capitalize on incredible technological change in the imaging arena.

Imaging scientists are truly doing something special. Their contributions are not only providing palpable improvements in patient care, but doing so in a way that is fueling one of our most pioneering technological sectors. While the country needs a strong and sustainable re-commitment to academic research and the NIH in general, we believe that imaging science embodies the same inventive spirit and exceptional human capital that led Apple to such innovative heights. In fact, if you’d like a glimpse at the truly talented people engendering imaging’s wellspring of discoveries, I recommend that you take a look at the latest class of inductees to the Academy’s Council of Distinguished Investigators.

As President of the Academy of Radiology Research, I would like to thank all Academy members for their leadership, volunteerism, advice, advocacy, and action in support of medical research and imaging science. I look forward to continuing to work with you throughout the remainder of my term as President, and hope that our collective efforts can help ensure both the long-term vitality of the nation’s public health and the continued growth of our field.

-Renée L. Cruea, MPA
Executive Director

This year marks the 20th Anniversary for the Academy of Radiology Research. While 20 years of sustainable growth is no small feat (unlike the Academy staff and budget), we are proud to share with you a few reasons to celebrate this year, beyond our Vicennial celebration. It is with incredible gratitude that we recognize our members who have provided the Academy with financial support, countless volunteer hours, participation and engagement that has enabled the Academy to continue to be an incredibly effective voice for the imaging research community.
Over the past two decades, the Academy has remained true to its original mission: fostering support for imaging research at the federal level. Reaching the goals aligned with our mission and remaining effective requires progressive, out-of-the-box thinking. Like the technologies we advocate for, we as an organization must remain innovative by utilizing new tools, recognizing new pathways and reacting to challenging variables outside of our control. In the world of advocacy, keeping an eye on issues of relevance such as budget cuts, the political environment, sources of funding and identifying what is valuable for policymakers from one end of the spectrum to the next is what will enable the Academy to continue to identify ways to ensure our story remains effective.

While articulating the value and impact of imaging on patient care will always be our most compelling message, we are continually expanding our scope to get there in new and creative ways to ensure we maintain a diverse group of supporters in the science policymaking arena. As the political environment changes, so does our audience and our messaging must resonate. While advocacy efforts are not often tangible, there are many metrics that illustrate growth and meaningful trajectory, showing a broadening of scope that leads to sustained, incremental successes. I am pleased to highlight a few for you here.

The Right People:
Our diverse membership is approaching 200, a collective voice which resonates broadly. This year we forged new partnerships with 12 patient advocacy organizations, 8 academic radiology departments and 3 industry manufacturers. We anticipate our patient advocacy group partnerships to top 100 before the end of the calendar year.

The Academy Academic Council, consisting of 45 departments, this year awarded 18 academic researchers with the Distinguished Investigator Award who will join the Academy Distinguished Investigator Council represented by Chairs Elizabeth Krupinski, PhD and Reed A. Omary, MD, MS.

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The Right Message:
Imaging has carried a bulls eye for some time now. However, there are signs that the value and impact of imaging are being recognized on many levels. There are now two radiologists and one bioengineer serving on the NIH Council of Councils: Vivian Lee, MD, PhD, MBA, Philip Alderson, MD, and Norbert J. Pelc, ScD. Academy leaders and Distinguished Investigators also continue to serve on NIBIB's Advisory Council, with current VP Carolyn Meltzer, MD joining the Council in January 2016. The Academy is increasingly approached by other ICs for names to add to the list of candidates for Office of Science and Technology Policy, known now as the Interagency Working Group on Medical Imaging (IWGMI), established under the National Science and Technology Council's Committee on Science.

This year, our collective efforts led to a home for imaging research collaboration within the White House Office of Science and Technology Policy, known now as the Interagency Working Group on Medical Imaging (IWGMI), established under the National Science and Technology Council's Committee on Science.

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The Academy continues to employ evidence that shows the economic value of imaging research as it drives innovation and economic growth more than previously thought. Utilizing the Academy patent analysis and subsequent Battelle report has developed into a new tool we use to advocate for sciences policies that increase annually at a time when the profession is facing significant challenges ahead and the variables that are effecting research ahead to another successful decade of advocacy.

Showing you the $$:
Compared to most areas of science, imaging research to academic radiology departments continues to challenges in many areas. This trend is still very strong in the face of flat NIH budgets. However, we see the departments, making federal funding support more vital than ever.

With excitement and gratitude I look forward to continued collaborations and new initiatives as we look to next:

Glancing Back, Moving Forward, and Recognizing Our Place at the Table
The vision of the Academy is a future in which the importance of medical imaging and bioengineering research to the health and well-being of every patient is fully recognized and appreciated. In such a future, policy makers will be firmly committed to providing appropriate and consistent funding to achieve ever-greater advancements in prevention, prediction, diagnosis and therapy.

By representing a unified voice in support of imaging research, the Academy and CIBR represent the three-legged stool of medical research: academia, industry, and patient advocates. Together, these stakeholders help ensure that the federal government continues to invest in research at the NIBIB and other agencies that support imaging research.

Member Societies
The Academy’s ACADEMIC COUNCIL continues to thrive and grow, totaling the top academic Radiology Departments across the nation in 2015.

The University of Alabama at Birmingham

“ARRAC is a dedicated partnership of the nation’s top academic radiology departments. We share a common commitment of advancing patient care and medical innovation through NIH-funded imaging research. ARRAC provides academic radiology department faculty members with a seat at the table in Washington. As funding resources become ever more scarce, this advocacy role becomes paramount. Our collective voice is stronger than individual ones, and together we ensure the federal government recognizes the value of imaging research.”

- Cheri Canon, MD

The University of Alabama at Birmingham

“Advocacy for research is a critical component of allowing our field to succeed in bringing cost-effective solutions for precision health.”

- Sanjiv Sam Gambhir, MD, PhD

Stanford University
University of Alabama at Birmingham
University of California, Davis Medical Center
University of California, Irvine
University of California, Los Angeles
University of California, San Francisco
University of California, San Diego School of Medicine
University of Chicago
University of Colorado at Denver
University of Kentucky Chandler Medical Center
University of Louisville
University of Michigan
University of Minnesota
University of North Carolina at Chapel Hill School of Medicine
University of Pennsylvania
University of Pittsburgh School of Medicine
University of Texas Medical School at Houston
University of Utah
University of Virginia School of Medicine
University of Wisconsin-Madison
Vanderbilt University School of Medicine
Washington University in St. Louis
Weill Cornell Medical College/NY Presbyterian Hospital
Yale University School of Medicine
The Coalition for Imaging and Bioengineering Research (CIBR) held its 6th annual Medical Technology Showcase in the Senate Kennedy Caucus Room. This event, consisting of 9 display areas (see p.11) articulated the impact various imaging technologies have on patients as well as the role of academic research institutions and industry through collaborative presentations. The keynote speaker this year was Blakely Murphy.

I’ve come here to urge you to increase funding for the NIH so that other patients will benefit as I have. You all have been instrumental in allowing me to have a future, and I thank you.

~ Blakely Murphy, Keynote Speaker CIBR’s 2015 Medical Technology Showcase

Sixth Annual Medical Technology Showcase
Keynote Speaker
Blakely Murphy

Inspiring us to think and reach beyond what is known to find what can be.

At just 17 years old, Blakely Murphy is the first person in the world known to survive both conventional brain surgery and a second, less invasive brain surgery utilizing advanced imaging guidance with cutting edge technology. The new technology allowed Blakely to experience a remarkable difference between the nearly 2-year recovery period after her first surgery, to an immediate recovery following the second surgery to remove the tumor that had returned in the same location, leaving the hospital just 20 hours after surgery and back on the court playing volleyball in less than a week. Both surgeries were performed at the same hospital, with the same surgeon, but with very different outcomes.

Hear her story. Learn how today’s technologies are impacting patients like Blakely and giving new hope where there was none before.
For those interested in academic research, it certainly is in [their] best interest to understand the NIH funding climate and take action to ensure that good medical imaging research will rise above politics and continue to be funded.

— Rebecca Rakow-Penner, UCSD Radiology Resident, Council of Early Career Investigators in Imaging (CECI²) Chair and CIBR Steering Committee Member
The Academy's advocacy efforts embrace the growing calls from both political parties for evidence-based policy making. That is, lawmakers are looking to avoid across-the-board increases, and instead target those programs that have hard data to demonstrate effectiveness. In 2015, both of the Academy's primary policy recommendations reflected this desire, and helped uncover new evidence that imaging science is a uniquely innovative field of research that may be ripe for targeted investments.

**Policy Recommendation #1: Repeal Sequestration**

Budget crunches also squeeze economic growth. The first step towards spurring higher levels of economic growth is to repeal the harmful law of sequestration and make strategic investments in national priorities such as medical research. CIBR supports any policy efforts that bring both parties together in search of a workable replacement for sequestration, including the setting forth of a new budget path in which nondefense and defense spending can both grow equally and at a sustainable and predictable level.

**Policy Recommendation #2: Encourage a Moneyball, Evidence-Based Approach to Science Spending to Fuel Innovation**

A March 2015 study, commissioned by the Academy, looked at patent output from some of the federal government’s most prominent R&D programs, including a number of NIH Institutes (blue bubbles), DOD (purple), NSF (maroon), DOE (yellow), and others. The report looked at how many patents each program— including imaging science at the NIBIB—has produced since 2000 for every $100 million in budget authority, and how many additional downstream patents (citations) those federal patents also spurred.

**The Evidence:** the Battelle patent analysis found significant variance in the rate of quality of new IP from federal R&D programs. Since patents have a well-established link to startup activity and high-skilled jobs, their use as a key metric could help optimize R&D budgets for greater economic impact.

By also looking at the current budgets for each program (buble size), this type of evidence-based approach to R&D spending could help identify programs that are providing a lot of bang for the buck and are ripe for targeted increases to spur more growth from fewer public dollars.
Thanks to the Academy’s advocacy, as well as the strength of the imaging research community’s proposals, imaging research continues to do well at the NIH. This research accounts for around 12% of the total NIH budget. In addition, the total dollars for imaging-related projects grew by 3.6% in 2014.

Funding for radiology departments increased this year from $326M to $411M.

The Academy continues to see sustained membership growth, welcoming 7 new Academic Radiology Departments, 12 new patient advocacy groups, and 3 new industry partners in 2015. This diverse set of stakeholders has contributed to the Academy’s advocacy efforts by enabling the organization to fully represent the voice of the imaging research community on Capitol Hill and at the NIH.
With the support of the RSNA and AUR, the Academy hosts a grassroots advocacy booth at these annual meetings where meeting attendees send emails to their members of Congress in support of the NIH. This type of grassroots advocacy is critically important to the votes that Congress makes regarding NIH funding. Over 4,000 meeting attendees contacted Congress during our grassroots campaign in 2015. This advocacy ensures that our voice is heard as Congress considers funding levels for NIH.

### Academy Council of Distinguished Investigators

Denise Aberle, MD  
David C. Aloia, PhD  
Carolyn J. Anderson, PhD  
Kimberly Applegate, MD, MS  
Roland Bammer, PhD  
A. James Barkovich, MD  
James P. Basilion, PhD  
Kevin Berbaum, PhD  
Zaver Bhujwalla, PhD  
Fernando E. Boada, PhD  
David A. Boas, PhD  
Nicolaas Bohnen, MD, PhD  
Paul Bottomley, PhD  
Miriam A. Bredella, MD  
James Brewer, MD, PhD  
Truman R. Brown, PhD  
Anna-Liisa Brownell, PhD  
Jeff Bulte, PhD  
Elizabeth Burnsides, MD, MPH, MS  
Richard B. Buxton, PhD  
Ruth C. Carlos, MD, MS  
John Jeffrey Carr, MD, MSc  
Timothy J. Carroll, PhD  
Paul Carson, PhD  
Heang-Ping Chan, PhD  
Thomas L. Chenette, PhD  
Christine B. Chung, MD  
Neal Clintchorne, MS  
Christopher M. Collins, PhD  
Robert Todd Constable, PhD  
Carl D’Onofrio, MD  
Edward DiBella, PhD  
Bruce Damon, MD  
Bruce Daniel, MD  
Christos Davatzikos, PhD  
Yumi Dewaraja, PhD  
Gerald D. Dodd, B. MD  
Bastiaan Dreher, PhD  
University of California, Los Angeles  
Los Angeles  
Beth Israel Deaconess Medical Center  
University of California, San Francisco  
Emory University  
Stanford University  
Case Western Reserve University  
University of Iowa  
Johns Hopkins University  
University of Michigan  
NYU Langone Medical Center  
Massachusetts General Hospital  
Johns Hopkins University  
Medical University of South Carolina  
University of Wisconsin-Madison  
University of California, San Diego  
University of Michigan  
Vanderbilt University  
Northwestern University  
University of Michigan  
University of Michigan  
University of Michigan  
NYU Langone Medical Center  
Icahn School of Medicine  
Emory University  
University of Utah  
Vanderbilt University  
Stanford University  
University of Pennsylvania  
University of Michigan  
University of Colorado  
Duke University  
Jeffrey Duerk, PhD  
James Duncan, PhD  
Richard L. Ebenezer, MD  
Georges El Fakhri, PhD, DABR  
Agata A. Exner, PhD  
Tracy Faber, PhD  
Rebecca Fahrig, PhD  
Zahi A. Fayad, PhD  
Baowei Fei, PhD, EngD  
Bruce Fishci, PhD  
Flemming Fonberg, PhD  
Jeffrey Brian Fowlkes, PhD  
Eric Frey, PhD  
Kirk Frey, MD, PhD  
Ernest Garcia, PhD  
G. Scott Gazzelle, MD, MPH, PhD  
James C. Goo, PhD  
Jean-Francois Geschwind, MD  
Maryellen L. Giger, PhD  
Gary Glover, PhD  
Garry Gold, MD  
Oded Gonen, PhD  
Ramon Gilberto Gonzalez, MD, PhD  
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Thomas Grist, MD  
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 Luborimir M. Hadjiiski, PhD  
Brian Hargreaves, PhD  
Gordon J. Harris, PhD  
Joseph A. Helpert, PhD  
Case Western Reserve University  
Yale University  
Mayor Clinic  
Massachusetts General Hospital  
Case Western Reserve University  
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Emory University  
Massachusetts General Hospital  
Thomas Jefferson University  
University of Michigan  
Johns Hopkins University  
University of Michigan  
Massachusetts General Hospital  
University of Pennsylvania  
Johns Hopkins University  
University of Chicago  
Stanford University  
Stanford University  
NYU Langone Medical Center  
Massachusetts General Hospital  
Emory University  
Vanderbilt University  
University of Wisconsin-Madison  
University of Pittsburgh  
University of Michigan  
Massachusetts General Hospital  
University of Michigan  
University of Michigan  
Icahn School of Medicine  
Emory University  
University of Utah  
Vanderbilt University  
Stanford University  
University of Pennsylvania  
University of Michigan  
University of Colorado  
Duke University  

**Our Distinguished Investigators are among the most innovative and transformative investigators in medical research.**

**Text in orange are this year’s Distinguished Investigators.**
The Academy of Radiology Research awards a prestigious honor in recognition of individuals for their accomplishments in the field of medical imaging. Over the past few decades, the radiology research community has been responsible for many important advances that have had a profound impact on healthcare. Researchers who have been named to the Council of Distinguished Investigators have made significant contributions to the field and rank within the top 10% of all Radiology department faculty.

The Academy is proud to announce that 37 researchers have been selected as recipients of the 2015 Distinguished Investigator Award.

Robert Herfkens, MD
Edward Herskovits, MD, PhD
Hoby P. Hetherington, PhD
Mingchong Huang, PhD
Nola M. Hylton, MD
Clifford Jack, MD
Michael Jacobs, PhD
Hassen Jadavji, MD, PhD, MPH, MBA
Jens H. Jensen, PhD
Yulee Jiang, MD
Keith Johnson, MD
Ferenc Jolesz, MD
Henry Foley Kwek, ScD
David L. Kuhl, MD
Michael Klibourn, PhD
Robert Allen Koepp, PhD
Hara Krachtman, VMD, PhD
Christopher M. Kramer, MD, FAHA, FACC
Elizabeth A. Krupinski, PhD, Chair
Vikas Rundra, MD, PhD
Hank Kung, MD
John Kurhanewicz, PhD
Thomas F. Lang, PhD
Andreas Larsen, PhD
Meng Law, MD, MBBS
Keck School of Medicine of USC
University of Michigan
University of Michigan
Johns Hopkins University
Stanford University
University of Pennsylvania
University of Pennsylvania
New York University-Langone Medical Center
Mayo Clinic
University of California, San Francisco
University of Pennsylvania
University of Pennsylvania
University of Michigan
University of Wisconsin-Madison
Lehigh University
University of Michigan
University of Michigan
University of California, San Diego
University of Pennsylvania
University of Pennsylvania
University of Pennsylvania
University of California, San Francisco
Stanford University
University of Texas Medical School at Houston
University of California, San Diego
University of California, San Francisco
University of California, San Francisco
University of California, San Francisco
University of California, San Francisco
University of California, San Francisco
University of California, San Francisco
The Academy is honored to present **Stanley Baum, MD** with the 2015 Academy Gold Medal recognizing his service as a leading proponent of radiology research as a department chair, his role in the establishment of NIBIB, and his continuous support and active involvement with the Academy of Radiology Research.

**Please Join Us**
3pm on Tuesday, December 1
McCormick Place Room E253AB